


ANNUAL REPORT
2007-2008

University of Michigan
Medical School

DEPARTMENT OF PATHOLOGY

THE UNIVERSITY OF MICHIGAN

MEDICAL SCHOOL

Department of Pathology

Annual Report

1 July 2007 – 30 June 2008

The University of Michigan
Department of Pathology

2007 - 2008

2006-2007 PATHOLOGY RESIDENTS AND FELLOWS

Jason Carvalho,MD
HO IV
CHIEF RESIDENT

Bryan Coffing,MD
HO III
ASST. CHIEF RESIDENT

Bun (Brian) Siu,MD,PhD
HO IV

Dionne Stanchina,MD,PhD
HO IV

Kristen Curlett,MD
HO IV

Malti Kshirsagar,MD
HO IV

Amir Lagstein,MD
HO IV

Matthew Wasco,MD
HO IV

Jonathan Cutlan,MD
HO III

Julie Jorns,MD
HO III

Seung (David) Kim,MD,PhD
HO III

Cohra Mankey,MD
HO III

Julianne Purdy,MD
HO III

Lindsay Schmidt,MD
HO III

Ebe Chinweze,MD
HO II

Sara Farmen,MD,PhD
HO II

Jingmei Lin,MD,PhD
HO II

Pedram Pouryazdanparast,MD
HO II

He Wang,MD,PhD
HO II

Limin Yu,MD
HO II

Eric Batterson,MD
HO I

Larry Bischof,MD,PhD
HO I

Luzette Habib,MD
HO IV

Suntrea Goudeau Hammer,MD
HO I

Jennifer Hummel,MD,MPH
HO I

David Moons,MD,PhD
HO I

Abhishek (Ajay) Shukla,MD
HO I

Svetoslav (Savco) Bardarov,MD
HO V
CYTOPATHOLOGY FELLOW

Maria Braman,MD
LECTURER
BREAST PATHOLOGY FELLOW

Lynn Cooper,MD
HO V
DERMATOPATHOLOGY FELLOW

Diane Hall,MD,PhD
LECTURER
SURG PATH FELLOW

Hong Li,MD
LECTURER
SURG PATH FELLOW

Rodney Miles,MD,PhD
HO V
HEMATOPATHOLOGY FELLOW

Alexandros Polydorides,MD
LECTURER
GASTROINTESTINAL FELLOW

Christopher Przybycin,MD
LECTURER
SURG PATH FELLOW

Farheen Shah-Khan,MD
HO V
BLOOD BANK FELLOW

Kajal Sitwala,MD,PhD
HO IV
HEMATOPATHOLOGY FELLOW

Angela Wu,MD
LECTURER
GU FELLOW

Mohammad Yousef,MD
LECTURER
SURGICAL PATH FELLOW

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DEPARTMENT OVERVIEW

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair

Dear Colleagues

As will be evident from our 2008 Annual Report, the Department of Pathology continues on a very positive upward trajectory. Regrettably, however, I must start off by acknowledging the death of Dr. Sharon Betz, Assistant Professor and one of our most recent recruits, who passed away at age 35. All of us in the Department mourn the loss of this valuable faculty member and remarkable individual.

This report highlights our accomplishments over the past year in considerable detail, but a few points are worth highlighting.

We have made a number of important strides in our clinical mission. In particular, continued implementation of Lean Six Sigma in the clinical laboratories including phlebotomy, central distribution, chemistry and hematology has resulted in an overall 38% reduction in turnaround time for routine testing and a 44.7% reduction overall for surgical pathology specimens. We have implemented a number of safety and quality improvements including the implementation of new dashboards for anatomic pathology and reengineering of a number of workflows. Many of these were featured in a recent front-page article in *CAP Today* that has attracted national attention.

We have completed a number of key recruitments in support of our clinical mission. These include Jeffrey Jentzen M.D., formerly Milwaukee Medical Examiner, to direct Autopsy and Forensic Services and a number of physician- scientists including Stewart Knoepp M.D. Ph.D. from Massachusetts General Hospital/Harvard Medical School as Assistant Professor in Cytopathology, Kajal Sitwala M.D. Ph.D. from the University of Michigan as Clinical Instructor in Hematopathology and Jeffrey Hodgin M.D. Ph.D. as Clinical Instructor in Renal Pathology.

In our research mission the Department has continued to thrive, with a number of our faculty members publishing in the highest impact journals. In addition, we managed to increase NIH funding in a very challenging funding environment. Year-to-date rankings show the Department has ascended to 11th amongst Pathology Departments in NIH funding, a considerable improvement over 2005, when I began as Chair, when we ranked 20th.

We are very pleased, through the financial strength of the Department as well as through significant donations to the Department, to have established three new professorships and identified the first chair holders including the Peter A. Ward Endowed Professorship (Dr. Kathleen Cho), the Harold Oberman Collegiate Professorship (Dr. Celina Kleer) and the Collegiate Professorship in Pathology Research (Dr. Greg Dressler). In addition, Dr. Arul Chinnaiyan was appointed as an Investigator in the Howard Hughes Medical Institute.

We are also pleased to have recruited David Lombard M.D. Ph.D., a BSSP scholar, from Brigham and Women's Hospital/Harvard Medical School, who will work in the Gerontology Center on sirtuins and the epigenetics of aging and Dr. Nikolovska-Coleska from Dr. Shaomeng Wang's laboratory at Michigan
to enhance departmental strength in chemical biology.

We are very pleased with our residency training programs, which continue to thrive. 100% of residents in AP and CP, and 100% of fellows in hematopathology, cytopathology and transfusion medicine passed the board exams on their first attempt. In a year in which many prestigious programs did not fill all their slots, we are also pleased to have filled all of our residency positions through the match.

The Department's visibility at the national level, including pathology education, arguably exceeds that of any other academic pathology department. Dr. Henry Appelman is past President of the United States and Canadian Academy of Pathology (USCAP), the largest Pathology organization in the world. Dr. Jeffrey Myers is Chair of the USCAP Education Committee, Dr. Kleer serves on the Education Committee and Dr. Matthew Wasco serves as the Resident Representative to the USCAP Education Committee. Dr. Barbara McKenna is President of the American Society of Clinical Pathologists. Dr. Ul Balis is President of the Association for Pathology Informatics and was also named the Section Editor for *Pathology Informatics for Archives of Pathology*. Dr. Will Finn is President of the Michigan Society of Pathologists and serves as Co-Editor in Chief of the *International Journal of Laboratory Hematology*. Many members of our faculty served as moderators, and speakers at the USCAP, including Drs. Jeffrey Myers, Joel Greenson, Megan Lim, Will Finn, Arul Chinnaiyan, Kathy Cho, Henry Appelman and Tom Giordano. Barbara McKenna, Jeffrey Myers and Rajal Shah all presented USCAP short courses.

The Department's finances continue to be very strong, with net assets increasing to an all-time high of over $118M. These resources will be essential to ensure that our three missions will receive the investments needed in order to thrive. I am also very pleased that our Pathology Charities raised over $32,000 for patient families again this year.

Of course, it is our dedicated faculty and staff that make all of these accomplishments possible. It continues to be a great pleasure serving as Chair of the Department of Pathology at the University of Michigan. I hope that you find this report to be a useful source of information about this outstanding Department.

Jay L. Hess M.D. Ph.D.
Carl V. Weller Professor and Chair

DIVISION AND CENTER REPORTS

ANATOMIC PATHOLOGY

Division of Anatomic Pathology

Jeffrey L. Myers, M.D.
A. James French Professor of Pathology
Director, Division of Anatomic Pathology

OVERVIEW

Anatomic Pathology continued to experience growth and change in clinical operations while maintaining robust educational and research programs.

The practice remains strong with sustained growth in surgical pathology, medical pathology subspecialties, and autopsy. A combination of practice growth and attrition fueled the addition of four new faculty, including three graduates of our training programs. **Dr. Jonathan McHugh**, former Chief Resident and a graduate of our AP/CP residency, joined the surgical pathology faculty as Assistant Professor of Pathology after spending a year at the University of Pittsburgh training in head and neck pathology with Dr. E. Leon Barnes. **Dr. Stephen Olsen**, also a graduate of our residency program and the first graduate of our dermatopathology fellowship, was appointed Assistant Professor in July 2007, filling a vacancy created by the departure of Dr. Lyndon Su. **Dr. Xin Jing**, a graduate of our cytopathology fellowship, joined us as a Lecturer in July 2007, and was re-appointed in 2008 as Assistant Professor of Pathology.
Dr. Jeffrey Jentzen, former Medical Examiner of Milwaukee County, joined the faculty in March 2008 as our first Director of Autopsy and Forensic Services. Dr. Jentzen's experience made him the ideal candidate to build our forensics program by first merging the University Hospital service with the Washtenaw County Medical Examiner's office.

Safety, quality, innovation and informatics continue to be high priority strategic targets. Progress toward those goals included collaboration in recruiting a new departmental Quality Assurance Coordinator (John Perrin), implementation of redesigned workflow affecting nearly all surgical pathology and subspecialty rotations, implementation of the Michigan Pathology Quality System (MPQS), and collaboration with Pathology Informatics and Suncoast Pathology in Venice, FL to co-develop a unique software solution intended to support Lean workflow in anatomic pathology. Launch of MPQS in the third quarter was linked to an educational program aimed at having our entire faculty, staff and trainees conversant in the fundamentals of Lean thinking.

We completed a documentary intended to tell the story of Anatomic Pathology at the University of Michigan to multiple target audiences in support of our vision to be a place that everyone, everywhere considers when imagining excellence in academic anatomic pathology. The film, Medicine's Detectives: A Century of Pathology and Care at Michigan , had its debut at New Frontiers in Diagnostic Pathology (see EDUCATIONAL ACTIVITIES below) and has since been widely distributed to very positive feedback.

Education programs remain strong as demonstrated by the continued success and expansion of our fellowship training programs. Success and vitality in our research activities is evidenced by continued visibility in peer-reviewed journals considered high impact by the academic anatomic pathology community, broad participation in funded research activities, and high visibility in national and international societies. Intramural funding of small projects remained very successful under the leadership of Dr. Kathleen Cho and provided multiple opportunities for AP faculty to access the departmentally supported Molecular Pathology Research Laboratory under the direction of Dr. Thomas Giordano.

CLINICAL ACTIVITIES

Surgical Pathology

A total of 72,280 surgical pathology specimens, including a combination of intramural and extramural cases, were processed in FY2008 compared to 69,991 in FY2007. This represents an annual growth rate of 3.3% and a 16.0% increase over the last five years. Patient specimens acquired from procedural areas within the University of Michigan Health System accounted for 72% of the cases. Among our “inside” subspecialty practices, our genitourinary (GU) service experienced the most dramatic growth followed closely by our breast (BE) service. We accessioned 2,261 GU cases compared to 2,101 in FY07, a 7.6% increase. The number of BE cases grew by 7.2% to a total of 2,147 cases. Growth in our internal GI practice leveled off compared to previous years, showing a 0.7% (112 cases) increase over the previous year. The general hospital practice also remained relatively flat, growing at an annual rate of 1.1% (104 additional cases). Transfer cases, meaning those cases sent from outside institutions on behalf of patients referred to UMHS, diminished 6.7% compared to the previous year and accounted for 8% of overall case volume.

Our extramural consultation practice continued to be our area of greatest growth, accounting for 8,275 cases compared to 7,361 in FY2007, a 12.4% annual growth rate and an 86.6% increase since FY2003. Cases sent to our dermatopathology (35%) and GI (25%) groups comprise over half (60%) of the consultation practice. Members of our GI and GU pathology groups, in collaboration with Dr. Steven Mandell, Sue Valliere and others, continue to explore novel strategies for partnering with community pathologists to minimize the threat of in-office and pod laboratories and preserve or expand our consultation practice. Other strategies for expanding our extramural consultation practice include better utilization of marketing opportunities through MLabs and continuously improving our service levels.

The contribution of consultation cases and concomitant increases in corresponding RVUs resulted in a disproportionate increase in clinical productivity beyond that predicted by case numbers alone. Expressed as a 12-month rolling average, RVUs demonstrated an annual growth rate of 11.1% in FY2008 and a 39.4% increase over the last five years. Addition of an incremental faculty member (Dr. McHugh) and additional clinical lecturers drove the ratio of RVUs to paid clinical FTEs (RVUs/FTE) downward in the last two quarters of FY2008.

Dermatopathology

The Dermatopathology Service receives diagnostic case material from four primary sources: 1) UMMC (ID) cases; 2) outside contractual (MD) cases; 3) personal consultation cases (DP); and 4) outside slides reviewed for referred patients (TD) cases.

The clinical service volume is as follows:

	FY05	FY06	FY07	FY08	% change (FY07-FY08)
ID	6,888	11,586	11,637	11,744	0.9%
MD	8,878	4,892	4,609	4,936	7.1%
TD	1,758	1,703	1,715	1,952	13.8%
DP	1,871	2,162	2,283	2,856	25.1%
MISC	148	123	111	102	-8.1%
TOTALS	19,543	20,343	20,355	21,590	6.1%

The Dermatopathology Service continues to be a high volume service, with greater than 21,000 cases signed out this year. The consultation practice continues to be the area of greatest growth, experiencing a remarkable increase of just over 25% in FY2008 compared to FY2007. The MLabs service saw a 7% growth in volume, and transfer cases grew at an annual rate of nearly 14%. We continue to aggressively recruit to an open incremental position in dermatopathology, a key strategy in responding to the growth in practice.

We continue our active involvement in the University of Michigan Multidisciplinary Melanoma Clinic (MDMC) and Tumor Board. This remains the largest melanoma program in the United States. Accordingly, the volume of difficult pigmented lesions seen by our service is substantial, as are the numbers of wide local excisions, biopsies, and sentinel lymph node biopsies generated by this busy clinic, all of which directly impact Dermatopathology. We also have a strong presence in the relatively newly formed Multidisciplinary Cutaneous Oncology Clinic (MCOC) and Tumor Board, which is becoming nationally recognized as a premier referral center for Merkel cell carcinoma. In addition, we have a very visible role in Cutaneous Lymphoma Conference and Tumor Board. Lastly, the University of Michigan Cutaneous Oncology Program has been designated as a “Destination Program.” Dermatopathology will play an integral role in supporting this venture.

Neuropathology

Neuropathology services were supported by Drs. Mila Blaivas, Andrew P. Lieberman and Paul E. McKeever in collaboration with Ms. Constance J. D'Amato, Active Emeritus staff. Clinical demand was relatively stable with just under 1,200 neurosurgical cases examined this year, a decline of 1.8% compared to FY2007. The hospital practice remained stable (679 compared to 677 in FY2007) with a slight (-1.8%) decline in the number of nerve and muscle biopsies. Personal consultation cases also declined slightly with a total of 149 cases in FY2008 compared to 160 in FY2007. The Diagnostic Unit of the Neuropathology Core Laboratory of the MADRC processed 19 dementia brain cases (14 MADRC, 3 neurology, and 2 hospital), representing no change from the previous year.

Neuropathology continues to provide support for the hospital autopsy service, examining over 185 brains in FY2008. In addition, faculty supported the Brain Tumor Board of the University of Michigan Cancer Center and Hospitals, reviewing neuropathology and clinical aspects of more than 150 neuro-oncology cases.

Medical Renal Pathology

Our renal biopsy service grew at an annual rate of 3.9% in FY2008, with 666 cases compared to 641 in the previous year. This activity has increased just over 28% in the last decade and remains an area of growth opportunity. In the last year, we worked with MLabs to revise our billing policy to accommodate third party billing, a strategy intended to facilitate practice growth. In addition, participating faculty continued to address challenges with turnaround time, showing dramatic improvement in the last two quarters.

In the third and fourth quarters we successfully recruited **Dr. Jeffrey Hodgin**, a clinician scientist finishing his training at Columbia University in New York. Jeff will join us as a Clinical Lecturer in July 2008. He will develop his research program in the laboratory of Dr. Matthias Kretzler while also supporting clinical and educational activities in our renal biopsy service.

Cytopathology

The cytopathology practice remains relatively stable, with a total of 54,839 cases in FY2008. The decrease from previous years is driven entirely by a reduction in the number of Pap smears, a national trend reflecting changes in recommendations for HPV-negative women. This decline is offset by substantial growth in non-gynecological case volume and fine needle aspirates. The impact of the change in case-mix was an actual increase in cytology-associated RVUs.

Table: Summary of Cytology Case Volumes

	FY06	FY07	FY08	% change
Pap smears	46,859	46,708	43,119	-7.7%
non-gyn	8,619	8,765	9,384	7.1%
FNA	1,946	2,281	2,336	2.4%
TOTAL	57,424	57,754	54,839	-5.0%

Aspirates performed and assessed by pathologists at the Comprehensive Cancer Center decreased to 362, a 7.9% drop from last year. This decline was more than offset by a 33.3% increase in cases assisted by pathologists, totalling 945 compared to 829 in FY2007. This reflects a growing trend toward image-directed procedures now being done at an increasing number of locations. These trends continue to be accommodated, in part, by shifting responsibilities from fellows to cytotechnologists in an effort to maintain the integrity of the training program. Challenges for the future include support for procedures that will migrate to Domino's Farms.

The end of FY2008 saw the departures of Drs. Robert Pu and Yijun Pang, who left academics for community practice. The resulting staffing needs were met by appointing **Dr. Xin Jing** as Assistant Professor and **Dr. Mohammad Yousef**, a graduate of our surgical pathology and cytopathology fellowship programs, as Lecturer effective July 2008. In addition, we successfully recruited **Dr. Stewart Knoepp** from Harvard University, Massachusetts General Hospital who will join as an assistant professor on August 18, 2008. Recruitment for a permanent faculty member continues for the position currently occupied by Dr. Yousef.

Autopsy Pathology

Dr. Jeffrey Jentzen arrived at the end of the third quarter to serve as our newly appointed Director of Autopsy and Forensic Services and Deputy Medical Examiner for Washtenaw County. His arrival coincided with a commitment from University Hospital (UH) to remodel the morgue in order to improve employee safety and expand capacity to fully integrate our services with the activities of the Washtenaw County Medical Examiner's (WCME) office and other counties in southeast Michigan.

Our service showed a remarkable 19.3% annual increase in the number of autopsies performed, reversing a 10-year trend. Growth was primarily in the UH practice and reflected a rising autopsy rate. Turnaround times improved dramatically in the last quarter with 61% of cases completed within 30 days and 89% within 60 days.

RESEARCH ACTIVITIES

The Anatomic Pathology faculty remains remarkably productive despite the demands of patient care and our educational programs. Twenty-four faculty reported an average of 7.1 (median 7)

peer-reviewed publications for a total of 178 papers either in print or in press, a nearly 12% increase over the previous year. In addition, faculty reported the results of their work in abstract form on 78 different occasions. Twenty-one faculty served as invited lecturers, speakers or visiting professors on a whopping 121 occasions, for an overall average of 4.8 invited presentations per participant. -This is a 30% increase over FY2007 and clearly identifies our faculty as top-of-mind when people are looking for cutting-edge speakers in anatomic pathology. In addition, fifteen different faculty reported being members of 31 editorial boards.

Despite national trends, research expenditures increased 1.7% to just under $3.1 million. Seven different faculty participated as Principle or Co-Investigators in projects accounting for $2.2 million in direct and $0.9 million in indirect costs. There was a slight (-14.5%) drop in funded effort from 4.3 to 3.6 FTEs, but this represents a brief gap that will be mitigated in FY2009 by renewed funding for affected investigators. The diverse list of projects reflects critical support for multidisciplinary collaborative translational research. Support for the Comprehensive Cancer Center includes tissue procurement and Dr. Giordano's role as Tissue Core Director.

An additional $150,000 was made available from departmentally allocated division resources to spark continued growth in peer-reviewed projects aligned with strategic priorities in translational research. This program remains extremely successful by a variety of measures and now reviews proposals on an ongoing basis. It is administered by an AP Project Funding Committee and chaired by Dr. Kathleen Cho. In just over two years, 24 different projects have been funded to a total of $164,688, with individual grants ranging from $1,100 to $20,000. At the end of the third quarter, an assessment showed that funded projects had yielded preliminary data for a successful R01 application, 6 abstract presentations including 4 at the annual meeting of the USCAP, and 3 manuscripts either in print or in press with others in preparation. In the current fiscal year, the committee plans to fund 1 or 2 projects with budgets as high as $30,000, and to showcase successful projects with brief presentations at AP faculty meetings.

Finally, two faculty were recognized with endowed chairs. Dr. Kathleen Cho was appointed the first Peter A. Ward Professor of Pathology and Dr. Celina Kleer was appointed the first Harold A. Oberman Collegiate Professor of Pathology.

EDUCATIONAL ACTIVITIES

Education is an essential and vibrant component of our mission. Anatomic Pathology continues to provide a robust experience for trainees, including standard rotations in autopsy, surgical and cytopathology, as well as required and elective rotations in various subspecialties. Fellowships in breast pathology (1), cytopathology (2), gastrointestinal pathology (1), dermatopathology (1), genitourinary pathology (1), and surgical pathology (3) were filled by competitive candidates in the 2007-2008 academic year with additional fellows added in dermatopathology and pulmonary pathology for 2008-2009. Our recently inaugurated dermatopathology fellowship was accredited for five years and received no citations from the Residency Review Committee who

commended our program for “scholarly activity, diverse faculty, and volume and variety of materials”! Residents and fellows actively participated in various research projects during the course of the year, including 15 who served as authors or co-authors for 27 different abstracts presented at the 2008 annual spring meeting of the USCAP.

Faculty in Anatomic Pathology continue to play significant roles in the medical school, including primary responsibility for first and second year courses in pathology as lecturers, laboratory instructors, advisers and mentors. Electives for senior-level students remain popular and are supported by a number of faculty including Drs. Andrew Flint and David Lucas. Multiple faculty also participate in teaching dental students.

Nearly all faculty in Anatomic Pathology participate in supporting an impressive array of interdisciplinary conferences including Tumor Boards for adrenal (monthly), bone and soft tissue (weekly), brain (weekly), breast (weekly), endocrine (monthly), gastrointestinal (weekly), genito-urinary (weekly), gynecologic (monthly), liver (monthly), pediatric (semi-monthly), and lung (weekly) tumors. Faculty also regularly participate in various other conferences including brain cutting, dementia brain cases (quarterly), diagnostic dermatology, cutaneous T-cell lymphoma, nephrology, nerve and muscle (weekly and monthly), multiple pediatric subspecialties (GI, hematology-oncology, lung, surgery) and adult non-neoplastic lung disease (semi-monthly). Educational conferences targeting primarily pathology trainees in which faculty participate include weekly slide (Monday) and didactic (Tuesday) teaching sessions, weekly autopsy gross conferences (Tuesday and Friday), a semi-monthly cytology conference (every other Thursday), and a monthly "extended" gross conference.

Multiple faculty participated in our first on-campus CME workshop entitled "New Frontiers in Diagnostic Pathology” presented in collaboration with the A. James French Society in September 2007. Dr. Thomas Colby, an internationally recognized authority in pulmonary pathology and an alumnus of the University of Michigan Medical School, served as guest faculty and the A. James French lecturer for this inaugural course. We attracted 80 attendees whose evaluations reflected high praise for the world-class quality of this annual event. The second course (New Frontiers in Pathology) is scheduled for September 18-20, 2008 and will include several improvements intended to expand our national visibility. In addition, proceedings of next year’s meeting will be published in the *Archives of Pathology and Laboratory Medicine*.

Jeffrey L. Myers, M.D.
A. James French Professor of Pathology
Director of Anatomic Pathology

CLINICAL PATHOLOGY

Division of Clinical Pathology

Jeffrey S. Warren, M.D.
Aldred S. Warthin Endowed Professor of PathologyDirector of Clinical Pathology

OVERVIEW

The University of Michigan Health System (UMHS) Clinical Pathology Laboratories encompass Specimen Processing, oversight of System-wide point-of-care testing, phlebotomy service and point-of-care testing at more than twenty satellite facilities, an around-the-clock Phlebotomy Service and full service laboratories that include Hematology (which encompasses Special Hematology, Automated Hematology, Flow Cytometry, and Coagulation), Chemical Pathology (which encompasses Special Chemistry, Automated Chemistry, Immunology, Ligand Assays, Toxicology-Therapeutic Drug Monitoring, and Endocrinology), Cytogenetics, Microbiology/Virology, the Blood Bank/Transfusion Medicine Service (which encompasses the Therapeutic Apheresis/Stem Cell Harvest Unit, and an Immunohematology Reference Laboratory), Histocompatibility, and Molecular Diagnostics. Pathology Informatics, Specimen Processing, and Pathology Administration continue to provide logistical and operations support for the Pediatrics Molecular Diagnostics, Pediatrics Blood Gas, and Pediatrics Pulmonary Laboratories. Under the aegis of the Blood Bank/Transfusion Medicine Service, a new FDA good tissue practices – compliant hematopoietic progenitor cell processing facility was opened in 2007-08. The Clinical Laboratories were again ably supported by the Division of Clinical Informatics, directed by Dr. Ulysses Balis and managed by Ms. Kathy Davis.

The Laboratories continued to experience brisk growth in both clinical volume and scope of activity. The year was marked by intensive focus on improvement of operations and infrastructure. 5.09 M procedures were performed in FY08, a 5.5% increase over FY07 (4.82M). Gross Laboratory revenue was $402M, an increase of 7.4% over FY07 ($374M). Expenses rose from $78.9M to $86.9M, a 10% increase. Blood product expenses increased to $14.3M, 18% above $12.1M in FY07, while Pathology reference test (send-out) expenses declined to $6.73M from $6.77, a reflection of successful in-sourcing. This was the first decrease in send-out testing expense in more than a decade. The total number of employees at the end of FY08 was 586, an increase of 10% over 532 at the end of FY07. Among this 54

FTE increase, 31 were in Phlebotomy, Satellite Support, and Specimen Precessing – a reflection of expanded service and new programs.

Many specific achievements within laboratories and by individual faculty members are detailed within individual laboratory reports and faculty annual reports, respectively. A major Laboratory-wide achievement included the completion of a broad-based Lean initiative led by Dr. Steven Mandell. The Lean initiative, which focused on inpatient laboratory turnaround times for high volume chemistry and hematology tests, included those two laboratories in addition to Specimen Processing and the Phlebotomy Service. A new system of small batch specimen flow from inpatient units to the core labs via Specimen Processing, led to a nearly one-hour improvement in turnaround times for high volume automated chemistry and hematology assays. A large cadre of chief technologists, supervisors, and laboratory directors was introduced to Lean principles. A Department of Pathology Lean team, trained by an outside consulting firm, led the initiative. This important initiative, successful in its own right, set the stage for future dissemination of Lean philosophy

Dr. Steven Mandell led the creation of inpatient and outpatient laboratory test formularies in support of the new UMHS order entry system (UMHS CareLink). These formularies will serve as the underpinning of a new Office of Clinical Affairs – sanctioned Laboratory Test Utilization Committee. The Utilization Committee, which includes several key members of the Department of Pathology and is structured in a manner analogous to the Pharmacy and Therapeutics Committee, has been charged with defining and implementing strategies that will result in medical evidence-based optimal usage of high cost laboratory tests.

The Phlebotomy Service again expanded its scope of service within the context of the Lean initiative, through its role in the implementation of Bridge (inpatient bedside specimen and patient barcoding), by adding greater capacity for central venous blood draws and timed specimen draws, and by adding capacity to collect scheduled 6 AM blood draws. The latter initiative has resulted in a marked improvement in the percentages of scheduled 6 A.M. blood draws completed by 8, 9, and 10 AM. (Nearly 98% of scheduled 6 A.M. blood draws are now completed before 10 AM.) This is a major feat give a volume of more than 300 6AM draws per day!

John Perrin, formerly a medical technologist in Microbiology and a member of the above referenced Lean team, was recruited to serve as departmental QA Coordinator. Mr. Perrin, with the help of the chief technologists, supervisors, and laboratory directors, revamped the Clinical Laboratories QA Program. QA data and quarterly analyses are now maintained on-line. Numerous quality indicators have been added and a systematic, lab-by-lab QA program review process was initiated.

Ms. Brenda Schroeder was recruited from UMHS Safety to serve as Associate Administrator and departmental Safety Coordinator. Ms. Schroeder revised the on-line Safety manual,

conducts systematic safety reviews of individual laboratories, and initiated a standing lab-by-lab safety inspection monitoring plan. In addition to a large set of operations responsibilities, Ms. Schroeder developed a heretofore nonexistent directory of inpatient and outpatient nurse managers in order to improve unit specific operations and communications (eg. mislabeled/unlabeled specimens). Ms. Schroeder and Beverly Smith have also begun to revamp the Employee Recognition Program and Customer Service for UMHS providers.

In late FY08, the Microbiology/Virology Laboratory began receiving markedly increased numbers of environmental and new patient specimens for detection of methicillin-resistant Staphylococcus aureus, vancomycin-resistant enterococcus, and C.difficile toxin – in order to support the UMHS plan to triage patients and manage hospital-acquired infections.

Holly Eliot, Pathology Administration, with support from John Perrin, Brenda Schroeder, David Golden, Christine Shaneyfelt, and Tom Morrow, implemented a systematic collection and display of Clinical Laboratory dashboard data that promise to enable further improvements in laboratory operations and management.

The Clinical and Anatomic Pathology Laboratories successfully negotiated the biannual CAP – mandated self-inspection in May, 2008. The Cytogenetics Laboratory was successfully relocated to a spacious, state-of-the-art laboratory space at Traverwood. Pathology Informatics was close to completion of contract negotiations for the new Laboratory Information System, and the planning process for the new Pathology Laboratory building continued to more forward.

Drs. Lauren Smith (Assistant Professor, Hematopathology), Bryan Betz (Assistant Professor, Molecular Diagnostics Laboratory), Sharon Betz (Assistant Professor, Cytogenetics and Molecular Diagnostics Laboratories) joined the Department of Pathology in July, 2007. All three of these individuals made many outstanding contributions to patient care, the Department, and the UMHS in 2007-08. Tragically, Dr. Sharon Betz passed away in July 2008. She will be sorely missed.

The UMHS Clinical Laboratories face many challenges and opportunities in 2008-09. Plans are underway to extend Lean training and Lean philosophy-influenced operations improvements into more laboratory areas. Medical directors, chief technologists, supervisors, and frontline technologists will be engaged in a detailed planning process for the new Pathology building. Considerations in this critical process will include Lean design principles, assessment of the role and extent of automation, and an analysis of the “core laboratory” concept.

It is anticipated that M Labs will be refocused and reorganized. Major goals will be to better align UMHS Clinical Laboratory directives, the “in-house” service agenda, and M Labs-driven “product lines”. Major areas of focus in this regard will include hematopathology, related molecular diagnostics, cytogenetics, and microbiology/urology. Beyond continued attention to new assay development in both molecular diagnostics and cytogenetics (eg. FISH assays, array

cytogenetics, PCR-based molecular assays) will be the development of a more aggressive marketing strategy and sustainment of efforts to improve hematopathology service efficiency (eg. templated reports, standard approach to consultation cases, and integrated result reporting). Finally, it is anticipated the conversion/codevelopment of the new Laboratory Information System will commence in 2008-09.

New faculty recruitments are underway in Blood Bank/Transfusion Medicine, Cytogenetics, and Tissue Typing. Microbiology recruitment is planned for the near future. Dr. Kajal Sitwala has joined the faculty in the Hematopathology Section and Dr. David Ferguson has broadened his responsibilities within the Department to include service duty in the Molecular Diagnostics Laboratory. Hematopathology staffing will continue to be evaluated in the context of service efficiency, fellows, and new growth in consultations. The UMHS has embarked upon an aggressive institution-wide cost control program. Concerted efforts to develop an integrated Informatics – AP – CP management training program and to increase the academic profile of the Division are underway.

The many accomplishments of the laboratory staff, administrative staff, support staff, laboratory supervisors and chief technologists, and laboratory directors are a testimony to outstanding dedication and professionalism. Following are reports from each of the sections represented in the Division of Clinical Pathology.

CHEMICAL PATHOLOGY LABORATORY
Submitted by: Donald Giacherio, Ph.D.

The Chemistry Section, under the leadership of Donald Giacherio, Ph.D., experienced an approximate 7.2 % increase in overall testing volume this year. The lab performed over 7.2 million individual tests. The major focus of the Chemistry Section this past year was on the application of lean management principles to the distribution and automation areas of the lab, and the continued movement of both manual and send-out tests to more automated platforms within the lab. A lean team of technologists formed within the lab redesigned the distribution area, and modified sample loading protocols for the chemistry automation track system. These changes significantly reduced the amount of movement and walking required for technologists in those areas. Daily monitoring and posting of STAT test turnaround time data was instituted and continuous quality improvement efforts by all have resulted in a steady improvement in TAT.

The lab continued its efforts to bring in-house testing that was previously sent out to reference laboratories. A Bio-Rad Variant II automated HPLC system was acquired and hemoglobinopathy evaluation testing is now performed in the lab. This has resulted in a significant reduction in turn-around-time for the test. The lab also began performing thyroid peroxidase antibody testing (a-TPO) on the Immulite 2000 analyzer. Efforts are underway to encourage the use of this automated immunoassay to replace the older agglutination tests for

anti-Thyroid antibodies. In validating this test, the lab completed a normal range study for a-TPO as well as TSH and Free T4.

Much effort within the Chemistry Lab has been focused on automating manual testing. Rubella IgG testing was shifted from the Virology Lab to the Centaur analyzers on the chemistry automation line. PTH testing was moved to the Diasorin Liason analyzer to take advantage of the reduced cross-reactivity in the new assay towards PTH fragments that can occur in renal failure patients. The newly acquired UPLC-MS system was installed and the cyclosporine assay was validated and moved to this platform. The new assay has allowed the lab to reduce TAT for cyclosporine. The BioPlex 2200 multiplex immunoassay platform was installed in the Immunology Lab and testing for extractable nuclear antigens and a screen for antinuclear antibodies was moved from more manual assays to the new platform. Evaluations were performed on four EBV serology tests on this new analyzer, and those tests will soon be moved from ELISA assays in the virology lab to this automated multiplex immunoassay platform in Immunology. A new Quantiferon Gold in tube TB assay was validated which greatly simplifies sample handling and stability for this test.

Finally, the lab has continued its leadership role in Point of Care (POC) testing both within the hospitals and at the off-site health care centers. The bedside blood glucose meter program continues to grow within the hospital. Many new meters and docking stations that allow the download of patient data to the laboratory information system have been installed. The lab continues its active oversight of the 230 glucose meters at University Hospitals. The chemistry lab conducted evaluations of two different analyzers for POC troponin testing for potential application in the Emergency Department, and has conducted evaluations of new Hemoglobin A1c analyzers for POC testing throughout the health care centers. Intraoperative testing for PTH at both University Hospital and East Ann Arbor Surgery Center continues to be supported and performed by Chemistry section personnel.

CYTOGENETICS LABORATORY
Submitted by: Diane Roulston, M.D.

Overview
This year showed a small decline in the overall number of samples sent to the Cytogenetics Laboratory, with a total of 3,463 samples received, for 226 fewer than received last fiscal year (-6.1%). Much administrative time was spent designing and preparing to move the laboratory off campus to 2900 Huron Parkway.

Thomas Glover, Ph.D. (Professor, Department of Human Genetics) continued to provide invaluable expertise and sign-out coverage of constitutional genetics cases. Our Assistant Director, Sharon Betz, Ph.D. arrived in mid-July and successfully completed her board exam for certification in Clinical Cytogenetics.

In accordance with our plan to increase capacity, three technologists were successfully recruited to begin working on the afternoon or weekend shifts. However, our senior technologist for the blood and bone marrow section retired after 14 years here in this laboratory. One position remains to be filled.

Clinical Services

The overall decrease in number of samples was due to fewer samples sent for cytogenetic analysis (-241, -8.0%), as the total number of samples sent for FISH analysis increased (+27, +4.0%). Fewer samples were sent both for constitutional studies (-199, -17.8%) and for oncology studies (-42, -2.2%).

Most of the decline in constitutional studies is due to fewer peripheral blood samples received (-145, -21%), due to the increased use of BAC and oligo-microarray assays. For prenatal diagnosis, amniocentesis samples continued to decline due to the use of non-invasive first-trimester screening methods (-40, -18%) and the resulting increase in chorionic villus samples (+2, +2.0%) did not offset the decline. Skin biopsies and products of conception also decreased in number (-16, -14%).

For neoplasias, the number of bone marrow samples plateaued relative to the last few years (-3,

+0.2%), and the number of solid tumors and lymphoma samples decreased (-39, -16%).

The overall number of FISH studies performed again increased over the previous year (+27, +4.0%). As for last year, the gains were entirely from increases in oncology FISH, both single-probe FISH (+102, +25%), primarily post-Gleevec BCR/ABL testing, as well as FISH panels for pediatric ALL (+4, +40%). This offset the lack of subtelomeric FISH tests (-9, -100%) and decline in single-probe FISH for genetic conditions (-66, -47%), due to the more comprehensive microarray testing.

The physical facility and staff endured significant disruptions due to the commencement of remodeling for the new occupants of second and third floors of the building on all sides of the clinical laboratory. Problems with noise, heat, dirt, power failures and fire alarms caused numerous difficulties with sterility of cultures, sample processing, and microscope analysis. Also, a flood due to a burst pipe caused significant water damage.

Education

Five Pathology residents, five Genetic Counseling graduate students and one fellow each from Pediatric Hematology/Oncology, Medical Genetics, Maternal-Fetal Medicine, and a medical student, visited the laboratory for rotations. The resident and fellows gave brief talks for the technologists, making a much-appreciated contribution to continuing education. Several technologists attended local and regional meetings and the supervisor attended the national Association for Genetic Technologists annual meeting.

Research
The laboratory continued to maintain Approved Laboratory status for participation in clinical studies for the Children's Oncology Group and the Southwest Oncology Group; Dr. Roulston performed central review with the Cytogenetics Committees for both groups.

Future Plans
The laboratory is scheduled to move to the new facility beginning June 26 and should complete the process by July 1. The plan to increase capacity will continue with an expansion of the Cytovision system to include all technologists performing analysis. Research and development of new FISH procedures and collaboration with the Pediatric Molecular Genetics laboratory for in-house microarray testing is planned.

HEMATOPATHOLOGY SECTION REPORT
Submitted by: Megan Lim, M.D., Ph.D.

Overview
Dr. Lauren Smith was recruited to the section in July 2007 as Assistant Professor. In response to job postings for an additional clinical track hematopathologist, several well-qualified candidates were interviewed. The position was not filled and thus a new posting is currently being advertised with the plan that it will be filled in the next academic year.
The renovation of the hematopathology sign-out area was completed and occupied in April 2008. This has transformed the space in the hematology and flow cytometry laboratories into a single larger, defined, sign-out space that will include a ten-headed microscope, multiple work stations, and accommodations for rotating house officers and fellows.
The hematopathology laboratory continues to offer an extended menu of tests in hematology, coagulation, and flow cytometry, with more than 1 million total test orders in FY 2008. Total test volumes for the combined hematopathology laboratories (hematology/ coagulation/ flow cytometry) exceeded 1,000,000 for the first 11 months of FY 2008. That puts us on pace for more than 1,090,000 test panels ordered for the year, an increase of 2.9% over last year. Our highest volume test, the complete blood count, was performed over 500,000 times in FY 2008, an increase of 5.6% over last year.
The number of bone marrow aspirate and biopsy samples increased approximately 8% from 2313 to 2496. The number of consults increased from 621 to projected 692 (11% increase). The number of TH cases remained stable at 781. The flow cytometry laboratory performed over 6,400 tests, including 2489 leukemia/ lymphoma analyses for the first 11 months of FY 2008, an increase of over 7% from last year. The coagulation laboratory performed over 307,000 tests in the first 11 months of FY 2008. The highest volume tests (prothrombin time, activated partial thromboplastin time, and fibrinogen) had an aggregate volume of over 285,000 during this time, an increase of 1.5% over last year.

The position of Hematopathology services coordinator was assumed by Denise Sulavik in January 2008. This position has made dramatic effect on efficient running of all aspect of the

section of Hematopathology. The job duties of the service coordinator has afforded the ability to aid in streamlining the service work by coordinating work load, materials, follow up on cases, and personnel, and is involved in the transition of instituting new policies. The coordinator is involved in all aspects of resident rotations including orientation, communication, and education. The service coordinator is also involved in special projects as listed above, as well as QA/QC activities.

Hematopathology Education - House Officers

The current year has seen a reorganization of the resident contact on the hematopathology service. We have physically integrated our in-house sign-out and flow sign-out improving the learning capability for our residents. We have developed a combined service of flow and in-house when only one resident is available for the in-house service to help streamline patient care as well as to enhance the resident's learning experience. We have developed resident manuals specific for each of the rotations and have made them available on the hematology website for easy reference. We are providing more structured instruction regarding bone marrow differentials and peripheral blood and body fluid evaluation. Residents will now be given graded responsibility for most service work to enhance their hematopathology experience. All resident manuals and handbooks will be web based and available to residents. We have developed study sets for the residents to utilize and have made available some on-line study materials as well as an online proficiency exam for residents. Extensive checklists and guidelines are available for the residents to evaluate their need for additional study in certain areas of hematopathology. We will continue over the next year to expand the study sets and study materials available for the residency program. We will be developing and utilizing web based technology primarily for interactive learning including, slide study materials and interactive proficiency exams and quizzes.

Hematopathology Education – Fellows

We have reorganized conference responsibilities as well as instituting new conferences to improve the educational experiences of our trainees. Trainees are now responsible for presenting at the multidisciplinary conferences (Lymphoma, Myeloma, CTCL, Leukemia) in order to better gain an idea of how the clinical hematologists utilize our information for patient care. We are participating in a monthly HP/AP combined case conference to bridge any gaps that may be present between Surgical pathology and Hematopathology. We have instituted monthly hematology case presentations by the HOII residents on the in-house service directed to hematology laboratory technologists. We are also participating in the AP operations committee to learn how best Hematopathology and Anatomic Pathology can compliment each other. We have been granted CME credit eligibility for HP educational conference.

MICROBIOLOGY / VIROLOGY LABORATORIES
Submitted by: Duane Newton, Ph.D.

Clinical Activities

The Laboratory continued to experience increases in test volume with an overall 4% increase compared to that of FY 2006-07, with a total testing volume of over 400,000 tests. While this increase is being seen relatively equally across all areas of the laboratory, we are continuing to see increases in molecular diagnostics, and are beginning to see substantial changes in workload due to increased surveillance for MRSA, VRE, and C. difficile.

Molecular diagnostics continues to be a major growth area of the laboratory. Virtually every molecular diagnostic test performed in the laboratory increased in volume, with the largest increase being seen in Human papillomavirus testing (35% increase). Over the past 5 years this volume has nearly tripled with our total testing volume last year approaching 10,000 tests. The laboratory has also added new molecular tests that have allowed us to improve diagnostic performance, decrease turnaround time, and reduce send-out costs: Enterovirus real-time PCR, Bordetella pertussis real-time PCR, Epstein Barr virus viral load (real-time PCR). To improve test performance, Herpes simplex virus detection was upgraded from a conventional PCR with gel detection to real-time PCR, and Group B streptococcus detection in prenatal screening samples was converted from culture to real-time PCR detection. Additional instrumentation has also been acquired and validated for the performance of automated nucleic acid extraction for many of our viral load assays, and we have also acquired and validated a new FDA-approved system for automated sample extraction and real-time quantitation of HIV viral load in plasma. Each of these equipment acquisitions has been negotiated with the vendor without an overall increase in cost/test because of our steady increases in volume.

Additional significant contributors to the laboratory's testing volume were the expansion of active surveillance for MRSA and VRE to include 4 units (up from 2) beginning in June 2008, to be increased to 8 units by September 2008. This program was established in conjunction with Infection Control & Epidemiology in order to identify and isolate patients with these drug resistance organisms so as to prevent their nosocomial spread. This information is also used to guide emperic therapy for infections in these colonized patients, thereby reducing associated morbidity and mortality. Our annual volume for these tests increased by ~35% this year to a total of ~8000 tests, which we expect to double as the program is fully implemented.

The increases in workload have been successfully accommodated due to the continued expansion of activities performed by the afternoon shift. Through the addition of personnel and cross-training, we have increased the amount of culture and susceptibility work performed and reported on this shift, which is allowing for prompt availability of results to the clinical staff. We have also implemented GBS real-time PCR testing on this shift as a first step to introducing molecular testing to the afternoon staff, with the expectation that the breadth of molecular testing they perform will expand.

In collaboration with Pharmacy, Infectious Diseases and Infection Control, we have generated several unit- and hospital-specific antibiograms to more closely track trends in antimicrobial resistance throughout the hospital and health system. These are being used to assess the appropriateness of antibiotic usage and determine whether changes in therapeutic recommendations or antibiotic formulary are required.

Research Activities

A. Co-investigator (10% effort), Wallace H. Coulter Foundation Grant, Principal Investigator: Alan Hunt, PhD, Project title: Rapid Identification and Susceptibility Testing of Bacteria; 2008-2009.
B. Risk factors for infections with MRSA with reduced susceptibility to Vancomycin at UMHS (Newton, DePestel, PIs).
C. Surveillance for carbepenemase producing Enterobacteriaceae at UMHS (Newton, DePestel, PIs, collaborating with CDC).
D. Epidemiology of human metapneumovirus in Michigan (Newton, Lukacs, Monto, PIs).
E. Providing support (sterility testing) for several clinical trials including Human Applications Lab, KeraCure, and Aastrom.
F. Risk factors for ESBL+ Enterobacteriaciae in hospitalized patients (DePestel/Chenoweth, PIs, Newton co-investigator).
G. Molecular methods for detection of fungal pathogens in culture negative specimens (Rogers, PI, Newton co-investigator; NIH grant submitted).
H. Rapid low cost point-of-care device for the detection of Group B Streptococcus (RapidBioSense, Mathew, PI, Newton co-investigator; NIH grant submitted).
I. Use of magnetic nanoparticles for the detection and susceptibility testing of bacteria (McNaughton, PI, Newton co-investigator; NIH grant submitted).
J. Novel Strategies for Reduction of Health Care Associated Co-Infection with Methicillin-Resistant and Vancomycin Resistant Staphylococcus aureus and Vancomycin Resistant Enterococcus (Zervos, PI, Newton co-investigator; NIH grant submitted).
K. Clostridium difficile in the Elderly (Malani, PI, Newton co-investigator).
L. S. aureus bacteremia in the Elderly (Malani, PI, Newton co-investigator).
M. Trends in the bacteriology of chronic sinusitis (Tabor, PI, Newton co-investigator).
N. Characterization of the Viral Pathogens and Subsequent Immune Response in Children with Clinical Respiratory Tract Infections (Shanley, PI, Newton co-investigator).
O. Blood Culture Usage during Periods of Crowding in the UM Emergency Department (Younger, PI, Newton co-investigator).
P. H. influenzae genes associated with COPD (Gilsdorf, PI, Newton co-investigator).
Q. Evaluation of HandyLabs' automated real-time PCR system for the detection of Group B streptococcus in clinical specimens (Newton, PI).
R. Evaluation of Becton-Dickinson VIPER for the detection of CT/NG in clinical specimens (Newton/LeBar, PIs).
S. Identification of viral pathogens in the evaluation of placental chronic villitis (Lieberman/Newton, PIs).
T. Best use of antibiograms to optimize therapy for bacteremia and hospital-acquired pneumonia (Depestel, PI, Newton co-investigator).
U. We are collaborating with multiple hospitals around the country on an NIH project evaluating emerging antibiotic resistance in Bacteroides fragilis.

V. The Laboratory responded to numerous IRB-approved requests from clinical services for specific laboratory data to fulfill research goals.

Teaching Activities

All laboratory personnel continued to provide instruction to Pathology House Officers and Infectious Disease Fellows and residents on diagnostic procedures used in the Microbiology/Virology Laboratories. We also provided several laboratory preceptorships for medical students, pharmacy students, and Pharm.D. residents during the year. Infectious Disease Laboratory rounds were held each weekday during which staff members and assigned Pathology House Officers interacted with ID team members to answer questions, demonstrate laboratory diagnostic procedures and discuss interesting findings. Numerous in-service education programs were held during the course of the year with individual technologists and Pathology House Officers giving presentations to staff members.

Professional Development

Both supervisors and most of our Sr. Technologists attended one or more regional or national scientific meetings during the year. Several other staff members attended regional scientific meetings of interest. These staff members were involved in presenting 3 posters at national meetings. In addition, the Laboratory subscribed to two audioconference programs which provided a total of 10 conferences during the year that were available to all staff members and Pathology House Officers as part of our ongoing CME program. Monthly inservice programs were provided by Pathology residents and faculty.

Goals for Fiscal Year 2008-2009

1. Continue process and efficiency improvements to accommodate an expected increase in test volume.
2. Support departmental initiatives for implementation of LEAN process improvement strategies.
3. Develop and submit to prospective vendors an RFP for new platforms for molecular detection of Human papillomavirus.
4. Evaluate chromogenic media for detection of VRE in order to reduce turnaround time for cultures.
5. Evaluate alternative testing strategies for detection of C. difficile toxin to increase sensitivity and decrease turnaround time.
6. Evaluate automated instrumentation for detection of AFB to increase sensitivity and decrease turnaround time.
7. Assess current and future laboratory space and architectural requirements.
8. Assist in the implementation of a new Laboratory Information System.
9. Review options for automated Identification/Susceptibility testing instrument as contract approaches expiration.
10. Review options for commercially purchased media as contract approaches expiration.

MOLECULAR DIAGNOSTIC LABORATORY
Submitted by: Kojo Elenitoba-Johnson, M.D., Ph.D.

Overview
The laboratory had a 16% increase in volume during the year. Dr. John Thorson, MD, PhD, was succeeded by Dr. Kojo Elenitoba-Johnson, MD, as Director of the Laboratory. The laboratory also acquired a new technical director, Dr. Bryan Betz, PhD. Dr. Thomas Wilson was retained as associate director.

Clinical Services
The laboratory currently employs one full-time supervisor, six full-time technologists, and two part-time technologists. Four of the full-time and both part-time technologists are cross-trained in all areas of the laboratory. One full-time technologist serves in a research/development capacity for the development and validation of new clinical assays. The most recently hired technologist is responsible for the development, validation, and test performance of the FISH assays for HER2 in breast cancer and UroVysion for bladder cancer.

The laboratory saw an increase in annual volume to 10,423 tests during 2007. The growth in volume was mostly accounted for by the Quantitative BCR/ABL assay. In addition, there were significant increases in number of requests for BMT Engraftment analysis, Cystic Fibrosis Carrier Screening, and both IGH and TRG Gene Rearrangement analyses.

During the past year, the average turn-around time for all assays improved to 3.5 days. This is decreased from the previous year, although the annual volume has increased. This average turn-around time is well within the published range of 2 – 7 business days.

The laboratory test menu has expanded significantly with the addition of several new assays:

* BCR/ABL1 Kinase Mutation Analysis (Sequencing)
* Human Erythrocyte Antigen Genotyping (Microarray analysis)
* IGH/BCL2 Translocation Detection (Real-time PCR)
* JAK2 V617F Mutation Detection (Allele-specific PCR)
* KIT D816V Mutation Detection (Allele-specific PCR)
* NPM1 Mutation Detection (PCR w/ capillary electrophoresis detection)
* t(15;17) PML/RARA Translocation Detection (Real-time PCR)

The laboratory has also modified the current BMT Engraftment analysis to include sample fractionation for CD3 and myeloid cell lineages, as was requested by the transplant physicians. The laboratory also has four additional assays currently in development.

With the continued expansion of the test menu, additional sequencing and fragment analysis capabilities are necessary. A request for two high-throughput capillary electrophoresis

sequencing instruments was submitted and approved by the hospital. The laboratory also acquired a NanoDrop system for more accurately quantifying DNA and RNA extractions.

Education
Monthly lab meetings are conducted during which a member of the staff or faculty will give a presentation on a new or current test being performed in the laboratory. This helps to give staff an introduction to new testing, and to give further information as to why certain testing is performed.

The laboratory also conducts regular monthly Project Meetings, which include the director, technical director, supervisor, R & D technologist and any fellows/residents associated with the laboratory. These meetings aid in organizing on-going projects and keep all involved parties informed of new projects and developments.

Molecular Genetic Pathology Fellowship
Dr. Larry Bischof was recruited and accepted the position to become the first Molecular Genetic Pathology Fellow of the University of Michigan Department of Pathology Program (2009-2010 academic year).

Future Plans
An expected future direction for the laboratory is in the area of pharmacogenetics, such as CYP2C9/VKORC1 genotyping for Warfarin sensitivity. Several platforms are available for this testing and evaluation will include discussions with the ordering physicians as well as the Pharmacy Department.

SPECIMEN PROCUREMENT
Submitted by Harry Neusius

Inpatient Phlebotomy
Cardiovascular Center Phlebotomy
Inpatient phlebotomy now performs phlebotomy services for a 24-bed step down unit on the 5th floor of the CVC, including routine, timed and stat services. An additional 4.2 FTE's were hired to support this initiative.

Bridge Positive Patient Identification Project and CareLink Expansion
The Bridge Positive Patient Identification System underwent expanded implementation by the Department of Pathology, in conjunction with the Carelink Orders Management project. The system, a component of the Pathnet Laboratory Information System, allows the phlebotomy staff to positively identify patients with a bar coded patient wristband, at the bedside, with bedside generation of labels just prior to collection of specimens.

Heartland Home Health and Hospice
In December, 2007, Phlebotomy Services began providing M/W/F specimen collection service to MLabs client Heartland Home Health and Hospice. We are average 500+ draws per month

and clients are extremely pleased with the caliber of phlebotomy and customer service provided.

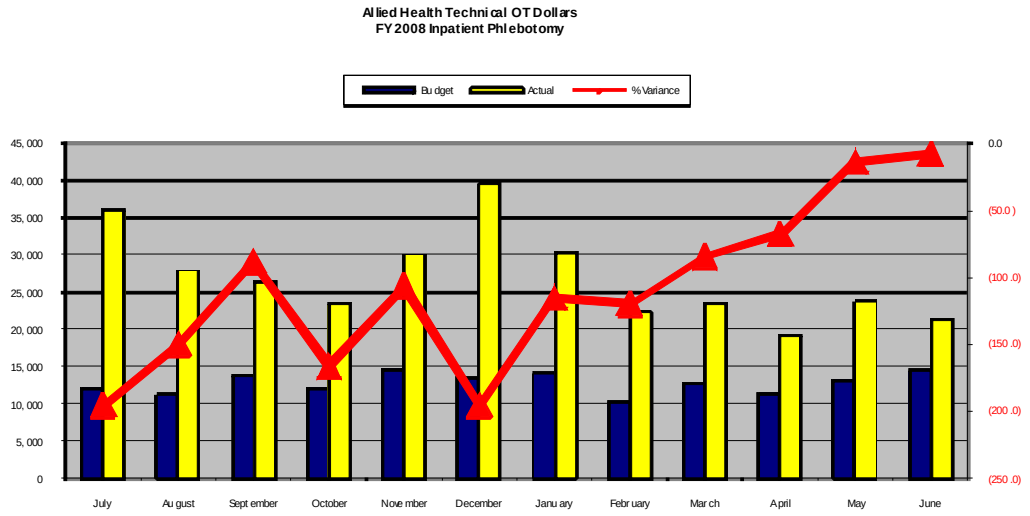
Volumes
Inpatient Phlebotomy volumes have increased slightly over FY 2007, +2.2%.

Inpatient Phlebotomy Draws			
FY	**Total**	**# Change**	**% Change**
2006	186864	7762	4.3
2007	195258	8394	4.5
2008	199577	4319	2.2

Expenses
This fiscal year, salary and wage expenses are slightly over budget, $142,314, or 8.5%. Allied Health Technical (Phlebotomist) regular payroll was $56,000 under budget, but Allied Health Technical (Phlebotomist) overtime payroll was $179,000 over budget. This resulted from the number of new positions hired to expand line draw and timed draw services and the 4-6 month training period needed to develop a new phlebotomist. The overtime hours were used to meet service level expectations as these new employees developed their skills.

YTD TOTALS FY 2008	Inpatient Phlebotomy			
	Budget	**Actual**	**Variance**	**% Variance**
Salary/Wages	$1,680,795	$1,823,109	$142,314	8.5
Expenses	$380,300	$518,214	$137,914	36.3
Total	**$2,061,095**	**$2,341,323**	**$280,228**	**13.6**

A focused effort was made this fiscal year to control overtime usage. Overtime was tracked and feedback provided to supervisors. Beginning in January, a declining trend in the use of overtime is noted.



Controllable expenses were also slightly over budget $137,914 or 36% over budget. Stocking of 28 phlebotomy carts with the daily supply of needed stock, along with the increased volume and supplies associated with the MLabs Heartland Home Health and Hospice Center contributed to these expenses.

Outpatient Phlebotomy

Outpatient Phlebotomy volumes ended slightly down from FY 2007. We continue to assess patient satisfaction components of our outpatient service. A worthy rating described as "excellent" and is indicative of staff focus on patient needs and concerns when they interact with patients. Wait time, which can be a significant patient dissatisfier, has also been regularly monitored. 99% of pediatric patient responders and 98+% of adult patient responders have indicated their wait time to be acceptable for the FY 2008 assessment period. 100% of the pediatric population and 94% of the adult population report their wait time to be within our threshold goal of 5 to 30 minutes. Patient perception of phlebotomist skill also remains relatively high. The upper 3.8 range, reflective of a "Very Good" to "Excellent" perception is an excellent reflection of the technical expertise in the outpatient blood draw stations.

Volumes

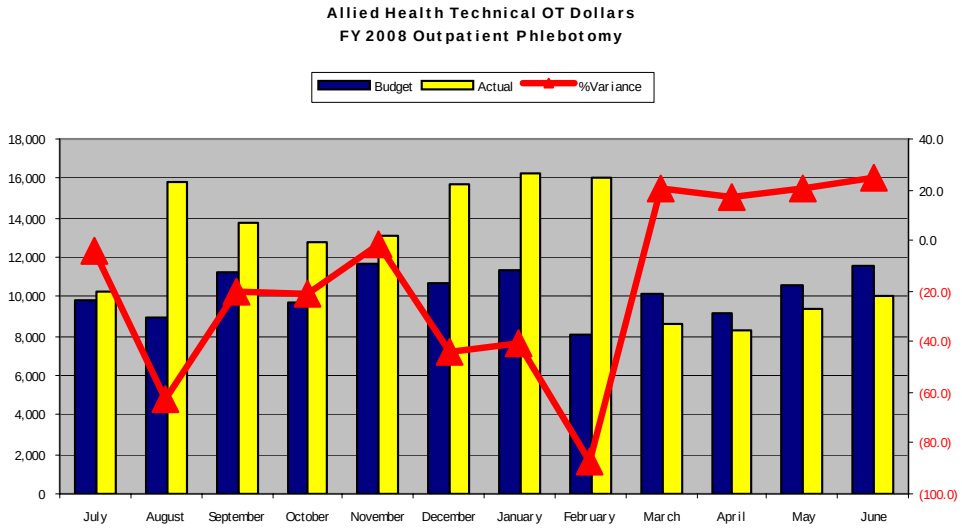
OUTPATIENT PHLEBOTOMY VOLUMES			
	FY 2007	***FY 2008***	***% Change***
Cancer/Geriatric Center	65,003	56,926	**-12.4**
Taubman Drawing Station, Floor #2	23,082	24,628	**6.7**
Cardiovascular Center*	334	8,068	**2315.6**
Taubman Drawing Station, Floor #3	65,487	60,279	**-8.0**
TOTAL	153,906	149,901	**-2.6**

*Opened June 11, 2007

Expenses

Outpatient Phlebotomy expenses are slightly over budget by 4.4%, or $76,006. Salary and wage expenses are 2.0% over budget, $26,213 for the year. This is admirable with the number of FTE's and number of medical leave/family leave and amount of PTO time used by staff.

YTD TOTALS FY 2008	Outpatient Phlebotomy			
	Budget	**Actual**	**Variance**	**% Variance**
Salary/Wages	$1,297,619	$1,323,832	$26,213	2.0
Expenses	$436,300	$486,093	$49,793	11.4
Total	**$1,733,919**	**$1,809,925**	**$76,006**	**4.4**



CENTRAL DISTRIBUTION

Central Distribution has again been significantly impacted by several departmental and institutional projects this fiscal year. These include:

Pathology LEAN Initiative

The LEAN initiative in the Department of Pathology, to eliminate waste and maximize process efficiency continues to drive many components of Central Distribution activity. The physical redesign of the work area is imminent and should allow LEAN processes to be further implemented.

CARELINK Orders Entry System

The final phase of the UM Carelink electronic order entry system has been activated in University Hospital, as of 4/28/2008. This has altered primary responsibilities in Central Distribution from order entry to specimen oversight and management, along with communication problem solving activities with caregivers.

External Result Entry Program

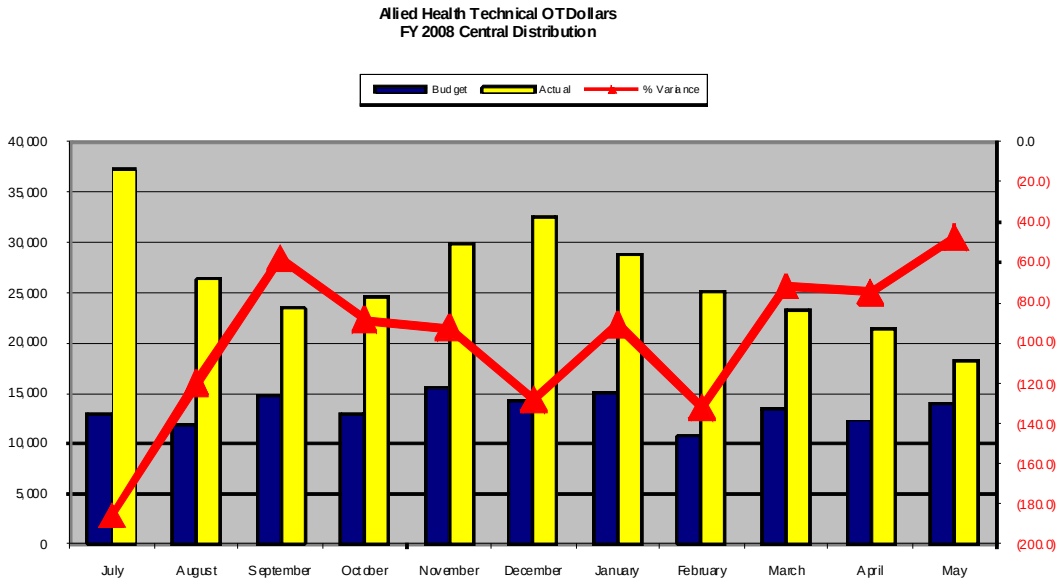
In response to clinician requests, the Department of Pathology is facilitating the entry of laboratory test results into the Pathnet LIS and the clinical data repository, in order for clinician's to more effectively monitor patient therapies. Two FTE's staffed in Central Distribution are responsible for receiving laboratory results from external (non-University of Michigan) sources and entering these results. Some tests are resulted into orderable Pathnet procedures that will allow trending and sequential result reviews. Others are merely copies of received results, scanned into the clinical data repository. Staff are entering approximately 1800 results/scans per month.

Send-Out Result Entry
Central Distribution staff have assumed responsibility for resulting send out test results that require manual data entry due to test complexity or lack of a computerized interface for result communication. A 0.5 FTE position is currently responsible for this activity.

Several key management positions in Central Distribution became vacant in FY 2008. The supervisor position, vacant for several months, was filled in October 2007. Kristina Martin comes to UMHHS after working as a medical technologist at Hurley Hospital in Flint, Michigan and after completing her graduate degree at Michigan State University. Two afternoon shift clinic coordinator positions were also vacant in FY 2008. Mary Deis, a Specimen Processor in the department has assumed responsibilities on the afternoon shift, along with Frank Ashe. Frank returns to us after a 9+ year absence after completing his baccalaureate degree and working in the human resources industry for several years.
These 3 individuals are extremely capable and will provide outstanding leadership for the department.

Expenses

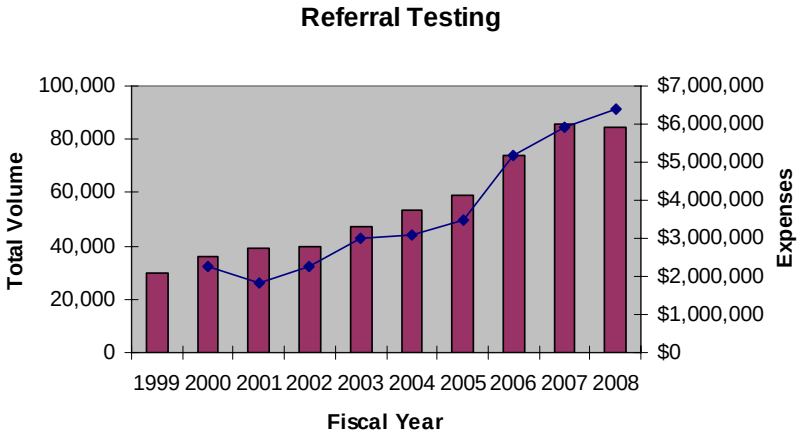
YTD TOTALS FY 2008	Central Distribution			
	Budget	**Actual**	**Variance**	**% Variance**
Salary/Wages	$2,019,203	$2,033,133	$13,930	0.7
Expenses	$327,175	$316,966	-$10,209	-3.1
Total	**$2,346,378**	**$2,350,099**	**$3,721**	**0.2**



Referral Laboratory Testing
Demand for referral testing by customers, including internal UMHS physicians, community physicians, and client physicians of the MLabs Outreach Program continues to be a significant obligation for the Department of Pathology and Central Distribution.

Volumes
Referral testing volumes have decreased 2.7% over fiscal year 2007. In-sourced testing and decrease in expected outpatient volumes contributes to this decrease.

SEND OUT LABORATORY TEST VOLUMES			
	FY 2007	**FY 2008**	***% Change***
Mayo Medical Laboratories	62,126	63,996	**3.0**
Specialty Laboratories	6,949	4,231	**-39.1**
Miscellaneous Laboratories	16,739	15,291	**-8.7**
TOTAL	85,814	83,518	**-2.7**



Expenses

REFERRAL TESTING				
YTD TOTALS FY 2008	**FY 2007**		**FY2008**	
	Budget	**Actual**	**Budget**	**Actual**
Expenses	$4,213,620.00	$5,906,746.00	$6,313,616.00	$6,396,477.00
Total	4,213,620.00	5,906,746.00	6,313,616.00	6,396,477.00
VARIANCE		**$1,693,126**		**$82,861**
% VARIANCE		**40.2**		**1.3**

Cost per test statistics reflect the complexity and volatility of the referral laboratory business. Cost per test for all tests referred to outside labs show an increase from $69.00 per test to $76.00 per test. This increase is primarily the result of increases charged by non-prime vendors ("Other Labs"), which increased from $87 per test to $138 per test. Price controls for these tests, are difficult to obtain and to maintain without contract pricing. Costs with primary vendor referral labs (Mayo Medical Laboratories and Specialty Laboratory) remain relatively constant, with a slight decrease from FY 2007 for Mayo Medical Laboratory ($65 to $63 per test) and a slight increase for Specialty Laboratory ($57 to $58 per test). These changes could be accounted for as a result of revised contract pricing that was put into place for Mayo Medical Laboratory this fiscal year.

	Cost Per Test								
	FY 2006			FY 2007			FY 2008		
	Charges	Volume	Cost per Test	Charges	Volume	Cost per Test	Charges	Volume	Cost per Test
All Laboratories	$5,151,740	67,587	$76	$5,906,746	85,814	$69	$6,396,477	84,219	$76
Mayo	$2,947,736	50,590	$58	$4,055,016	62,126	$65	$4,041,162	63,996	$63
Specialty	$372,535	7,090	$53	$398,685	6,949	$57	$247,323	4,231	$58
Other Labs	$1,831,469	9,907	$185	$1,453,045	16,739	$87	$2,107,992	15,291	$138

Emergency Department Laboratory

Central Distribution continues to staff the Department of Pathology's Emergency Department Laboratory. Staff are responsible for performing order entry on specimens submitted for testing by the main laboratories, which are then forwarded to Central Distribution for delivery to the laboratories. Staff also perform on-site point of care (waived) testing, including blood gases, urine macroscopic analysis, pregnancy testing, and testing for Group A streptococcus. Additional responsibilities include monitoring the blood bank storage refrigerator for appropriate units of blood and dispensing of blood units to ED staff when requested. Appropriate necessary documentation records are maintained.

Volumes

Volumes for FY 2008 remain constant with FY 2007. FY 2007 saw 168,789 tests performed in the ED Laboratory, compared to 171,344 in FY 2008.

Jeffrey S. Warren, M.D.
Aldred S. Warthin Endowed Professor of Pathology
Director of Clinical Pathology

PATHOLOGY EDUCATION

Division of Pathology Education

Joseph C. Fantone III, M.D.
Godfrey D. Stobbe Professor of Pathology Education
Director of Pathology Education
Associate Dean for Medical Education

OVERVIEW

The Department of Pathology offers a diverse and expanding array of outstanding educational programs. Foremost among these are programs focused on medical student, resident, graduate student and clinical and research fellow training. Expanded programs in cancer biology, inflammation and immunopathology, translational research, informatics, proteomics and biomarker discovery provide additional opportunities for training within the department.

Pathology faculty are also actively involved in teaching other learners within the University of Michigan including the Medical School, Dental School, School of Public Health, College of Literature, Science and the Arts, and the Rackham School of Graduate Studies. This involves formal lecture and laboratory exercises, senior clinical clerkships, and research training for undergraduate, graduate, medical students, and postdoctoral fellows. Departmental teaching activities also extend to house officers and the staff of many clinical departments in the form of regularly scheduled clinical teaching conferences.

Departmental teaching also extends to practitioners in the region and nation through continuing medical education (CME) programs, workshops and seminars offered through The University of Michigan, and professional organizations including the United States and Canada Association of Pathologists (USCAP), and American Society of Clinical Pathologists (ASCP).

Medical Student

Pathology faculty provide outstanding leadership (e.g. course directors, sequence coordinators, Associate Dean for Medical Education) and excellent teaching in the first two years of the medical student curriculum. Faculty continue to be recognized as recipients of student teaching awards including recognition as one of two class marshals at graduation. Efforts to increase student active learning experiences in a web-based teaching format continue with the implementation of the "Virtual Microscope" and interactive laboratory exercises. Student interest in fourth year clerkships in Pathology as well as research and specialty experiences continues to increase with more than one-third of the medical school class rotating through the department. These experiences are individualized based on student career interests and continue to be highly evaluated by students and meet important curriculum educational goals.

Graduate Student
The Department's doctoral graduate program continues to expand and thrive (18 students) with a focus on providing excellent training in preparation for careers as scientific investigators. Seven new students joined the program this past year and two students graduated from the program; one is continuing post-doctoral training at the University of Michigan and the other is enrolled in the University of Pennsylvania School of Veterinary Medicine. The quality of the faculty and training offered is reflected by the continued interest of MSTP students. A training grant within the Department continues to serve as an important source of support for graduate students and post-doctoral fellows. The Department of Pathology is an active participant with other basic science departments in the Program in Biomedical Science (PIBS). This program includes a joint effort of biomedical graduate programs to recruit the very best students to the University of Michigan and allow them to delay selection of specific departments until they have completed their first year of study. Several faculty serve on both the curriculum and admissions committees for the program. The annual Pathology Research Symposium was very well attended by students and faculty both within and outside the department.

Resident and Clinical Fellow
There has been significant expansion of our graduate medical education programs in the department during the past several years. The Department offers both individual and combined residency training in Anatomic and Clinical Pathology as well as ACGME approved fellowships in cytopathology, hematopathology, dermatopathology, blood bank/transfusion medicine, and molecular genetic pathology. Additional fellowship opportunities include training in the specialty areas of surgical pathology, breast pathology, pulmonary pathology, urologic pathology, GI pathology and informatics. Nine new residents joined our department and approximately 40 residents and fellows receive training annually. Residents and fellows continue to be very academically active, with multiple presentations at national meetings and first author publications. Several residents provide strong support to the medical student educational programs through their involvement as laboratory instructors, mentors and tutors to students. Eighteen house officers and fellows completed training this past year. Graduates found desirable fellowships (10), faculty positions (3) at academic health centers and employment in private practice (5).

University and CME
Department faculty continue to offer high quality laboratory research opportunities to both undergraduate and medical students, a dental student pathology course with lab, CME programs, and individual teaching in the other schools of the University including Public Health. The Pathology Informatics and Blood Bank CME courses continue to be recognized as foremost programs in the country. Faculty continue to develop internet-based educational modules that can be linked to established and future CME programs. The fall New Frontiers in Diagnostic Pathology meeting continues to be a focal point for CME, especially for graduates of our resident training programs, pathologists within the midwest and nationally.

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PATHOLOGY INFORMATICS

Division of Pathology Informatics

Ulysses G. J. Balis, M.D.
Associate Professor of Pathology
Director of Pathology Informatics

OVERVIEW

The University of Michigan, Department of Pathology is unusual as compared to the great majority of its peer academic institutions in that it has retained a significant internal contingent of information technology expertise and autonomy, in the form of the Informatics Division. Indeed, over the preceding decade, the trend for most academic medical center pathology departments that housed some contingent of internal I.T. support has been to witness central information technology departments subsuming the full breadth of expertise previously under oversight of pathology, typically creating monolithic and centrally-managed data centers. This trend has had the net effect of shifting responsibility and oversight for the sum total of unique pathology-centric applications and instrument interfaces/hardware platforms to a greatly diminished or even generic level of support, with ensuing unmet need for specialized support for such systems. In some instances, such transitions have manifest with disastrous consequences with respect to pathology departments' continued ability to locally develop and self-manage necessary incremental I.T. functionality and additionally, meet the ever-changing operational challenges implicit with laboratory medicine evolution.

While this philosophy of consolidation has been episodically considered at the University of Michigan Health System, the current fortunate reality is that the persistence of a distinct Pathology Informatics Unit affords several significant advantages which are not easily reproduced via the alternate monolithic strategies. Specifically, these advantages are persistence of domain expertise for unique application support, retained ability to carry out meaningful software development in tandem with application stewardship, multiple opportunities for Pathology Informatics research, and finally, a broad range of academically and educationally-meritorious teaching opportunities in support of a focused Pathology Informatics Fellowship.

Over the preceding year, the Pathology Informatics division has continued its focus on its short list of high-importance goals, all within the unifying theme of building sustainable infrastructure elements which contribute towards increased efficiency, increased patient safety, increased professional job satisfaction throughout the department, augmented research discovery tools, improved dissemination of timely departmental information via the web, national and international visibility through collaborative activities, and continued development of the recently launched Pathology Informatics Fellowship.

CLINICAL ACTIVITIES

A major ongoing thrust of the informatics division has been and continues to be the provisioning for excellence in clinical operational services. This last year was no exception and has witnessed a continued trend of steady advances in infrastructure development and new application deployments and/or enhancements. While the greater than 120 applications encompassed in this process are too numerous to list individually in this report, the most important areas of effort are summarized below, as a representative sampling.

Lab Information Systems Selection Process

The 2007/2008 academic year was noteworthy for the completion of a detailed and lengthy vender selection process, culminating with the contract completion with Soft Computer Corporation. The intent of the major project milestones was the deploying of a new lab information system within a 28-30 month application development timeline, leading to a go-live implementation of approximately March-April 2011. The negotiation process was carried out with a high degree of transparency, working with the various laboratory divisions, in order to identify a thorough and accurate list of application requirements which ultimately would contribute to the functional requirements section of the final contract. Ultimately, such content was incorporated into the contract as a legally binding set of requirements, in the form of an appendix. Adjudication of the draft contract, leading to its final accepted form, was carried out with active participation from UMHS legal council, thus affording the incorporation of the most current institutional knowledge concerning complex contract law.

The final rendered contract was noteworthy in several aspects, thus conferring to the department significant risk mitigation for the overall project. The most important feature of this contract was its fixed pricing structure, which stipulated that all specified work would be completed, per the technical functional requirements, without possibility for escalation of fees. This included both those requirements stipulated in the gap analysis section as well as the incremental functional capabilities originally stipulated in the request for proposal, which was distributed in 2005. Securing the fixed-contract structure was a major milestone for the division's negotiating efforts, as no potential SCC client to date has previously secured such a format. It is of particular value for the division's upcoming implementation efforts, in that it will allow for our analysts to focus upon the necessary functional requirements without worrying about financial encumbrances (which would be typically experienced with the far more typical "time and materials" style implementation contracts).

Participation in the UMHS-wide activation of UM-Carelink for Institutional Support of Electronic Orders Entry.

With the relatively complete operational body of knowledge afforded to the division by the prior year's deployment of Computerized Physician Electronic Order Entry (CPOE) for Mott Children's Hospital, the Informatics Division was well-situated to respond appropriately to the challenges represented by the larger UMHS-wide deployment of the Eclipsys Carelink application, which was easily an order of magnitude greater in both size and complexity. In the time leading to the April 28 activation of this platform, Pathology Informatics carried out a series of rigorous and institutionally-orchestrated integrated tests of the interfaces between the clinical areas and the downstream lab systems, in order to validate the integrity of the overall CPOE chain of custody for information delivery. Validation efforts proceeded without difficulty and on the occasion of activation, there were no significant operational issues related to intact delivery of electronic orders. Since that time, Pathology Informatics has diligently worked in tandem with

the Carelink task force members to identify solutions for the remaining operational difficulties seen with the application. Thus far, these have invariably been related to complexities in clinical workflow and not technical mis-configurations.

Pathology Informatics Machine Room Reconfiguration

The Machine Room Reconfiguration Project's recent completion in May represents a significant milestone for the division, in that our having a fully stable and thoroughly modern platform allows for redirection of effort towards creative activities. With significantly diminished operational burdens facilitated by an infrastructure layer that monitors environmental, power quality and computational integrity conditions of the vast majority of our over 200 servers, many tasks that previously required manual oversight are now assigned to the room's intrinsic automation layer. Human intervention is now only required when substantive exception conditions are encountered. This has allowed the division to elevate the quality of service effectively rendered for most of our applications, with additional plans underway to modernize the remaining 5% of legacy servers that remain unmonitored by the completion of FY 2010.

The division's ability to modernize the room came as a companion project to the Good Tissue Practices project, which reduced the room's effective size by 15%. With this diminution in size, it was necessary to increase the efficiency of the remaining space. This equated to upgrades in 1) power, 2) data distribution, 3) rack-level heat management and 4) intrinsic systems level redundancy. To address power needs, the Division successfully lobbied the hospital to provision for an in-room Tier-4 Uninterruptable Power Supply (UPS), which would be capable of providing 80 KVA of bridged backup power for 15 minutes – an interval long enough to allow all systems to gracefully shut down in the setting of a prolonged power outage or long enough to power the room until the hospital's own diesel generators would be expected to come on line. Data distribution capabilities were augmented by the adoption of dual in-rack level switching, such total server cluster connectivity can survive to total loss of any single switch, with affected systems seamlessly failing over to the redundant mirror. Rack level heat management was improved over the data center's prior cold isle/hot isle topology, by the incorporation of active return ducting to the overhead plenum. With this solution in place, made possible by active convection rear data rack doors, resultant nominal room temperatures dropped by several degrees C. The overall adoption of intrinsic systems level redundancy was made possible via the incorporation of American Power Conversion power distribution and power inverter modules, which operating as fully redundant subsystems. Since these support layers have been brought into the data center, down time has been confined to only those intervals that have been scheduled.

Informatics Division Reorganization

Following a detailed analysis of operational efficiencies experienced for each of the division's sections, there was compelling evidence that the desktop support unit, which was managed from the special projects section of the division, was encountering a significant number of communication difficulties with respect to coordination of changes in best-practices, as communicated to our division from the department at large. Operationally, this equated to an increased number of circumstances where the initial resolution effort would be either inadequate or completely incorrect, requiring additional troubleshooting and rework. In realigning the desktop support staff under Stephen Marshall, Team Lead for Operations, this problem was effectively eliminated to a great extent, as most, if not all, subsequent ameliorative desktop issues were able to be solved using current institutional best practices, usually with resolution on the first attempt. Also, through the year, the desktop support section continued and furthered

enhanced its repertoire of support for both non-core PC's as wells as Mac computers, recognizing the increasing plurality of such devices in use by our department's research faculty.

Mayo upgrade

For over a decade, the Informatics Division has enjoyed the utility of a custom developed electronic orders/results bidirectional interface with our primary reference laboratory, Mayo Laboratories. This interface has been a key enabler for simplified and error-free reference lab ordering and resulting in support of both our UMHS patient populations as well as M-Labs clients. In Q3 of 2007, our division was notified by Mayo Informatics of a pending planned obsolescence of the extant, telephony-based solution, and the concurrent need to migrate such connectivity from a specialized custom interface to standard TCP/IP-based HL7 2.x interface. This conversion was initiated in Q4 of 2007 and was subsequently completed within the ensuing quarter, including full unit-based and integrative validation, prior to its deployment in Q2 2008. This was a high-priority effort for the division, as external and internal mandates applied to the project. Externally, Mayo presented us with a hard deadline after which, no legacy telephony support could be guaranteed and internally, MCIT has compelled us to build any possible new interfaces with the new Websphere Business Integration (WBI- see DataGate to WBI Conversion section) connectivity layer and not the established legacy DataGate application layer, representing a significant element of discovery for the execution of this project. Despite these challenges, the project was completed on time with no untoward exception reports encountered, following conversion to full time use of the new interface.

Back-up Solution Reworked and Centralized

Completing an initiative that was initiated two years ago, the division carried out final tasks associated with a two-year plan to instill best practices within the division with respect to enterprise data backup and off-site rotation/stewardship of such data. Prior to this effort, a number of virtual disaster drills identified several significant single points of failure, with these representing unacceptable risk. To mitigate such risk, the division carried out a two tied effort: 1) to train key individual with current best practices for our back solution and 2) ensure that our backup software abstraction layer was updated to the current (and most stable) version. With the completion of these major infrastructure projects in Q2 of 2008, an audit of our evolved internal practices has demonstrated excellent fault tolerance and data restoration capability, in the event that such should ever be needed.

Virtualization of >100 Servers in Machine Room

The prior academic year represents the second consecutive year in which significant effort was placed in the conversion of legacy application running on legacy (and non-server-grade) platforms to rigidly controlled and standardized Virtual Machine Instances. As background, within the Virtual Machine construct (known as VMWare) upwards of 24 virtual processes on as many virtual servers can be housed on a single physical abstraction layer, making it possible to consolidate physical datacenter hardware requirements by as much as 24:1, while at the same time affording exponentially greater reliability and simplified ease of data restoration, should such effort be required. In support of the Division's strategic shift to use of VMWare-based stewardship for many of its applications, several key staff were enrolled in vendor sponsored advance application training, where best-practices and advanced operational approaches were discussed. Subsequent to the training, a local examination of our local practices was carried out, with changing of our practices at both strategic and tactical levels, in support of simplified maintenance and increased reliability. So far in 2008, Collective VMWare availability has been

better than 99.998% and we anticipate significantly increased metrics for the subsequent academic year.

Support for Departmental Laboratory Moves

The prior academic year witnessed significant need for Informatics support associated with site set-up and moves (primarily Traverwood I and II) for major departmental laboratories (both clinical and research). The division played a central role with respect to all phases of such moves, including: the exploration and ultimate implementation of a 1.25 Gb microwave link between North Campus and the roof of the Traverwood facility, horizontal boring between the adjacent Traverwood complexes, completion of Demarc requirements for the reconfigured data rooms in the remodeled space and provisioning for adequate connectivity and infrastructure support in the newly rendered data rooms in each respective new building. Following the completion of infrastructure installation, the division similarly played an active role in the seamless crossover of IT operations for the clinical and research labs that moved to these offsite locations (MCTP, Cytogenetics, etc.) as well as continued support for labs already occupying space in this area (HLA).

ISBT label bar code support for Blood Bank

In anticipation of relatively significant regulatory shifts in blood bank operations policy, requiring use of ISBT-compliant barcode-labeled blood products, the informatics division carried out final implementation and validation steps of a functional ISBT module, as provided by Cerner Corporation. With the completion of these efforts, the Blood Bank stands ready to convert over to ISBT operations, ahead of the stipulated conversion deadline.

Implementation of New Instrumentation in Labs

As with most years in the natural evolution of the clinical laboratory, there is the ongoing need for integration on new instrumentation from an information technology perspective, with the specific focus typically being interface development. The preceding academic year was no exception, with the division being able to successfully integrate a number of critical individual instruments, as well as several aggregation servers utilized in support of point of care/blood gas instrumentation. A representative listing of such devices includes:

- Benetec Automated Blood Culture instrument interface upgrade
- APACHE interface
- Radiometer Blood Gas data aggregation node interface
- Rals Glucometer device roll-outs with on-site hardware and network connectivity support for a plurality of clinically-placed instrument docking stations

Ongoing Support of Anatomic and Clinical Pathology Divisional Operations

Recognizing that an increasing need (and longstanding operational deficit) for our department at large has been use-case tailored operational and management reports, the division continued its ongoing effort to support the most critical needs of the AP and CP divisions, making effective use of bridging software infrastructure layers, thus conferring additional utility to our aging legacy LIS backbone. Given that the new LIS deployment in anticipated to be 30 months distant, there continues to be ample justification to carry out such effort on legacy infrastructure, as ROI can be considered to be high. Additionally, the concurrent patient safety and financial savings represented by such efforts provides a compelling reason to pursue such development. Overall, the time savings represented by the implementation of the following tools represents

more than three FTE's and it is anticipated that the remaining tools under development will constitute a further savings of no less than five additional FTE's. Representative projects carried out in support of AP and CP operations over the preceding year included the following:

- Real-time (on demand) Turn Around Time (TAT) reports utilizing a lab workcenter-centric data extraction model
- Real-time, Web-based Workcenter Activity Report (WAR)
- Real-time tools to monitor Carelink results exception queues, for the detection of delays in clinical results delivery
- Implementation of AP routing codes at AP order entry
- Implementation of AP label applications
- AP inbound orders (in progress)
- BB outbound status messages (in progress)
- Bridge Cart activation for UH and associated hardware replacements
- Implementation of Path-PI calendar for sick and vacation tracking
- Development of AP Oracle database and related applications

Over the following several quarters, the division will continue its development of an ambitious real-time Dashboard Data Viewer (DDV), in support of department-wide operational support. This tool will make extensive use of federated database architectures, with over 16 concurrent data feeds into one tightly-integrated aggregation and viewing node. Such efforts have already proven effective at peer-equivalent institutions such as MD Anderson Cancer Center and consequently, adoption of selective components of their model carries with them a high likelihood of success.

HLA Database Normalization and Update

The Informatics Division continues its effort to normalize the HLA data, and concurrently, afford it the requisite contingent of data granularity elements, management reports and workflow models that will make it capable of providing the patient safety and operational efficiencies that have been identified as desirable attributes. To carry out this ambitious task, the division retained two outside Oracle database consultants, to serve as a resource to our resident Oracle domain specialist. At present, our consultants have completed the majority of the existing archival data normalization and have similarly finished a significant contingent of the necessary management reports. What remains is the need for completion of a number of workflow-specific modules which are intended to support optimal management of data collected from specialized bench-level assays.

Datagate to WBI Conversion

With the advent of the Datagate product firmly entering into end-of-life as the department's integration channel solution, there was mounting pressure to migrate our more than 60 HL7 interfaces to the newer IBM Websphere Business Integration (WBI) solution. A implementation team was assembled and in the course of doing so, there was a consensus opinion formed that the division required additional HL7 expertise in the form of a backup analyst. A search was initiated and shortly thereafter, the position was filled by an experienced HL7 programmer, with significant LIS architectural knowledge (Mr. John Hamilton). In the eight months following his arrival, he and our lead HL7 analyst (Mr. Bill Hubbard) have made significant strides, working with MCIT staff, in converting a number of the most complex interfaces to the new WBI platform.

At present, the division anticipates that the remaining ~40 interfaces will be fully ported by Q4 2009, which is within the timeline initially quoted to MCIT.

In support of effective application troubleshooting, a sophisticated real time monitor for the WBI application was coded and placed into production, where it serves as a sentinel for exception conditions to the over-twenty bidirectional interfaces now dependent on the new platform.

Web Development
The 2007-2008 academic year was an extraordinarily busy year for the Web Operations and Development Team, with a number of sizable applications being placed into production. While not every deployment was without untoward issue at commencement, the team did benefit from these experiences by refining both testing and deployment approaches, with the goal being zero-defect roll outs for future attempts. Representative projects completed or nearly-completed during the 2007-2008 year included the following:

- Policies & Procedures Server (revision)
- Form Server
- Charity Art Auction Server
- AP Slide Tracker
- Database-Driven Calendar System
- Administrative Assistant Portal
- New Frontiers Registration Page (Credit Card Processing)
- Placenta Requisition/Registry Project (nearing completion)
- Pathology HR Database/System
- Sentinel Slide Request Form
- Slide Library Request Form
- PA Evaluation Form
- AP LEAN Library Request Form
- Annual Report Tool (revision)
- Microsoft Stripping Regular Expression
- Kunkel Lab Inventory System (in process)
- Hess Lab Plasmid Inventory System
- Global Pathology User Management System (in process)
- Breast Image Search Server
- WYSIWYG Driven Pathology Site
- Pathology Directory (revision)

M Labs Support
With the continued expansion of number of operational Atlas LabWorks sites, the Informatics Division has had an active schedule of configuring, testing and deploying new M-Labs clients. Notable entries to the operational list include Select Specialty, which operates as a step-down intensive care unit, with relatively high-acuity ordering needs. Also added was the Student Health Service of The University of Michigan. In the upcoming academic year, a number of additional high-traffic interfaces are expected to go into production.

Capital Equipment Requests
The Informatics Division was successful in obtaining approval for both of the capital equipment requests that it made during the fiscal year. The first request was for a replacement Storage Area Network server (SANs) as the division's current device has been at end-of-life for over three years. The second request was for a portfolio of positive identification printing and scanning technologies intended for anatomic pathology workflow, whereby all assets created in the AP areas can benefit from real-time (FedEx model) tracking and error correcting 2-dimensional barcode technology. The intended assets in question include the following:

- Requisitions
- Specimen containers
- EM Blocks
- Blocks
- Slides
- Any additional material requiring labeling and positive identification

LIAISON ACTIVITIES
In the course of carrying out its own development activities, the Informatics Division participates in a number of liaison activities. Besides affording the division advanced notice of key events and anticipated IT trends in the institution at large, such interaction builds good will for the division and allows our division's talented core of domain experts to positively impact external initiatives. Current Hospital initiatives which receive significant Informatics input include:

- Careweb Clinical Advisory Committee
- Ambulatory Care Information System Steering Committee
- Carelink Implementation Committee
- Carelink Orders Management Working Group (Group (Pathology Informatics serving as co-lead)
- Outside Laboratory Results Working Group (Pathology Informatics serving as lead)
- Internal Medicine Electronic Order Entry Pilot Projects (at the level of the Vice Chair)
- Main Campus Cyber Infrastructure Task force to identify sustainable I.T. growth architectures the institution's academic centers at large
- Liaison and operational support for the Pediatrics Genetics Laboratory, including comprehensive support of new test development and professional billing solutions
- Liaison activity and co-development work with the hospital's billing code enhancements
- Founding member of All Payers Data Repository (APDR) (a Blue Cross/Blue Shield funded initiative to instantiate a state-wide database of payer data, with associated clinical data to be utilized in support of analysis of clinical outcomes and financial efficiency of participating practices) Pathology Informatics will federate clinical laboratory data to the APDR repository

RESEARCH ACTIVITIES
The Informatics Division is involved with ongoing Informatics activities in a number of areas within the health system including the following:

- Computational Center for Medicine and Biology (CCMB): Working with Gil Omenn and Brian Athey, the Informatics Division is exploring avenues to increase the overall level of collaborative academic Medical Informatics activity within the greater health system

- Health Informatics Research Organization (HIRO) : Pathology Informatics Participation with this group allows input to visiting Informatics lecturer selection

- CTSA
- NCI

EDUCATIONAL ACTIVITIES
Over the preceding year, the Informatics Division has been active at the local, national and international levels for both organizing and participating in Pathology Informatics meetings. These included:

- Health Informatics Research Organization (HIRO)
- Lab Infotech Summit (Las Vegas)
- APIII (Pittsburgh)

Additionally, the 2007-2008 academic year held witness to the First World Congress on Pathology Informatics, which was jointly hosted by the Association for Pathology Informatics and the Health Informatics Society of Australia. Structured as a companion meeting to MedInfo 2007 in Brisbane, the Congress provided a unique venue for pathology informaticists representing 29 nations to exchange ideas and further extend the overall field. A follow up Second World Congress on Pathology Informatics is in the planning with US as the host site in 2010. It is anticipated that Michigan's Pathology Informatics division will play a major role in this upcoming event, working closely with API, APIII and Lab Infotech Summit organizers.

Informatics Fellowship
ACGME preparations for an Informatics Fellowship were completed in the 2007-2008 academic year, allowing the division to recruit a very capable and enthusiastic candidate, Dr. Jerome Cheng, who will be tasked with a diverse array of clinical and research-oriented Pathology Informatics projects over the course of his year with our division.

Ulysses G. J. Balis, M.D.
Associate Professor of Pathology
Director of Pathology Informatics

SPONSORED RESEARCH

Division of Sponsored Programs

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair
Co-Director of Sponsored Programs

Steven L. Kunkel, Ph.D.
Endowed Professor of Pathology Research
Co-Director of Sponsored Programs

Despite continuing budgetary challenges at the NIH, the Department had another outstanding year with its research programs. We are extremely pleased with the impact of our research and the quality of journals in which the Department's work is appearing on a regular basis including *Science*, *Nature* and *Cell* among many others. One of the many highlights of the year was the selection of Dr. Gabriel Nuñez to deliver the 2008 Distinguished Faculty Lectureship Award in Biomedical Sciences.

Our investigators are submitting nearly twice as many proposals as two years ago. Fortunately these efforts are paying off. Total committed research awards increased by 8.7% over FY07 to $23.0M. This represents a $1.7M increase in funding of Pathology investigators and $200K increase in MCTP investigators. Concurrent with this, our year to date NIH rankings amongst Pathology Departments have improved from 15th last year to 11th this year. Our Departmental space productivity metrics show a funding density of approximately $106/sq ft, which is slightly below our sustainable target of $110/sq ft. This reflects in part the acquisition of new space in BSRB and more recently, the activation of additional research space at Traverwood.

One important development for both the Department and the Medical School is that Dr. Steven Kunkel assumed the role of Senior Associate Dean for Research. In that role Dr. Kunkel has already partnered with the Department in expanding the capabilities of the Chemical Genomics and RNAi facilities. In addition Dr. Kunkel has played a major role in moving the initiative to acquire the Pfizer Research and Development campus forward.

The Cellular and Molecular Graduate (CMP) Program remains a high priority. This year a record seven PIBs students elected Pathology as their primary department. In addition we are pleased that Academic Analytics, a for-profit company, owned in part by the State University of New York at Stony Brook ranked the Department's Cellular and Molecular Graduate program as fourth in the nation on the basis of faculty productivity, which includes the number of books and journal articles they have written, the number of times other scholars have cited them, and the awards, honors, and grant dollars they have received.

We are also working to ensure the sustainability of our research enterprise. This past year we established three new professorships and identified first chair holder including the Peter A. Ward Endowed Professorship (Dr. Kathleen Cho), Harold Oberman Collegiate Professorship (Dr. Celina Kleer) and the Collegiate Professorship in Pathology Research (Dr. Greg Dressler). In addition, our research programs received a big boost with Dr. Arul Chinnaiyan's appointment an Investigator in the Howard Hughes Medical Institute.

The Department is continuing to pursue strategic growth in the areas of aging, epigenetics, informatics and chemical biology. The proteomics facility is currently operating three mass spectrometers and is supporting more than ten faculty members in the Department. We successfully recruited David Lombard M.D. Ph.D., a BSSP scholar, from Brigham and Women's Hospital/Harvard Medical School, who will work on sirtuins and the epigenetics of aging in the Gerontology Center. We also recruited Dr. Nikolovska-Coleska from Dr. Shaomeng Wang's laboratory at Michigan to enhance departmental strength in chemical biology and development of small molecule inhibitors. Kajal Sitwala, who received her M.D. Ph.D. from the University of Michigan and did her residency and fellowship training at UM, joined the faculty in Hematopathology. Dr. Sitwala will work continue developing her research on Hox proteins in Dr. Hess's laboratory. Finally, Jeffrey Hodgin M.D. Ph.D. joined the Department as a Clinical Instructor in Renal Pathology. Dr. Hodgin will continue to develop his research in kidney diseases in Dr. Matthias Krettzler's laboratory. Recruitments are ongoing in the areas of epigenetics and chemical and structural biology. In addition we are partnering with the Schools of Engineering and Pharmacy for a recruitment initiative in Personalized Medicine.

Plans for the new pathology building, which includes considerable incremental research space for the Department are moving ahead led by the architectural firm Cannon Design. While plans are fluid the current concept for the building, which will be located on the Kresge site, is to organize the pathology investigators into three research neighborhoods focused on epigenetics, chemical biology and bioinformatics/personalized medicine. If the Pfizer site is acquired this will open up additional much needed research space permitting additional expansion of our research programs.

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair
Director, Division of Sponsored Programs

Steven L. Kunkel Ph.D.
Endowed Professor of Pathology Research
Co-Director, Division of Sponsored Programs

TRANSLATIONAL RESEARCH

Division of Translational Research

Kojo Elenitoba-Johnson, M.D.
Associate Professor of Pathology
Director of Translational Research

OVERVIEW

The Division of Translational Research includes the mass spectrometry-driven proteomics resource, the analytical flow cytometry core, the tissue procurement resource and the molecular pathology research laboratory. In the past year, we made substantial progress with building the Division, with complete establishment and functionalization of the mass spectrometry-driven proteomics resource, and the initiation of the Hematopoietic and rare Pediatric Tumor Repository Initiative. In the coming year, we intend to build on the initial progress from the previous year with the inclusion of diverse and more sophisticated capabilities in all the core facilities.

Mass Spectrometry-Based Proteomics Laboratory

Renovations of the new laboratory space (MS1, Rm. 4204) for the Proteomics Resource Facility (PRF) were completed in October 2007. The following mass spectrometers and accessories are housed in the new laboratory:

1. LTQ-Orbitrap XL (Thermo Corp) – High resolution linear ion trap with Orbitrap analyzer.
2. Quantum Ultra (Thermo Corp) – Triple quadrupole mass spectrometer.
3. LTQ-XL-ETD (Thermo Corp) – Linear ion trap with electron transfer dissociation. This is an upgrade of the old LTQ that was purchased in 2005 with ETD module.
4. Nano-HPLCs – Two new dual pump HPLCs (MS2, Michrom Bioresources) were purchased.
5. Surveyor HPLC (Thermo) & UV detector with nanoliter flow cell: Existing, unused system has been made operational and is being used for off-line 2D-LC techniques.

Venkatesha Basrur, Ph.D. is the laboratory manager of the facility. He is assisted by Kevin P. Conlon B.S., Senior Research Lab Specialist and Damian Fermin, Ph.D., Proteome Informatics Specialist. Dr. Basrur is in-charge of the day-to-day operations of the facility including maintaining state-of-the-art instrumentation and implementation of new techniques to the analysis of the proteome. Mr. Conlon joined the laboratory on July 30th, 2007. His earlier

position at Pfizer involved the analysis of small molecules using mass spectrometry. Since joining the mass spectrometry-based proteomics resource facility (PRF), under the supervision of Dr. Basrur, he has become adept and grasped the intricacies of techniques involved in protein/peptide analysis. In January 2008, he attended and successfully completed a course on operation/maintenance of Quantum Ultra (triple quadrupole mass spectrometer) offered by the manufacturer.

On January 9th, 2008, after carrying out extensive quality control studies, the facility was opened to all the Pathology Faculty members. Large numbers of faculty and associated personnel attended the Open House. They were given a tour of the facility and made aware of the functional capabilities of the PRF in an effort to encourage them to make use of the facility to further their research. The services offered and requirements for sample submission were summarized in hand-outs provided to the visitors. Results for all internal clients are delivered through a secure web-based link that is interactive and permits user-defined determination of error-sensitivity tolerance.

Proteome Informatics

A description of the following resources which are principal components of our informatics infrastructure is given below. The incorporation of the software tools and maintenance of the cluster are carried out by Dr. Damian Fermin who serves as the Scientific Programmer and manager of the Computer Cluster.

Hardware

1. Pathology Cluster
   We have a dedicated compute cluster consisting of 40 processors and almost 2 terabytes of disk space for performing high-throughput proteomics analysis. Each node has 4 dual core AMD Opteron 64-bit processors running at 2.4Ghz and 8 gigabytes of memory to handle large scale jobs.

2. Trans-Proteomics-Pipeline (TPP) Server
   This machine primarily hosts the TPP proteomics suite for viewing and analyzing of proteomics data once it has been searched on the cluster. Users can log into the machine using a web browser to view their results. In addition, this machine hosts a number of other web-based applications including a cluster job management site and a web-based application for extraction of common and unique proteins between 2 TPP output files. This machine is designed for high availability and multiple concurrent users.

Software

1. Sequest
   Sequest is an industry-standard software package for identifying proteins from tandem mass spectra. This commercial product is part of the Thermo-Fisher Scientific software suite called BioWorks. Sequest uses a proprietary "cross-correlation" identification algorithm to identify the proteins present in a mass spectral data file. The software is engineered to detect even proteins present in low concentrations.

2. X!Tandem
   This is a fast protein search engine developed by David Fenyo and Ron Beavis. Like Sequest, it can automatically search for missed cleavages, semi-tryptic peptides, post-translational modifications and point mutations. In addition, X!Tandem also provides an application programming interface (API) that can be used to enable customized scoring algorithms or perform quantitative analyzes. The software is open source and publicly available from The Global Proteome Machine Organization. This is the default program used on our cluster for high-throughput protein identifications. More information about X!Tandem can be found here: http://www.thegpm.org/TANDEM/

3. TPP suite
   This is an open source software suite for complete MS/MS data analysis following initial MS/MS database searches using X!Tandem or Sequest. It's components include PeptideProphet for statistical validation of peptide assignments, ProteinProphet for visualization and validation of the data at the protein level, tools for quantification such as XPRESS and ASAPRatio (ICAT, SILAC or similar labeling methods), and Libra (iTRAQ), as well as other useful programs and scripts. More information about TPP and its components can be found here:
   http://tools.proteomecenter.org/wiki/index.php?title=Software:TPP

As detailed in the previous report, a streamlined data analysis and web-based result delivery protocol has been developed with the help of Drs. Nesvizhskii and Fermin. All University clients receive their results delivered securely through a web-based system.

Services implemented this year and offered by the PRF:

1. Large-scale identification of proteins (in complex mixtures).
   a. In-gel digested samples and LC-MS/MS
   b. Solution-digested samples and LC-MS/MS
      i. Reverse-phase (LC) MS/MS
      ii. Off-line two-dimensional liquid chromatography and MS/MS (off-line MudPIT analysis)
2. Post-translational modification site identification.
   a. Phosphorylation site mappping
   b. Ubiquitination site mapping
   c. Protein methylation site mapping
3. Relative quantitation using Isotope Coded Affinity Tags and isobaric tag (iTRAQ) methods.
4. Highly selective ion-reaction Monitoring-based quantitation. Protocols are still being standardized.

Projects and Clients:

As a general protocol, Director and Lab-manager of PRF (Drs. Kojo Elenitoba-Johnson and Venky Basrur, respectively) meet with the prospective faculty member (client) and discuss the project (merits/feasibility) before accepting the samples. A web-page has been created with links to the sample submission guidelines and forms required prior to sample submission (http://www.pathology.med.umich.edu/translational/massspec/index.html). In the past year, PRF has seen a steady increase in the number of samples. To date, approximately 1505 samples (gel slices/SCX fractions or other units) have been processed through the facility. The PRF is currently involved with a wide variety of projects as outlined below:

1) Qualitative analysis: Identification of proteins and post-translational modification identification and mapping.
    1. MLL fusion partner-associated complex (MPAC) characterization (Dr. Hess' Laboratory).
    2. CXXC and CXXC-PHD interactome and PTM characterization (Dr. Hess' Laboratory).
    3. Hoxa9 interactome (Dr. Hess' Laboratory): Hox genes such as Hoxa9 are.
    4. Identification of Cullin Ring Ligase substrates (Dr. Elenitoba-Johnson Laboratory).
    5. Phosphoproteome of the NPM-ALK expressing cells (Dr. Lim laboratory).
    6. The mechanism of Polycomb repression in unicellular model system *Tetrahymena* (Dr. Liu Laboratory).
    7. Characterization of Histone acetyltransfease (MOF) and methyltransferase (Symd1) (Dr. Dou's Laboratory): Several projects ongoing in the lab require extensive usage of PRF facility.
        i) Functional characterization of the histone acetyltransferase MOF: we used the mass spectrometry for protein identification.
        ii) Confirmation of specific histone modifications generated by chemical modifications: We use the mass spectrometry (Orbitrap) to monitor the efficiency of the chemical conversions. Also, using the Electron Transfer Dissociation technique (ETD), we were able to confirm the site-specifically installed trimethylation on K4 residue of Histone H3 without digestion of the protein. Identify methylation sites for the methyltransferase Symd1: We use mass spectrometry to identify novel methylation sites on both histones and non-histone substrates.
2) Functional analysis of Pax2 and interactome (Dr. Dressler's Laboratory). phosphopeptide mapping to pinpoint the phosphorylated S/T in Pax2.
3) Characterization of Nod2 signaling pathway and Post-translational Modifications (Dr. Nunez's Laboratory).
4) Profiling Proteomic Alterations in Multiple Myeloma in response to Velcade treatment (Dr. Sreekumar's Laboratory): The end goal of the study is to define proteomic markers for response to Velcade in MM patients. This project is supported by funding from Multiple Myeloma Research Foundation in which both Drs. Kojo Elenitoba-Johnson and Venkatesha Basrur are co-investigators.
5) ETS related gene interactome (Dr. Chinnaiyan's Laboratory).
6) Development of MRM-based assay for the detection of prostate cancer (Dr. Chinnaiyan's Laboraotory).
7) Characterization of ubiquitination sites on Copper Chaperone for Superoxide Dismutase (Dr. Duckett's Laboratory).
8) Phosphopeptide site mapping of LIF1/XRCC4 (Dr. Thomas E. Wilson Laboratory)

Quantitative Proteomics

Among the many relative quantitation methods available, PRF has used cICAT and iTRAQ techniques to characterize the differentially expressed proteomes for the following projects.

1) Natural killer cell proteome (Dr. Lim's Laboratory): cICAT technology
2) API2/MALT cell proteome (Dr. Elenitoba-Johnson's Laboratory): cICAT & iTRAQ technologies.
3) Comparative proteomic analysis of Hodgkin, non-Hodgkin and primary mediastinal large B-cell lymphomas (Dr. Lim's Laboratory): iTRAQ technique.

External Collaborations –

1) Epigenetics Consortium - - David C. Allis Laboratory, Rockefeller University
2) Identification of SCF E3-ligase substrates – Pagano Laboratory (New York University) in collaboration with Elenitoba-Johnson Laboratory

Publications:

1) Zhe Wang, Sean D. Taverna, C. David Allis, Martin, A. Gorovsky and Yifan Liu.Two highly conserved transcription repressive histone modifications, H3K27 methylation and H2A ubiquitinylation, are uncoupled in *Tetrahymena*. (Manuscript in preparation)
2) Anthony Moloscan and Yifan Liu. Mechanism for RNAi-dependent recruitment of Polycomb Repressive complex in *Tetrahymena*. (Manuscript in preparation)
3) Hojung Lee, Evan Shereck, Mitchell S. Cairo, Charles E Seiler III, Venkatesha Basrur, Damian Fermin, Kojo S.J. Elenitoba-Johnson and Megan S. Lim Proteomic analysis in the identification of therapeutic targets in natural killer cell lymphoma. (Manuscript in preparation)

Posters

1) Characterization of the T-cell leukemia/lymphoma 1 (TCL1) oncoprotein: interactome. Venaktesha Basrur, Charles Seiler, Damian Fermin, Alexey Nesvizhskii, Megan S. Lim, Kojo S.J. Elenitoba-Johnson. 4th Annual Conference, US HUPO, March 16-19, 2008, Bethesda, MD.
2) Identification and Characterization of an MLL Fusion Partner-associated Complex: MPAC: Sara C. Monroe, Stephanie Y. Jo, Venkatesha Basrur, Kojo S. Elenitoba-Johnson, Robert K. Slany, Jay L. Hess. American Association for Cancer Research--Cancer Epigenetics, May 28 - 31, 2008, Boston, Massachusetts.

Flow Cytometry Core Laboratory

Lloyd M. Stoolman, M.D. (Director) and Ronald Craig, Ph.D. (Research Associate; 50% effort); URL: http://www.pathology.med.umich.edu/pathflowcore/

The laboratory provides departmental investigators cost-effective access to research grade flow cytometers (Coulter/Beckman FC 500 [2-laser, 5-color, 8-parameter; carousel-loader], Becton-Dickinson LSR-II [3-laser, 10-color, 13-parameter; plate-loader]), networked data storage and web-based scheduling system. More than 50 undergraduates, graduate students, post-docs, research associates and principal investigators from 16 laboratories used one or both instruments in the past fiscal year. The instruments operated ~2300 hours or 78% (FC-500) and 33% (LSR-II) of the available time. Instrument/software/network maintenance, training

(instruments operated by users 95% of the time), assisted data acquisition/analysis and ad-hoc troubleshooting functions performed by Dr. Stoolman and the 0.5 FTE on the service.

Current projects include: (1) web sites tailored for research and clinical users; (2) beta test of CytoGenie experimental design/tracking software; (3) development of LSR-II based, 8-10 color flow cytometry panels for minimal residual leukemia detection following bone marrow transplantation and (4) co-development of flow cross-match (with Tissue Typing Laboratory). During 2007/2008, 26 manuscripts (peer reviewed, excluding reviews) were published with data generated on one or both flow cytometers.

Table of Usage

LSR II - 4224 Med Sci I			**FC500 - 4641 BSRB**		
PI	**Hours**	**Cancer Center Equivalent ($)**	**PI**	**Hours**	**Cancer Center Equivalent ($)**
Chinnaiyan, Arul	9	990.00	Duckett, Colin	283	8490.00
Elenitoba-Johnson, Kojo	20	1080.00	Ferguson, David	279	8370.00
Hess, Jay	117	4050.00	Fox, David	50	1500.00
Hogaboam, Cory	18	840.00	Hogaboam, Cory	202	6060.00
Kunkel, Steve	94	2820.00	Inohara, Haohiro	35	1050.00
Lukacs, Nicholas	31	1050.00	Kunkel, Steve	294	8820.00
Nemzek, Jean	91	2730.00	Lukacs, Nicholas	228	6840.00
Stoolman, Lloyd	204	6120.00	Phan, Sem	30	900.00
Varani, James	40	3360.00	Ward, Peter	10	300.00
Ward, Peter	7	630.00	Wilson, Thomas	4	120.00
Younger, John	32	1260.00	Younger, John	137	4110.00
Total	663	22710.00	**Total**	1552	46560.00
% Usage (1992 hr max)	33%		**% Usage (1992 hr max)**	78%	

Pathology Digital Microscopy Core Laboratory
Lloyd M. Stoolman, M.D. (Director), Ronald Craig, Ph.D. (Research Associate; 50% effort), Kristopher Thompson (Information Specialist, Informatics Division; 10% effort).

The Pathology Digital Microscopy Core Laboratory generates diagnostic quality (200-1000X) digital slide scans using an Aperio T2-robotic slide scanner, a Zeiss Axiomat computer-controlled photomicroscope with “mosaic” stitching software and networked Image servers. 5000+ scans (~5 terabytes) currently online including (1) M1 Histology (University of Michigan

and University of California at San Francisco collections), (2) M1 Histopathology, (3) Neuropathology, (4) M2 Organ Systems Pathology, (5) Graduate Student Histopathology and (6) research collections for Pathology department faculty. Twenty-two members of the Pathology faculty and many clinical trainees requested or used the virtual slides created and maintained by the service. This fiscal year, ~2200 200X, 400X and 1000X scans were conducted using both automated and manual methods. All of the 1000X scans and approximately 25% of the 200X and 400X scans required substantial operator effort. In particular, our 1000X scanning platform requires ~10 hours of operator time over 2-days to construct a ~14mm^2 scan. Database maintenance, instrument/software/network maintenance and training functions are performed by Dr. Stoolman and the 0.5 FTE on the service. The staff of the laboratory provided leadership, created the virtual slides, contributed server support and assisted MSIS during the transition to medical school servers as part of the interdisciplinary group that designed, authored, edited and implemented virtual microscopy laboratories in Medical Histology, Medical Histopathology, Medical Organ Systems Pathology, Dental and Graduate Student Histopathology. All microscopy laboratories during the first two years of Medical School, as well as selected courses in the Dental and Graduate Schools now use online, diagnostic quality virtual slides. In aggregate, ~500 students in the professional and graduate schools access our virtual laboratories annually.

The virtual slide technology replaces microscopes in the laboratories, provides Web-based access to online syllabi and allows slide based tests to be conducted online. The University of Michigan is a leader in virtual microscopy for educational uses and the first amongst its peer institutions to replace microscopes with laptops (one-for-one) in the laboratories. The Web sites and slide content can be accessed at the following URLs.

1. M1 Histology: www.med.umich.edu/histology
2. M1 Histopathology: www.med.umich.edu/digitallab/histopathology
3. M2 Organ Systems Pathology: www.med.umich.edu/digitallab/M2schedule.html

Current projects include (1) slide quality optimization for all educational web sites; (2) increased usage for Dental Histopathology Sequence ; (3) beta test of robotic 830-1000X under oil slide scanners for Hematopathology applications; (3) accelerated development of searchable teaching sets for Pathology residents, fellows and technologists (currently 700, 400X scans in collection); (4) expansion of clinical conference support and (5) integration of virtual microscopy with the Laboratory Information System.

Tissue Procurement Resource

We have successfully identified space in MSRBIII adjacent to the Giordano laboratory wherein a Tissue Procurement Resource (TPR) will be housed. We successfully secured funds sponsored by the MICHR/CTSA to archive hematopoietic malignancies. At the helm of this venture is Dr. Megan Lim. We developed a working structure for the TPR which includes Dr. Linda McAllister-Lucas in the Pediatric Hematology/Oncology Division of the Department of Pediatrics as a co-director. During the next year, we will start creating a repository of

hematopoietic and rare pediatric malignancies using the combined resources obtained from the MICHR/CTSA and the Department of Pediatrics.

Kojo Elenitoba-Johnson, M.D.
Associate Professor of Pathology
Director of Translational Research

MICHIGAN CENTER FOR TRANSLATIONAL PATHOLOGY

Michigan Center for Translational Pathology

Arul M. Chinnaiyan, M.D., Ph.D.
S. P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director, Michigan Center for Translational Pathology

OVERVIEW

The establishment of the Michigan Center for Translational Pathology (MCTP) in April of 2007 began a new era of a collaborative team approach to biomedical research, supported by the Department of Pathology, the University of Michigan Health System, the Medical School and the University President's Office.

The goals of the MCTP are to make significant scientific advancements in biomarker discovery/validation and molecular medicine, develop new technologies to explore disease development, contribute significant improvements in clinical monitoring, and to actively pursue the development of novel targeted therapeutics for various types of cancer and other diseases. Further, in keeping with the academic mission of the University of Michigan Health system, the Center will also be an impetus for the creation of a scientifically stimulating research environment promoting collaborations in molecular medicine, provide training for the next generation of physician scientists and researchers, and serve as a academic center of excellence of biomedical research for the global scientific community.

The inaugural year was a productive one for the MCTP, with efforts well underway to lay the foundation for future developments. Successful recruitment of new faculty included the addition of Dr. Christopher Beecher leading a new initiative in Metabolomics and Dr. Kenneth Pienta, M.D., from the Department of Urology at Michigan, who will be leading studies in experimental therapeutics. Additionally, further progress has been made with the establishment of the Center at a second site on the Traverwood campus with the aid of the newly appointed administrator, Dorothy Nalepa. This includes not only Dr. Beecher's laboratories with robotic platforms and mass spectrometry, but also the establishment of the Molecular Testing laboratory and Tissue Core under the leadership of Javed Siddiqui. The Traverwood facility will also support the Proteomics group, lead by Dr. Arun Sreekumar, and the Immunomics group, lead by Dr. George Wang. The capacity for genomic analysis has been greatly enhanced by the support of the Howard Hughes Medical Institute, which provided a second Solexa machine for next generation sequencing and a high-throughput robotic system for qrt-pcr analysis. To enhance visibility in the global community a new, more comprehensive updated website for MCTP was created by the team of Jill Granger, Vasu and Rekha Mahavisno, Terry Barrette, and Steffanie Fineman to

update the scientific community on the group's research developments, with a new education section about the group's research directed toward a general public audience (available soon at mctp.path.med.umich.edu).

Several researchers at MCTP were recognized for their scientific achievements in the past year. Dr. Arul Chinnaiyan, the Director of MCTP, was named a Howard Hughes Medical Investigator, honored with the 2008 American Association for Cancer Research Award for Outstanding Achievement in Cancer Research, and was also awarded the SPORE Translational Science Award. Dr. Chinnaiyan also received the DOD "Era of Hope Scholar Award", and was also named as a semi-finalist in the Doris Duke Foundation's "Distinguished Clinician Scientist Award for Excellence in Bench to Bedside". In addition to becoming an independent investigator, Dr. Arun Sreekumar received an RO1 award from the NIH for his proposal on the "Integrative Metabolomics of Prostate Cancer Progression", as well as an award from the Multiple Myeloma Research Foundation for his proposal "Proteomic Profiling of Multiple Myeloma Progression." This was also an active year for Scott Tomlins, who was awarded the Blue Cross and Blue Shield of Michigan Foundation's 2008 "Excellence in Research" award for students and the Prostate Cancer Foundation's "Young Investigator" award. Additionally, Jindan Yu was also successful in securing a K-99 award from the NIH and NCI this year for a proposal addressing "The Role of Beta-Adrenergic Signaling in Prostate Cancer." Rohit Mehra also secured the Stowell-Orbison Certificate of Merit award at the USCAP meeting this year, and Javed Siddiqui and his team were awarded the c caBIG™ 2008 Teamwork Award for their contributions to the Prostate SPORE Informatics Team. A study from the University of Michigan Prostate SPORE rapid autopsy program, investigating TMPRSS2-ETS gene fusions in androgen independent metastatic prostate cancer was featured as the cover article in *Cancer Research*.

In addition to receiving competitive funding awards, there were committed efforts to procure funding through philanthropy, which were actively pursued by Steffanie Fineman. Out-right gifts in excess of $370,000 were collected this year. The Prostate Cancer Foundation has committed $1 million in matching funds for the PCF Wolverine Challenge to benefit the Michigan Center for Translational Pathology. Donations are to be matched dollar for dollar. In FY 2008, the PCF has provided $193,150.00. Opportunities for online giving will also be enhanced through the appropriate links provided on the new, updated website.

Revenue raised to support the Center continues to be used for the production of high-quality scientific work, as recognized by publication in peer-reviewed journals. Dr. Chandan Kumar recently published in *Nature Review Cancer* in July, 2008. Dr. Scott Tomlins continues to be productive in his investigations of gene fusions with publications appearing in *Nature*, *Neoplasia*, and *Cancer Cell*. A first-generation multiplex biomarker analysis for prostate cancer in the urine was highlighted in *Cancer Research* in February of 2008 by Dr. Bharathi Laxman, representing a major clinical accomplishment for the group. And two members of the group received the additional recognition of having their work featured on journal covers this year; Dr. Jindan Yu, for investigations of the polycomb repression signature in metastatic prostate cancer (*Cancer Res*. 2007 Nov 15; 67(22):10657-63), and Dr. Rohit Mehra for his studies characterizing TMPRSS2-ETS gene aberrations in androgen-independent metastatic prostate cancer (*Cancer Res*. 2008 May 15;68(10):3584-90). Both Dr. Yu and Dr. Mehra also published additional papers in *Cancer Cell*, and *Cancer Research*, respectively.
Taken together, the rapid growth and productivity of the Michigan Center for Translational Pathology, combined with enthusiastic support from the scientific community, shows positive

signs that this exciting collaborative effort toward translational research is becoming well-established within the University of Michigan Health System. Upcoming developments from this active research group will undoubtedly have significant impact on clinical care in the near future.

Summary of Research Group Activities for 2008 at MCTP

Bioinformatics

Previously, the Bioinformatics team developed methodologies to integrate genome scale data, such as microarrays and array-based Comparative Genomic Hybridization (aCGH). This group has begun to employ next generation sequencing technologies (NGS) for gene fusion discovery, biomarker detection, and integrative cancer biology, with the aid of the Illumina Genome Analyzer sequencing platform. The goal of this group has been to generate, store, integrate, and analyze these vast data collections to provide a global view of the mechanisms driving cancer development.

Oncomine, which was previously developed by this group, was a bioinformatics initiative aimed at collecting, standardizing, analyzing, and delivering cancer transcriptome data to the biomedical research community. Building upon the endeavor, the group recently developed a Molecular Concepts Map (MCM) that integrates and analyzes Oncomine data into a collection of cancer-related gene signatures, or “molecular concepts”. The utility of this approach was demonstrated by its identification of oncogenic pathway signatures and disease signatures predictive of breast cancer relapse. Overall, this type of meta-analysis has significant impact for delineating critical pathways and processes underlying human disease, predicting prognosis and response to therapies, and the development of novel treatments. Oncomine and MCM form the foundation of the U of M start-up company, Compendia Biosciences.

Harnessing the power of next generation sequencing technologies for gene fusion discovery, the Bioinformatics team has developed an integrative analysis of high-throughput long read and short read transcriptome sequencing. As a proof of concept, they has successfully utilized integrative transcriptome sequencing to “re-discover” the *BCR-ABL* gene fusion in a chronic myelogenous leukemia cell line, and the *TMPRSS-ERG* gene fusion in prostate cancer cell line and tissues. It was also possible to nominate, and experimentally validate, novel gene fusions in prostate cell lines and tumors. Overall, this robust pipeline serves as the basis for detecting gene fusion candidates representing ideal diagnostic markers and therapeutic targets.

Next generation sequencing technologies have been employed for elucidating the regulatory mechanisms driving prostate cancer. ChIP-Seq is capable of revealing protein-DNA interaction sites across the entire genome thus building a comprehensive and high-resolution interactome map for a DNA binding protein of interest. To handle ChIP-Seq data, a novel program, HPeak, was developed that utilizes a Hidden Markov model-based algorithm to nominate regulatory regions.

Future goals of this group include data pipelining Solexa data analysis, expansion of VMWare, and the upgrade of the wiki used by the group to a more user-friendly format. The existing Linux machines in the data center will be incorporated in to the Solexa pipeline.

Cancer Biology

The Cancer Biology group was formed to apply advanced genomic analysis to identify regulatory genes that may be involved in neoplastic progression, which are subsequently characterized for their possible role in carcinogenesis. This has successfully resulted in a series of discoveries that are unveiling the molecular changes leading to the development of this cancer, showing great promise for the development of target therapeutics.
Earlier discoveries by this group found that EZH2 was up-regulated in hormone-refractory, metastatic prostate cancer, with elevated levels of EZH2 found in patients with aggressive, clinically-localized disease. Elevations of EZH2 transcript and protein were also discovered in invasive breast carcinoma. A key target of EZH2 was nominated, ADRB2 (Adrenergic Receptor, Beta-2), a critical mediator of beta-adrenergic signaling. The tumor suppressor, E cadherin, was also identified as one of the key targets of EZH2 mediated gene repression. This group found that histone deacetylase inhibitors can prevent EZH2- mediated repression of E-cadherin and attenuate cell invasion, suggesting a possible mechanism that may be utilized for the development of therapeutic treatments.
The Cancer Biology group has recently discovered recurrent gene fusions/translocations of androgen regulated promoter or enhancer elements of TMPRSS2 to ERG and ETV1, members of the Ets family of oncogenic transcription factors in human prostate cancer. Efforts to define the role of these recurrent fusions in cancer development are ongoing.

The Cancer Biology group is identifying small molecule inhibitors for oncogenes in collaboration with the Life Sciences Center for Chemical Genomics. Exploring the molecular circuitry that differentiates benign tumors from aggressive cancer may lead to the discovery of prognostic markers and novel therapeutic targets. Other projects include the exploration of methods to inhibit polycomb group protein EZH2, which is over-expressed in prostate and breast cancer, as well as transcription factor ERG and other Ets factors that are dysregulated in prostate cancer. Such applications will hopefully allow for the development of targeted therapies, tailored for a patient's cancer, and may eventually lead to targeted intervention for prevention of neoplastic progression.

Current active projects include the examination of the role of AVODART in pre-clinical models of gene fusion positive prostate cancer, the development of small molecule inhibitors against polycomb protein EZH2 and gene fusion products of prostate cancer, and studies of RNA interference screen to identify network regulating ERG activity.

The group has had a scientifically productive year, with eight publications in journals such as *Nature* and *Cancer Research*, and new funding from the Prostate Cancer Foundation to study the development of small molecule inhibitors against gene fusion products of prostate cancer. Dr. Varambally also partakes of teaching activities, serving as an instructor for Cancer Biology 553.

Genomics
Previous studies by the Genomics group identified recurrent gene fusions between androgen regulated gene TMPRSS2 and members of Ets family transcription factors like ERG, ETV1 or ETV4 in prostate cancer. In order to assess the prevalence of these fusion events in prostate cancer, large scale fluorescence *in situ* hybridization (FISH) analyses were carried out on several hundred prostate cancer specimens assembled in tissue microarrays. The investigations identified several new Ets rearranged cases with unknown 5' partners, as well as a distinct subset of Ets rearrangement negative prostate cancers. The characterization of both subtypes is a major emphasis using cutting edge genomics techniques.

The Genomics group is now actively pursuing several avenues of research. Attempts are underway to discover novel Ets gene fusions in prostate cancer, with characterization of diverse regulatory elements driving various gene fusions, delineating their role in prostate carcinogenesis. The functional characterization of Ets rearrangements in positive prostate cancers is being examined through the use of model systems in transgenic mice. Further, the characterization of Ets rearrangement in negative prostate cancers was undertaken, and a subclass that over-expressed SPINK1 gene was identified and is currently being characterized. Studies were also performed to examine the DNA methylation changes in prostate cancer progression, which were documented by the group's cancer epigenome project. Additional efforts included prostate and breast cancer profiling studies. Over the past year, gene expression/ aCGH profiles have been performed for over 200 prostate tissue samples and 23 cell lines. In addition to this profiling, the group did more than 300 microarray hybridizations as a part of various *in vitro* experiments to functionally characterize the dysregulated genes in prostate cancer. Similar studies have been initiated with breast cancer samples.

Future goals of the group include: 1) identification and characterization of recurrent gene fusions in common epithelial cancers using next generation sequencing technologies, aCGH, and gene expression data, 2) identification and characterization of differential methylation in prostate cancer by integrative analysis of next generation sequencing and aCGH datasets, 3) functional characterization of novel gene fusions, mutations, and other hypotheses generated by the bioinformatic analyses of genomic/ transcriptome data.

The various research activities by this group have led to a productive year. The Genomics group has successfully published 11 manuscripts in journals such as *Nature Genetics*, *Cancer Research*, and *Cancer Cell*, among others. They have also received a SPORE grant in prostate cancer from the NIH for their proposal of the "Role of Gene Fusions in Prostate Cancer" ($196,297/yr). Additionally, Dr. Saravana Mohan Dhanasekaran has presented a talk entitled "Recurrent gene fusions in prostate cancer: ETV1 class of fusions" at the First AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved in Atlanta, Georgia in 2007, while Dr. Chandan Kumar has presented **"**Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets**"** at Roche Biosciences in, Branford, Connecticut during 2008.

Immunomics

The Immunomics group at MCTP employs high throughput phage-peptide microarrays to characterize autoantibody signatures in prostate cancer patients. Utilizing the ability of the body's own immune system, a panel of 22 biomarkers have been identified, which can distinguish cancer more accurately in patients than prostate specific antigen (PSA) alone. This is the first of its type autoantibody signature in prostate cancer patients and may be highly useful in the detection and screening of prostate cancer in clinical laboratory. This technology initiated a U of M start-up company, Armune Biosciences.

In order to analyze the clinical correlations of these candidate phage epitopes, the group has evaluated different assay platforms, including ELISA, meso-scale discovery, as well as multiplexed immunobead-based platform (Luminex) to validate the potential phage biomarkers. The goal is to establish an assay platform that could be clinically useful in the accurate detection or monitoring of cancer. Hence, the aims of the Immunomics group are to assess different immunoassay technology, replicate the phage-epitope biomarkers on the same set of patient

samples, and to determine the minimal number of phage biomarkers to achieve optimal sensitivity and specificity.

The group recently developed a more practical and efficient multiplex microsphere-based technology to detect the autoantibody signature in cancer patients. The assay protocol combined the typical antibody-based sandwich assay with multiplex Luminex xMAP system, thus offering multiple benefits such high accuracy, speed, sensitivity, and flexibility. It was very efficient and ideally suited to meet the current requirements of identification/validation of cancer biomarkers.

In the future, the efforts of this group include testing and validating the immunoreaction of the candidate phage epitope biomarkers on a bead-based detection system, multiplexing the immune response of phage biomarkers for diagnosis/prognosis of cancer patients, extending the assay to large sample cohort for validation of the performance of autoantibody signature, and
the translation of the assay system to clinical application.

The efforts of the Immunomics group have culminated in the acceptance of four research publications this year in journals, including *Cancer Research*. George Wang, the group leader, is also active in student mentoring activities.

Metabolomics
The Metabolomics group, the most recent addition to MCTP, has been recently established at the Traverwood site. This group will attempt to uncover the metabolic signatures created during the initial stages of disease development, throughout the course of disease progression, as well as during the treatment. This group, under the leadership of Dr. Chris Beecher, has already begun construction of a medium high throughput Metabolomics platform, which will incorporate chemocentric unbiased analyses, mass spectroscopy, full integration, robust reproducibility, and reduced coefficient of variance. They will establish baseline metabolomic principles, methods, and techniques for both data generation and interpretation, and pursue development of advanced data-mining techniques. To expedite the workflow of these projects, the group has acquired two new mass spectrometers and a Hamilton Workstation 150 robot. Optimized SOPs are currently under development.

The group's long-term goals are to establish a state-of-the art metabolomic platform, identify diagnostic markers in major disease areas, develop new technologies and informatics methodology, and to scientifically establish the unit into a National Metabolomic Center.
To support these goals, Dr. Beecher serves as a consultant on an NCI funded project "Integrative Metabolomics of Prostate Cancer Progression" ($1,250,000), is a co-investigator on two additional awards, and has formed additional collaborations with Drs. Sreekumar and McDougald through pending grant applications. Dr. Beecher has quickly assumed academic activities as well, presenting lectures in the Bioinformatics, the Cancer Biology Tutorial, and the Pathology Seminar series. He also has a recent patent submission entitled "Method for Sample-based data-acquisition in Mass Spectrometry."

Molecular Cytogenetics
The Molecular Cytogenetics group, under the leadership of Dr. Nallasivam Palanisamy, is actively working to develop and validate high quality FISH based reagents for the analysis of complex chromosome rearrangements in various types of cancer.

Currently, this group is maintaining an inventory of Human BAC clones, some of which are FISH mapped and publicly available as part of the Cancer chromosome aberration (CCAP) project initiative by National Cancer Institute. A majority of the BAC clones were generated for genes involved in the formation of chimeric genes in hematological malignancies and sarcomas. The working hypothesis of the group is to identify the involvement of these genes during recurrent aberrations in solid tumors.

Initially, a pilot FISH screening project initiated to screen for gene rearrangement regulated by estrogen during the course of breast cancer and for androgen in prostate cancer, and is completed. FISH probes for routine screening of ETS family genes in different types of cancer were developed, and have been successfully employed to detect ETS rearrangements in prostate cancer. The screening of melanoma, breast, and endometrial carcinoma are in progress.

Additionally, a transcriptome sequencing project for characterization of expressed sequences in prostate cancer and melanoma was recently initiated by applying the next generation Illumina sequencing technology, with the hope of identifying a secondary recurrent gene rearrangement in ETS positive cases and novel recurrent gene fusion in ETS negative prostate cancer. The transcriptome sequencing project has been extended to the screening melanoma cancer.

The future goals of this group include the completion of ETS screening in endometrial carcinoma and breast cancer, analysis of gene rearrangements in prostate cancer by multicolor FISH, validation of new fusion genes candidates identified in prostate and melanoma through transcriptome sequencing, and the initiation of next generation sequencing to characterized genomic rearrangements in cancer.

Dr. Palanisamy is also involved in the training technical staff and undergraduate students for this newly formed group, and the group has a publication in press with the journal *Cancer Research*.

Next Generation Sequencing
The Next Generation Sequencing group, led by Dr. Jindan Yu, arose from advances in massively parallel next-generation sequencing technology, a rapidly developing field in biomedical research. This group has explored the cost-effectiveness of such technology, evaluating various platforms offered by numerous vendors that eventually led to the selection of the Illumina, which is now providing high-quality sequencing data. This cutting edge technology has permitted a number of different applications to be developed at the Center, including ChIP-Seq, RNA-Seq, MeDIP-Seq, and DGE for the study of protein-DNA interactions, gene fusions, DNA methylations, and gene expression.

A wide variety of ChIP-Seq based projects have been developed. The group has **i**nvestigated the mechanism of key transcription factors of prostate cancer. Integrative analysis of androgen-mediated gene expression (DGE) with AR occupancy to delineate AR-mediated pathways in prostate cancer has also been performed. They have also explored androgen-mediated

epigenetic changes including histone modifications and DNA hyper-methylation. Research has also been initiated to study the role of estrogen receptor (ER) in breast cancer. Investigations are also underway to examine the molecular cross-talk between AR and ERG in prostate cancer tumors, the role of ADRB2 in prostate cancer, and EZH2-mediated epigenetic silencing of SLIT2 in prostate cancer.

This group has had a productive year. They have produced ten research publications, two of which were featured articles in *Cancer Research* and *Cancer Cell*, as well as a publication in *Nature*. The grant support of this group exceeded $800,000, and they have submitted two patents in the past year, and are actively involved in training activities.

Pathology

The Pathology group is managing the procurement of biological tissues, and associated clinical information, to facilitate translational research in cancer through an allied molecular and surgical pathology approach. Quality assurance is maintained by three pathologists (Drs. Chinnaiyan, Shah, and Mehra) and three pathology fellows (Dr. Han, Subramaniam, and Suleman). Clinical consent and patient participation is directed by a collaborator with established expertise in the field (Dr. Wei, Department of Urology), with active contribution of pertinent cases facilitated by other faculty members (Drs. Giordano, Lucas, and Kleer).

This group is actively characterizing the structural and functional changes associated with the development of cancer using FISH methodology. They have now undertaken the characterization of a global ETS rearrangement signature in a multitude of cancers including those of the prostate and breast, as well as hepatocellular cancer. The Pathology group has examined *TMPRSS2*:ETS gene rearrangements in androgen independent metastatic prostate cancer using FISH split-probe technology, the results of which suggest that metastatic prostate cancer arises through the clonal expansion of a primary tumor.

A variety of other activities have been undertaken by the Pathology group. This includes construction of high throughput tissue microarrays and characterization of novel biomarkers on clinical cases, procuring tissues and providing pure tumor cell populations for genomics/proteomics strategies, morphologic and immunohistochemical assessment of transgenic mice and xenografts, and evaluations of genetic aberrations in human prostate cancer genesis. A bioinformatics platform was developed to maintain and analyze data, and new biomarkers were validated with investigations of differentially expressed cancer genes.

The future goals of the Pathology group are to decipher the molecular mechanisms underlying pathogenesis of benign and malignant diseases by procuring a spectrum of tissues representing human pathology. They also hope to provide innovative, surgical pathology modalities for the detection of gene rearrangements and novel biomarkers, with the goal of enhancing the comprehensive diagnostic, prognostic and therapeutic care of patients.

This group has had a very productive year, with twelve publications, including one in *Nature*, and another that was featured on the cover of *Cancer Research*. The also have a wide variety of patents, and have been especially active in the training of UROP students.

Proteomics

The Proteomics group, under the leadership of Arun Sreekumar, has been using multidimensional protein separation and mass spectrometry to profile various tumors. The goals

of this group include the study of global proteomic alterations during tumor development and progression, identification of interacting partners for various tumor antigens, characterization of fusion proteins using Multiple Reaction Monitoring, and interrogation of the phosphor-proteome of tumors throughout their progression. The research activities of this group have been primarily focused on prostate cancer and Multiple Myeloma.

This group has been engaged in a number of productive research endeavors over the past year. This includes the profiling androgen-induced proteomic alterations in a prostate cancer cell line to delineate the underlying mechanism of androgen-induced protein biosyntheses. They have also identified the interacting partners for various tumor antigens, developed a Multiple Reaction Monitoring (MRM) to assess levels of tumor markers in biofluids, undertaken phosphoproteome profiling, and performed unbiased profiling of proteomic alterations in multiple myeloma. The laboratory was also engaged in the validation and interpretation of metabolomic data derived from unbiased profiling of prostate-related tissues.

The future goals of this group include studies of the metabolomics of prostate cancer progression (as outlined in Dr. Sreekumar's recent R01 received from NIH), the delineation of proteomic signatures as markers for therapeutic responses, and the integrative analysis of "omics" data to define pathways to cancer progression.

In the past year, the group has produced two publications, and awarded a variety of grant support including an RO1 from NIH on the "Integrative Metabolomics of Prostate Cancer Progression", a grant from the Multiple Myeloma Research Foundation for the "Proteomic Profiling of Multiple Myeloma Progression", among others. Their productivity also includes patent applications and establishment of collaborations with the newly formed Metabolomics group. Dr. Sreekumar is also active in mentoring activities of post-docs and a faculty member.

Tissue Core and Molecular Testing Lab

The Tissue Core serves as a repository for prostate cancer tissue specimens, while the Molecular Testing Lab, under the leadership of Javed Siddiqui tests for the presence of biomarkers in tissue, urine, and serum to assess their diagnostic potential for disease identification, characterization of disease subtype and prognosis, as well as possible role in monitoring treatment efficacy.

Research information from such specimens is data linked to both clinical and pathological databases for dissemination of comprehensive data information. The overall goal of these groups is to facilitate the identification of new biomarkers, characterization of molecular subtypes of cancer, and development of new prognostic tests for clinical application.

The past year has seen much progress toward the enhancement of diagnostic capabilities. For the caBIG project, approximately 100,000 prostate-related biospecimens were accrued from approximately 5000 prostate cancer patients, and these have been entered into caTISSUE. The clinical lab has been accredited by The College of American Pathologists (CAP), and Clinical Laboratory Improvement Amendments (CLIA) were followed. The group is working on clinical the evaluation of PCA3 and T2:ERG gene fusions from men scheduled for prostate biopsy and prostatectomy.

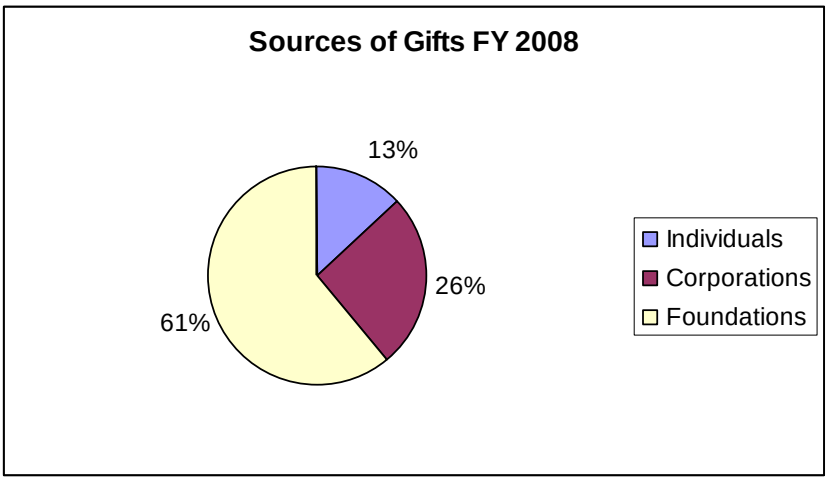
Future goals of this group include the introduction of clinical tests for PCA3 and T2, assist investigators at the U M-Cancer Center in the development of a caTissue core and suite, and

establishment of a single tissue bank for the UM-Cancer Center. The group also hopes to Validate PCA3 and the TAPTIMA® TMPRSS2 gene fusion, offering this as a clinical test within or outside of the UM-Health system, and well as serve as a reference lab for various technologies.

This past year has been productive for this group as well, in addition to publications, as the University of Michigan was awarded the 2008 caBIG™ Teamwork Award, presented in recognition contributions to the Prostate SPORE Informatics Team at the caBIG™ Annual Meeting in Washington, D.C.

Philanthropy

Efforts to raise funds for MCTP, through the efforts of Steffanie Fineman, have been productive this year, with a total fundraising production of approximately $826,000.00. This includes outright gifts ($374,000), pledges ($20,000, including matching by the Prostate Cancer Foundation (PCF), and gifts-in-kind ($435,000) from Agilent Technologies and Pfizer. There was a well-rounded source of donations, with representation from individuals, corporations, and foundations as summarized below:



Further, the PCF has committed $1 million in matching funds for the Wolverines Against Prostate Cancer to benefit the Michigan Center for Translational Pathology. Donations are matched dollar for dollar. In FY 2008, the PCF has provided $193,150.00. There is an expected gift of a $15,000.00 donation (plus $15,000 matching funds), with $5,750.00 in recent donations expected to be matched by PCF.

Development presentations have been conducted at the Michigan Difference Seminars in Naples and Palm Beach. A presentation was also held in Longboat Key Florida, as well as five fund-raising presentations in Birmingham, Michigan by Keith Pomeroy with the Prostate Cancer Foundation.

Administration

The Michigan Center for Translational Pathology was created in April, 2007, and in the past year, activities have focused primarily toward establishing the administrative framework and

Traverwood facility. Efforts continue to recruit key personnel to achieve Center objectives and goals.

The Center acquired a new administrator this past year, Dorothy Nalepa, who aided in the establishment of the Traverwood site. Dr. Chris Beecher's lab (Metabolomics) was added, with the new additions of Dr. Sreekumar's lab (Proteomics) and Dr. Wang's lab (Imuunomics) forthcoming.

The Howard Hughes Medical Institute has approved a large portion of the 5th floor Cancer Center as designated HHMI space. This designation transfers the rent expense to the HHMI, which significantly reduces rent expenses within the department of Pathology. HHMI has approved a renovation plan that will provide additional seating within the labs. This construction is anticipated to be completed during FY09.

Several pieces of equipment were purchased during this year. Most significantly, two Solexa sequencing machines for the 5th floor Cancer Center as well as two mass-spectrometers and a robotic system in Chris Beecher's lab at Traverwood.

The Center's financial strength remains strong. Recent large grant awards will alleviate the spending of Center funds in the near future.

Dr. Arul Chinnaiyan, MCTP Director
and Jill Granger, Sr. Technical Writer

MLabs

MLabs Program

Steven H. Mandell, M.D.
Assistant Professor of Pathology
Director of MLabs Program

OVERVIEW

MLabs, established in 1985, is the University of Michigan Health System's outreach laboratory program. Its role is to extend the pathology department's clinical laboratory services and faculty expertise to regional hospitals, clinics, physician offices and other healthcare settings; work that otherwise might be sent outside the region or state to national reference laboratories. This model proved to be successful, capitalizing on the quality reputation of the University, the Health Care System and the Department, and the dedication and drive of several key individuals to guide and support the growth of the program; MLabs has continued to grow since its inception.

With competition in the marketplace and advances in laboratory automation and informatics, quality in clinical laboratory testing is now *assumed* by our clients and laboratory services are increasingly being viewed as a negotiable "commodity" with work going to the lowest bidder. As such, MLabs is able to distinguish itself from its competitors by offering specialty expertise and a testing menu, Stat services, and University programs not available at local or regional levels from national reference laboratories.

MLabs is expected to grow and further enhance its services, capacity, and operations and will do so sharing in the progress of the clinical laboratories. The Mission Statement below describes this intent and reflects the client advocate role that MLabs must play in the advancement of departmental operations; it reflects MLabs' continued commitment to respond and remain responsible to the competitive marketplace.

Mission Statement

1. To develop and enhance MLabs; to increase its scope and profitability.
2. To represent the "voice" of the outreach client and patient in seeking constant improvement in all University laboratory, clinical, administrative, informatics, compliance and business operations where they might impact MLabs services; to do the same when

dealing with external vendors who provide support services to the Department that might impact MLabs services.

3. To maintain price competitiveness in our target markets; to ever seek improvement in the revenue/cost ratio for the MLabs test menu.
4. To enrich the academic mission of the department by providing laboratory specimens of interest to the faculty, residents and students as well as opportunities to expand the faculty's reputation and reach into the regions we serve as educators, experts, supportive colleagues and researchers.
5. To support the mission of the University of Michigan Health System (UMHS) by providing outpatient laboratory services through a network (or networks) of hospitals' laboratories.

Workforce

Faculty

Division Director - Steven H. Mandell, M.D., Assistant Professor, (35% effort of full time appointment)

Associate Director - Rodolfo F. H. Rasche, M.D., Assistant Professor, (10% effort of 60% part time).

Staff

These individuals represent the University of Michigan Health System and Pathology Department to the patients and clients we serve on a day-to-day basis and are by far our most prized and valuable resources. H. Steven Gregg, previously our lead client services representative (call center), has assumed the role of training specialist for our outreach laboratory portal, MLabs Connect, our division's web-based, electronic order entry and results client interface. Through this role, he maintains a more direct contact with our clients. At the same time, our call center hours of operation have been expanded and MLabs customer service representatives are now available from 6:30 am to 11:00 pm, Monday through Friday, and from 7:30 am to 4:00 pm on Saturday to better serve the needs of both our hospital clients as well as our outpatient clinics and urgent care centers now providing weekend and evening services. To enable these activities, Samantha Coffey, Jenny Curtis, Billie Jo Bennet and Cindy Lycan have joined the MLabs call center crew. Samantha and Jenny were recruited as excellent candidates from our specimen processing area while Billie Jo and Cindy were recruited from customer-oriented service positions outside of the laboratory. Specimen Processing (formerly Central Distribution) staff cover our phones for off-hours coverage.

Program Manager	Susan Valliere, BS, MT (ASCP)	15 yrs with MLabs
Operations Supervisor	Deborah Moss, BS, MBA, MT (ASCP)SM	12 yrs with MLabs

Account Representative	Melissa Brown, MT (ASCP)	12 yrs with MLabs
Managed Care/Financial Analyst	Deirdre Fidler, MHSA, BS, MT (ASCP)	12 yrs with MLabs
Information Technology Support Specialist	Steve Goyette, BS, MT (ASCP)SC	3 yrs with MLabs
Training Specialist, MLabs Connect	H. Steven Gregg	8 yrs with MLabs
Customer Service Assistant, Senior	Chanin Kelly	4 yrs with MLabs
Customer Service Assistant, Intermediate	Denise White	7 yrs with MLabs
Customer Service Assistant, Intermediate	Leesa Stanislovaitis	6 yrs with MLabs
Customer Service Assistant, Intermediate	Victoria Clark	3 yrs with MLabs
Training Specialist, MLabs Connect	Jackie Goodman	2 yrs with MLabs
Customer Service Assistant, Senior	Jenny Curtis	1 yr with MLabs
Customer Service Assistant, Intermediate	Samantha Coffey	1 yr with MLabs
Customer Service Assistant, Intermediate	Cindy Lycan	1 yr with MLabs
Customer Service Assistant, Intermediate	Billie Jo Bennett	1 yr with MLabs

Market Segments Served
The MLabs Division plays a significant role in providing reference laboratory services to the Michigan and northern Ohio regions.

Market segments served	
Dermatology	Medical Oncology
Drug Testing / Psychiatry and Drug Counseling	Multi-Specialty Clinics
Extended Care Facilities	Neurology
General Surgery and Surgical Subspecialty Practices	Nursing Homes / Residential Care
Government Subsidized Health Screening Programs	Obstetrics and Gynecology
Hospitals – Full Coverage	Ophthalmology
Hospitals – Reference and Esoteric Testing	Pathology Consultations
Independent Laboratories	Pediatrics
Industry Health Services	Podiatry
Infectious Diseases	Research Industry - Commercial
Laboratory Networks	Specialty Clinics
Managed Care	University Health Services
Medical and Medical Subspecialty Practices	Visiting Nurse Associations

Non-Hospital Market
10% of business based on actual CP Billings and 20% by Test Activity. Market representation includes Industry Health Services, Commercial Research Facilities and Independent Laboratories.

Hospital Market
40% of business based on actual CP Billings and 45% by Test Activity. MLabs is the primary reference laboratory and provides full esoteric laboratory testing to 13 hospitals in Michigan and northern Ohio. MLabs provides specialty services, e.g., renal biopsy, flow cytometry, molecular diagnostics to an additional 20+ hospitals throughout the state. No significant hospitals were added to this market during the past fiscal year.

Physician Office Market
50% of business based on actual CP Billings and 35% by Test Activity. Testing from these offices is billed to the third party payer at UMHS' 3rd party fee schedule. This segment represents laboratory testing provided to over 125 individual offices in the greater Washtenaw County service area.

Managed Care
M-CARE
In January 2008, M-Care, a client since 1996, functionally ceased operations with most patients transitioning to the Blue Care Network, M Premier Care Plan. MLabs supported M-Care, its physicians and patients during the transition period and will continue to taper support as claims are processed and closed. We continue to support the array of Blue Care Network activities through the health system's contracts with BCN as well as through our relationship as an equity member of Joint Venture Hospital Laboratories.

Laboratory Networks
Joint Venture Hospital Laboratories (JVHL)

JVHL is the largest laboratory network in Michigan and is organized as a limited liability company in Michigan, equally owned by its hospital laboratory members. The University of Michigan Health System (MLabs) became an equity member of JVHL in 1997. MLabs personnel coordinate all of the Departmental issues pertaining to contractual obligations to JVHL (e.g., Quality Assurance and HEDIS reporting). The University is represented on JVHL's Executive Committee by Dr. Mandell and Mr. Eugene Napolitan (Capital Projects Manager), and on the Quality Assurance, Operations, and Marketing Committees by Deirdre Fidler.

Great Lakes Laboratory Network (GLN)
MLabs became a member of GLN in 1996. MLabs does not participate in managed care contracts through GLN; our membership is primarily advisory through representatives on the Executive and Steering committees.

Financial Performance
At the time of this report, MLabs projects an increase in total gross billings and total number of tests this year.

MLabs Services

MLabs coordinates Continuing Medical Education activities for its clients, including a popular Saturday Anatomic Pathology Symposium (includes informal lectures, lunch and slide reviews at a multi-headed projection scope), attendance at the department's annual Blood Bank Conference, and other events. Client site training is also provided for a variety of in-service topics.

MLabs Client Services Office acts as liaison between Department and UMHS Health Center sites on all related lab issues. Client service assistants handled about 50,000 incoming client calls this year, an increase of over 7,000 calls. We expect this number to level off as the use of MLabs Connect expands as a reporting and specimen tracking tool. While client retention was 100% this year, Deb Moss is expanding training of customer service personnel to better enable handling of health system calls currently directed to Specimen Processing. In addition, MLabs fields requests for outside research, community testing and health fairs. We facilitate these requests from the initial phone inquiry through final resolution.

Intermittently, Pathology Informatics requires changes in PathNet or interfaces that require IS maintenance by our clients. These efforts are facilitated and coordinated by the MLabs staff. Activities this past year include assisting interfaced clients with conversion of Specialty Laboratory Send-outs to specific orderables, labels and manifests. Likewise for on-site AP type clinical lab orders; converting XLABEL miscellaneous to specific laboratory locations on routing label**;** conversion of Mayo Miscellaneous send-out orders to specific orderables, labels and manifests in process.

Use of our web-based laboratory portal for customer electronic order entry and result retrieval, MLabs Connect, has been rolled out to a hospital-based critical care center, a nursing home and a physician's office as part of our implementation model. In addition, work on an interface to a multispecialty physician group's electronic health record has made significant progress. These efforts have largely been overseen by Jackie Goodman and H. Steven Gregg as patient and user advocates and trainers in clinical operations, Stephen Goyette and Alan Machcinski in programming and system operations, Sue Valliere and Dr. Mandell as laboratory and administrative liaisons, Melissa Brown as customer support, and Deb Moss as patient registration coordinator. The roll out of MLabs Connect represents a major undertaking for MLabs that will continue to show benefits for patient care, patient safety, physician satisfaction and laboratory efficiency for years to come. Partnering with our three primary settings, we have been able to make many programming changes that will help customize the MLabs Connect product to meet our client's operational and patient care needs.

MLabs Connect has also helped us extend our market to include the first of our local nursing homes. The success of this project (Go Live) goes to the entire team, supplemented with special efforts by our on-site, care-oriented phlebotomists, Deneen Wilson, Kim Fera and Mary Bahrou. We have had a highly favorable response from our clients indicating that we have

significantly improved not only the quality, but also the efficiency of care.

Strategic Planning and Marketing

In consideration of the market advocacy role MLabs plays within the department, we lead initiatives to:

1. Expand our brand identity and internal marketing opportunities
2. Evaluate market needs and areas of potential future growth
3. Establish test menus for market segments or disease groups
4. Develop co-marketing opportunities with our clients or other UMHS programs
5. Respond to requests for proposals for outreach services

Acknowledgements

The success of our program is dependent on many individuals in administration, the faculty, Pathology Informatics, the clinical labs, health care center sites and Specimen Processing, who are too numerous to list here but without whose contribution we would not succeed. Special mention, however must be given to the Chair (Dr. Jay Hess), the clinical laboratory department administrator (Mr. Thomas Morrow) and the manager and applications' specialists in Pathology Informatics, who are such integral contributors to our accomplishments and operations (Dr. Ulysses Balis, Kathy Davis, Bill Hubbard, Stephen Marshall, Alan Machinski, Kathryn Ferriell and Christine Gaunt).

Steven H. Mandell, M.D.
Assistant Professor of Pathology
Director of MLabs Program

ANN ARBOR VA HEALTH SYSTEM

Ann Arbor VA Health System Pathology and Laboratory Medicine Service

Stephen W. Chensue, M.D., Ph.D.
Professor of Pathology
Chief of Pathology and Laboratory Medicine Service AAVHS

OVERVIEW

The VA Ann Arbor Healthcare System (VAAAHS) is a University of Michigan affiliated tertiary health care provider for veterans. It is one of three tertiary medical centers in the Veterans Integrated Service Network (VISN) #11, serving the veteran population of Michigan, and portions of Ohio, Indiana and Illinois. The VAAAHS Pathology and Laboratory Medicine Service (PALMS) maintains a close relationship with the University Department of Pathology on all levels. All pathologists in the VAAAHS have medical school appointments and participate in university activities in a manner similar to other departmental sections. Recruitment for VAAAHS pathologists is a joint activity and candidates are selected on the basis of academic performance and potential, as well as professional competence similar to any departmental candidate. There are currently four full-time pathology staff positions and a consultant dermatopathologist. Two and a half resident training positions in the Department's program are supported with funds from the Department of Veterans Affairs. All residents serve monthly rotations in Surgical Pathology, Autopsy Pathology, with access to Diagnostic Electron Microscopy and special study programs in Surgical Pathology, Cytopathology and Digital Imaging. The VAAAHS laboratory retains full accreditation by the College of American Pathologists. The VAAAHS satellite laboratory at the Toledo Outpatient Clinic has been inspected by the JCAHO and is currently fully accredited. The medical center's Decentralized Hospital Computer System (***VistA***) is recognized as the most fully integrated medical information system. It combines all of the clinical management of the patients and shifted to a computerized patient record system (CPRS) in year 2000. Data storage for all components of pathology and clinical laboratories has contained full patient information for nearly three decades. Digital images of selected patient surgical, cytopathology, autopsy and ultrastructural specimens are stored as part of patient medical records and are accessible to clinicians.

In addition to the Toledo Outpatient Clinic, there are additional community-based outpatient clinics (CBOCs) in Flint, Lansing, and Jackson, Michigan. The VAAAHS PALMS provides specimen testing for these four sites. The VAAAHS PALMS has successfully adapted to the shift to outpatient care and provides highest quality laboratory services in an environment of

increasing demand. The VISN continues efforts toward an integrated health delivery system. Diagnostic Services will be a target for networking/consolidation among the current eight independent facilities. This will result in additional sharing of service responsibilities, equipment standardization, VISN-wide reagent contracting, decreased cost of referred (send-out) testing to non-VA clinical labs, and an increase in the workload in VAAAHS's anatomic pathology and clinical labs. Due to overall testing volume, laboratory equipment standardization with blanket contracting promises to allow for substantial savings in laboratory costs. In FY2008, the VAAAHS PALMS played an instrumental role in implementing a comprehensive Methicillin resistant *Staphylococcus aureus* (MSRA) control program. Using PCR analysis of nasal swab samples, all admission, inter-floor transfer, and discharged patients are monitored for MSRA. This has allowed for rapid isolation of MSRA-colonized patients and detailed tracking of nosocomial infection. The VA program will likely serve as a national standard for other institutions.

CLINICAL ACTIVITIES

I. Anatomic Pathology

A. *Surgical Pathology*

1. *Background :* In addition to serving local hospital and clinics, the VAAAHS PALMS is currently performing all surgical pathology for the Battle Creek/Grand Rapids facilities. The Ann Arbor PALMS also performs all gynecologic cytopathology for Battle Creek, Detroit, Toledo, and affiliated CBOCs.
2. *Case load:* 7,833 surgical cases were accessioned and reported during 2007, this is an 8% increase over 2006.
3. *Quality Assurance:* There is an extensive quality improvement program within Anatomical Pathology including regular consultations with the Armed Forces Institute of Pathology, University of Michigan, and other outside consultants. There is a comprehensive quality assurance review with analyses of frozen section accuracy, amended diagnoses, surgical appropriateness, turnaround times, report quality, random retrospective review, and follow-up of positive cancer diagnoses. In addition, the VAAAHS PALMS has taken the lead with regard to patient safety by implementing a preop second review of pathology for patients about to undergo major resections or excisions.
   a. Surgical pathology diagnosis under 48 hr: 99.2%
   b. Average surgical pathology report turn-around-time: 1.3 days
   c. Case concordance (internal and external second reviews): >99%
   d. Average frozen section turn-around-time: 9 minutes
   e. Frozen section to permanent section concordance: >99%
4. *Informatics, infrastructure and automation:* Surgical and cytology readout stations are fully integrated into a hospital digital imaging system. Images can be captured into the patient record for cases of interest and when needed for documentation and teaching purposes. In 2007, the histopathology laboratory was upgraded with state-of-the-art cryotomes, tissue processors, cassette printers and slide printers. In addition, a new state-of-the-art ergonomic grossing station was installed in early 2008. For dictation, voice recognition software has been installed on all pathologist workstations with plans to expand its use over the next years.

B. *Autopsy Pathology*

1. *Background:* The Department of Veterans Affairs maintains a policy to recognize the value of the autopsy and to encourage increased utilization. Currently, VHA policy does not establish a target autopsy rate but rather encourages performing a maximum number sufficient to examine a variety of diseases and clinical circumstances. The VHA does require all autopsy reports to be finalized in under 30d. Autopsies performed at the VAAAHS may also be presented by at the extended Gross Conference and clinical service morbidity/mortality conferences at the University.
2. *Case load:* 19 autopsies were performed during 2007 at a rate of 18.2% of in-patient deaths.
3. *Quality Assurance:* Autopsy protocols are submitted to clinical staff for comparison of anatomic diagnoses with to clinical findings. Each autopsy is also evaluated as to correlation of clinical and anatomic pathologic findings by review of the pathologist. Monthly reports are submitted to the VHA central office.
4. Autopsy reports completed under 30 d: 100%.

C. *Cytology:*

1. *Background:* Cytology specimens are of non-gynecologic diagnostic and gynecologic screening types. Due to the increasing population of women veterans, gynecologic pathology is becoming an important component of the VAAAHS workload. The VAAAHS performs all PAP screening cytologies for the northern tier of VISN 11. The Ann Arbor VA laboratory is rated a VA "Center of Excellence" in Cytology.
2. *Case load:* 4,147 cases were examined and diagnosed during this period. This is a 10% increase over 2006.
3. *Quality Assurance:* The VHA requires that its cytopathologists are enrolled in multiple proficiency testing programs encompassing both gynecologic and non-gynecologic diagnosis. In addition, several aspects of quality assurance are monitored.
   a. Non-gyn cytology diagnosis under 48 hr: 98.6%
   b. Average non-gyn cytopathology report turn-around-time: 1.2 days
   c. Average gyn screening (PAP) turn-around-time: 4.0 days
   d. Cytology to surgical pathology diagnostic concordance: 97%

D. *Electron Microscopy*

1. *Background:* The VAAAHS is a "Center of Excellence" in electron microscopy and serves as consultant to other VA Medical Centers, the University of Michigan Medical Center and to other hospitals by contract. The unit also serves several VAAAHS research investigators. An elective rotation is available for pathology residents in electron microscopy. In some cases, electron microscope findings are used to complement surgical or cytopathology diagnoses.
2. *Case load:* 42 electron microscopy cases were processed in 2007.
3. *Quality assurance:* In order to maintain a "Center of Excellence" certification, the VAAAHS is required to submit a detailed annual report to the central office providing statistics and representative EM case examples. These reports are evaluated by a panel of experts and certification documents are provided.

II. Clinical Pathology

1. *Case load:* During the period of this report 1,829,323 clinical pathology tests were performed in the Ann Arbor laboratory: Chemistry, 1,257,465, Hematology/Coagulation/Urinalysis, 304,478, Microbiology, 53,557, Blood Bank, 31,679. , A total of 92,072 phlebotomies were performed. Our affiliated community-based outpatient clinic laboratory in Toledo performed 153,704 tests. These figures

represent productivity (billable) rather than weighted test numbers. Residents may participate or observe clinical pathology procedures when this activity is appropriate in relation to their rotations. Drs. Chensue, Utiger and Chamberlain oversee the clinical laboratory and make available interesting and pertinent clinical laboratory information available to residents as desired. Clinical Pathology and medical historical data is available to pathology residents via CPRS for their information in surgical pathology, autopsy pathology, and elective rotations.

2. *Quality assurance:* An extensive quality assurance program is in place monitoring all aspects of clinical laboratory activities, including proficiency testing, precision, turn-around-times, safety, education, and staff competency.
3. *Informatics, infrastructure and automation:* The VAAAHS clinical laboratories have continued to incorporate as much automation as possible employing state-of-the-art analyzers. In 2008, new chemistry, hematology and microbiology analyzers contracted for 2007 will be installed. In addition, the special chemistry will be employing automated capillary zone electrophoresis to replace manual agarose gel technology.

RESEARCH ACTIVITIES

The specific research efforts of the VA pathology staff are included on individual reports. Dr. Stephen Chensue has ongoing research program funding by the NIH and VHA. He also participates in cooperative studies with other investigators at the University of Michigan. Dr. Hedwig Murphy is also assigned a 50% research and academic effort. Drs. Murphy and Chensue have research laboratories in Research Building 31 of the VAAAHS. All staff participates in various clinical studies and collaborates with a variety of investigators. In general, the laboratory serves the VAAAHS research program by providing considerable technical support for clinical research and in some cases for more basic research in both anatomic and clinical pathology.

EDUCATIONAL ACTIVITIES

In surgical pathology the staff pathologists provide one-to-one mentoring during the surgical case sign out. The resident assigned to surgical pathology, usually a first year resident in training, has the opportunity to examine all of the specimens grossly and microscopically under close one-to-one mentoring by the staff pathologists. The resident interacts with the clinical teams, and the Weekly Urology Case Review Conference is held by Dr. Murphy. The residents assigned to autopsy and surgical pathology are primary presenters in clinical conferences. The residents obtain a broad educational experience and aid in providing high-quality medical care. Residents are invited to join in Continuing Medical Educational activities in histopathology and cytopathology from the AFIP, CAP, and ASCP. Because of the closeness of various sections of the laboratory, there is frequent consultation among the pathologists and the residents are involved throughout. Since the VAAAHS is physically close to the University, the residents are expected to attend the appropriate teaching conferences at the University. VAAAHS pathologist staff contribute to the laboratory and lecture portions of the second year medical and graduate students at the University of Michigan. In addition, Dr. Murphy designed and implemented pathology courses for graduate students (Path 581). Both Drs. Chensue and Murphy have made presentations at national and international pathology conferences. Through his research program Dr. Chensue also mentors post-doctoral fellows, graduate students and undergraduate students.

ADMINISTRATION

Dr. Chensue has served as Chief of Service since March 2001. He serves on the VA/UM Dean's Committee as well as local and national VA oversight committees. The staff pathologists at the VAMC serve in various capacities involving administrative tasks for the University of Michigan, such as the Resident Selection Committee, the Medical Student Admissions Committee, Graduate student preliminary exam and thesis committees, teaching faculty for second year medical students, and teaching for other graduate courses in the medical school. At the VAAAHS, the pathology staff members serve on all major committees involved with institutional policies and procedures.

The VA's National Cytopathology Proficiency Program's administrative offices are located in the VAAAHS. All VA pathologists privileged in cytopathology are required to participate in a 16 glass slide comprehensive VA-AFIP sponsored proficiency review annually in addition to ASCP sponsored programs for gynecologic and nongynecologic cytopathology.

A major development was the implementation of the VA Physicians Pay Bill which was intended to improve performance and retention by adjusting salaries of VA physicians to better match that of their academic peers. Physician salaries are now adjusted according to years of service, workload and achievement of target performance measures.

SUMMARY

The VAAAHS Pathology and Laboratory Medicine Service is the major provider of Anatomic Pathology services for the northern tier of VISN 11. The primary goal of the department is to provide high quality diagnostic services and appropriate care to the veteran patients. This is evidenced by continuing accreditation by external review agencies such as the College of American Pathologists, Joint Commission for the Accreditation of Hospitals Organization and the Food and Drug Administration. There is close supervision of resident activities as they are involved with patient care. All staff members are privileged and evaluated in accordance with their training, experience, continuing education and participation in quality improvement activities. Within the service there is an extensive quality improvement program that integrates with that of the hospital as a whole. The affiliation with the University of Michigan serves to strengthen and improve the quality of patient care to our veterans. The teaching effort involving both residents and medical students is of benefit to the two institutions. The VAAAHS PALMS is positioned to continue delivery of high quality service to Veteran patients as demand for medical care continues to mount in the next decades.

Stephen W. Chensue, M.D., Ph.D.
Professor of Pathology
Chief of Pathology and Laboratory Medicine Service AAVHS

FINANCE AND ADMINISTRATION

Division of Finance and Administration

Martin A. Lawlor
Department Administrator

OVERVIEW

The Division of Finance and Administration, which is under the auspices of the Office of the Chairman and directed by Mr. Martin A. Lawlor, Department Administrator, is responsible for the business, operational, and fiscal affairs of the Department of Pathology as mandated by the policies of the Chairman, University of Michigan Health System (Medical School and Hospitals), and the University.

In addition to directing this division, Mr. Lawlor serves on various Departmental, Health System and University committees. He is also the current Midwest Regional Representative to the Pathology Department Administrators Coordinating Council, a section of the Association of Pathology Chairs. He came to University of Michigan in July 2007, after a 15-year career at UCLA Health System. He oversaw a departmental restructuring meant to integrate Medical School and Medical Center activities by function, and was successful in recruiting a new Safety & Compliance Coordinator, Financial Coordinator, and Director of Professional Billing.

Leadership provided by the administrator included continued planning for the new Clinical Pathology Building adjacent to the Cardiovascular Center, with the selection of Cannon Design of St. Louis as the architects for this project. This building is scheduled to go to the Regents for approval late in calendar year 2008. Other current initiatives include providing pathology support for a new breast cancer and melanoma service for the East Ann Arbor Ambulatory Surgery Center, design of the New Brighton Center to include a core lab, a blood draw station, and a frozen section room, and completion of the move of Clinical Cytogenetics and MCTP research labs to the Traverwood building. The Department identified five capital needs that were above the $300,000 threshold and was able to get all five approved. This approval allows us to move forward with renovation of the morgue and autopsy suite, increasing capacity in our apheresis clinic, an upgrade to our shared IT facilities with Radiation Oncology, purchasing a labeling system to provide positive patient ID's to increase patient safety, and finally, purchasing two DNA sequencers for our Molecular Diagnostic Lab which enable us to increase our molecular test menu and decrease the number of tests sent out.

ADMINISTRATIVE SUPPORT CENTER

Administrative Support Center/Pathology Laboratories

This includes preparation and monitoring of all Hospital laboratories' revenue, expense and capital budgets, and personnel and payroll systems. Gross revenue for FY2008 was $402,121,400, compared to $374,300,000 in FY2007, an increase of 7.4%. Approximately half of this increase can be attributed to price increases. During this period, total laboratory expenditures were $71,152,400. As part of the departmental restructuring, Mr. Thomas Morrow is responsible for administration of the Clinical Pathology Laboratories and Mr. Craig Newman is responsible for the administration of the Anatomic Pathology Laboratories.

Mr. Thomas Morrow oversaw the Clinical Pathology Laboratories, which account for 90% of our Medical Center revenue and expenses, during a challenging year in which increased length of stay on the inpatient side and decreased activity on the outpatient side caused extreme pressure to achieve our margin. Mr. Morrow was instrumental in putting together submissions and ROI's to get our capital needs met, as well as leading Lean workflow improvements in our Chemistry Lab, Hematology Lab, and Specimen Processing.

Mr. Craig Newman took on the new role of Anatomic Pathology Operations Administrator this year. In addition to overseeing the A/P Labs, Mr. Newman had a key role in implementing Histology workflow changes in August of 2007 that reduced batching and led to single-piece flow in our lab. This has led to documented improvement in turnaround time and improvement in patient care. In addition, Mr. Newman is the department lead for the morgue renovation, East Ann Arbor Ambulatory Surgery Center renovation that will allow inter-operative consultations with Surgical Oncology faculty, as well as overseeing changes to our slide storage facility and our "Block Buster" project to centralize consult accessioning.

Safety and Compliance Administrative Coordinator: Ms. Brenda Schroeder assists with the coordination of intra- and inter-laboratory activities for the anatomic and clinical pathology laboratories; this includes coordination of required proficiency tests, coordination of inspections required for continuing certification or licensure by the JCAH, CAP and MDPH, and serving as departmental representative on the Safety Committee and Disaster Committee. In addition, the Administrative Coordinator acts as the liaison with the Hospital for renovation projects, coordinates the publication of the Pathology Laboratories Handbook (including on-line version), and is responsible for all requisition modifications.

Billing Coordinator: Ms. Nancy Coray is responsible for processing and auditing all laboratory charges (gross charges of approximately $402,121,400), ensuring the accuracy of the daily billing files, correction of all errors with the appropriate Hospital department and responding to all questions regarding interdepartmental, MLabs or Hospital patient billings (technical portion). Ms. Coray is also responsible for our billing system related to the MLabs Program.

Human Resources

As part of the departmental restructuring, the Medical Center and Medical School human resource functions were combined and are led by Ms. Laura Blythe and Ms. Beverly Smith, with support from Ms. Cathy Bearman. They are responsible for human resource issues for faculty and staff in the Medical School (approximately 297 FTEs) including our house officer program (39 FTEs), postdoctoral fellows (41 FTEs), and graduate students (15). They also provide administrative oversight for staff in the Pathology Education Office and the faculty support staff

in the Medical Science I Building, and also coordinate the human resources functions for Pathology Laboratories' non-instructional staff (approximately 613 FTEs). In addition, Ms. Smith serves as lead for the department's orientation program, coordinates the Medical Technology Internship Program, and is a departmental representative for the Health System's Diversity Task Force.

Office of Academic and Business Affairs–Medical School
Manager: Mr. David Golden is responsible for the all funds budget preparation, funds allocation model (FAMII), variance reporting, tracking of all Medical School expenditures, professional fee billing operations (front end), general funds, and teaching and administration funds. All business and administrative functions associated with our sponsored research and education programs including coordination of the application process (pre-award), receipt of grant awards, establishment of budgets, monitoring of expenditures and acting as liaison between the principal investigators, research sponsors and other university departments are now performed by staff in this unit (post-award). In addition, human resources functions associated with non-instructional staff (Medical School paid), house officers, and post-doctoral fellows are coordinated in this office. During this past year, he participated in the successful recruitment of Dorothy Nalepa as Administrator for the Michigan Center for Translational Pathology and continues to oversee her training in the areas of financial management and human resources.

Administrative Specialist: Mr. John Harris is responsible for oversight of the staff supporting our research programs and the daily management of post awards. Extramural sponsored expenditures for FY2008 amounted to approximately $23,542,261.

Administrative Specialist: Mr. Thad Schork is responsible for pre-award activities for our research program and serves as Development Coordinator for the Department of Pathology. In addition, he also serves as the lead administrative staff member for facilities, including major renovation projects initiated in the Medical Science I Building, levels 4 and 5, and the Pathology Laboratories. In addition, he is responsible for building maintenance and minor renovation.

Financial/Business Analyst Senior: Ms. Christine Shaneyfelt was hired in April 2008 to join the Finance and Administration Division. Ms. Shaneyfelt serves as the primary contact for UHHC finance; this includes completing the Hospital budget for FY 09 and developing and managing the departmental capital equipment process. In addition, Ms. Shaneyfelt has prepared a number of financial analyses including profit and loss statements, faculty incentive analysis and financial performance reports for both Anatomic and Clinical Pathology divisions.

Capital Projects
Mr. Eugene Napolitan stepped down as Department Administrator in July 2007, and took on a new role as Capital Projects Manager on a 40% appointment. Mr. Napolitan led the project to move Clinical Cytogenetics and MCTP labs to the Traverwood complex, and overcame major challenges to get them moved by the end of the fiscal year. In addition, he completed continuing projects related to the Blood Bank/Bone Marrow Processing Facility, and offices and facilities on the 4th and 5th level of the Medical Science I Building; as well as being a key member of the Clinical Pathology Building Facility Planning Committee and Project Implementation Team.

Mr. Napolitan also participates in development activities for the Department, coordinated the first annual "New Frontiers in Diagnostic Pathology" national conference, and served as Executive Secretary-Treasurer of the A. James French Society of Pathologists.

Office of the Chairman

Office Manager: Ms. Lynn McCain provides support to the Chair of the Department including management of his calendar, completing travel arrangements and preparation of manuscripts, abstracts, clinical consultations and all materials related to the search committees chaired by Dr. Hess. In addition, Ms. McCain took on new managerial responsibilities for our faculty support group, and started a monthly mentoring series for our administrative support staff.

Operations Assistant: Ms. Holly Eliot provides support to the Administrator, Mr. Martin Lawlor, including scheduling, travel arrangements, data collection, and event planning. She administers continuing medical education funds for faculty and house officers, reconciles the department P-cards, and is responsible for renewal of medical licenses and payment of honoraria for visiting professors. Ms. Eliot is one of our key resources and serves as a mentor to many of our staff.

Pathology Professional Fee Billing Office

Ms. Holly Daul was recruited this year as Director of Professional Billing to oversee the combined Pathology/Radiology Billing Office. She oversees 26 FTE staff and is responsible for the coding, accounts receivable management, and collections of professional fees for services provided by Department of Pathology faculty.

SUMMARY OF FINANCIAL DATA FOR FY2007

Grants and Contracts and Other Accounts

- 417 active grants, contracts and other accounts
  *Includes General Fund, Extramural Funds, FGP Professional Fee Income, Gift, etc.
- Total Extramural Direct Expenditures: $ 17,399,804
- Indirect Extramural Research Expenditures: $ 6,024,806
- Total Sponsored Projects: $ 23,424,610

Faculty Group Practice Plan–Pathology Associates

- Number of charge entries: 228,341
- Gross Billings–Anatomic and Clinical Pathology: $ 34,874,484
- Net (FGP): $ 13,192,820
- Part A Payment–Laboratory & Administrative Supervision: $ 2,969,530

All Fund Expenditures–Medical School

- Compensation & Benefits: $ 31,001,977
- Commodities & Other Costs: $ 16,047,722
- Total: $ 47,049,699
- Number of Funded Faculty: 100
- Number of Funded Residents & Clinical Fellows: 39
- Number of Funded FTE Research Staff: 159 (15 graduate students, 41 post-doctoral fellows)

Pathology Laboratories

- Number of billed tests reported by CDM: 5,095,634
- Total Gross Revenue–Pathology Laboratories: $ 402,121,402
- Total Direct Expenses–Pathology Laboratories: $ 71,152,444
- Number of FTE Staff: 613

Martin A. Lawlor
Department Administrator

INDIVIDUAL FACULTY REPORTS

Gerald D. Abrams, M.D.

Professor Emeritus of Pathology

I. Clinical Activities

A. Cardiac Transplant Team: Transplant biopsies - 3 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. Freshman Class
   a) Co-director and lecturer, General Pathology/Basic Concepts of Disease (Patients and Populations and Cardiovascular-Respiratory sequences): 8 lecture hours.
   b) Multidisciplinary conferences: 2 contact hours.
   c) Co-director, lecturer, and lab instructor, Histopathology sequence: 28 contact hours (4 lectures, 24 lab hours).
2. Sophomore Class
   a) Pathology lab instructor, multiple sequences: 50 contact hours.
3. Production of Teaching Materials
   a) Syllabus and website to accompany M-1 Pathology lectures.
   b) Syllabus and website to accompany M-1 Histopathology.

B. OTHER

1. Hospital Conferences
   a) Cardiology-Pathology Case Conference (with Cardiology staff): 8 hours.
   b) Internal Medicine Grand Rounds: 2 hours.
2. Community
   a) Director and lecturer, "Mini Med School" (6-week course for the public): April - May 2008.

III. Research Activities

A. PROJECTS UNDER STUDY

1. Pathogenesis of aortic aneurysms and aortic dissections (D.Williams, Radiology).

IV. Administrative Activities

A. INSTITUTIONAL

1. Member, Component I Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial board member, Modern Pathology.
2. Ad hoc reviewer, Cancer.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. AAAS
2. USCAP
3. Gastrointestinal Pathology Society
4. Michigan Society of Pathologists

VI. Publications - None

Thomas M. Annesley, Ph.D.

Professor of Pathology

I. Clinical Activities

A. Director, Drug Analysis and Toxicology

B. Chemical Pathology Laboratory, Clinical Pathology Laboratories.

C. Laboratory Director, Chelsea Family Practice, M-Care Facility.

D. Laboratory Director, Briarwood Medical Group, M-Care Facility.

E. Laboratory Director, Briarwood Family Practice Facility.

F. Laboratory Director, West Ann Arbor Health Care Facility.

G. New Assays Developed or Introduced
   1. Cyclosporine by UPLC-LC-MS/MS.
   2. Hemoglobin Fractionation by HPLC-UV (with D. Giacherio).

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Didactic Lectures on Mass Spectrometry, Toxicology.
   2. Brown Bag Lecture Series.

B. DENTAL STUDENTS - None.

C. GRADUATE STUDENTS - None.

D. HOUSE OFFICERS AND FELLOWS
   1. Lecturer, Clinical Pathology Grand Rounds
   2. Lecturer, Clinical Pathology Didactic Lecture Series

3. Sign-out and Interpretation and Laboratory Results

E. LECTURES
1. "Clinical Mass Spectrometry: GC-MS and LC-MS", University of Virginia, Charlottesville, Virginia, August 2007.
2. "Ion Suppression and Matrix Effects in ESI -LC-MS", Children's Hospital of Pennsylvania, Philadelphia , Pennsylvania , April 2008.
3. "Ion Suppression and Matrix Effects in ESI -LC-MS", University of North Carolina , Chapel Hill , North Carolina , April 2008.
4. "Principles and Clinical Applications of Mass Spectrometry", Michigan State University , Lansing , Michigan , June 2008.

III. Research Activities

A. SPONSORED SUPPORT - None.

B. PENDING PROJECTS - None.

C. PROJECTS UNDER STUDY
1. Ionization Effects in Mass Spectrometry.
2. Pediatric Tacrolimus Pharmacokinetics Study (GCRC Study Number HUM00006037).

IV. Administrative Activities

A. DEPARTMENTAL
1. M.J. (Gus) Abell House Officer Award Selection Committee.

B. INSTITUTIONAL
1. Attended one-day Lean Training Course at UM.
2. Attended one-week Lean Health Care Course offered by the Engineering Department and HRD at UM.
3. Attended six-day Executive Management Program at Notre Dame Mendoza College of Business.

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Past-President, National Academy for Clinical Biochemistry.
2. Board of Directors, National Academy of Clinical Biochemistry
3. Executive Committee/Journal Management Group, Clinical Chemistry Journal.
4. Member, Council of Scientific Editors.
5. Member, World Association of Medical Editors.
6. Member, National Academy of Clinical Biochemistry
7. Member, American Society for Mass Spectrometry.

8. Member, International Association of Therapeutic Drug Monitoring and Clinical Toxicology.
9. External Promotions Evaluator for University of North Carolina, University of Florida, University of Utah, and University of California Los Angeles.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. EDITORIAL BOARDS
   - *a. Clinical Chemistry*
   - *b. Therapeutic Drug Monitoring*
   - *c. Clinical Chemistry and Laboratory Medicine*
   - *d. Clinical Biochemistry*
2. EDITORAL REVIEW ACTIVITIES
   - *a. Clinical Chemistry*
   - *b. Therapeutic Drug Monitoring*
   - *c. Clinical Biochemistry*
   - *d. Clinical Chemistry and Laboratory Medicine*
   - *e. Rapid Communications in Mass Spectrometry*
   - *f. Journal of Mass Spectrometry*
   - g. *Journal of Chromatography Biomedical Applications*

B. INVITED LECTURES/SEMINARS

1. "Clinical Mass Spectrometry: GC-MS and LC-MS", University of Virginia, Charlottesville, Virginia, August 2007.
2. "Ion Suppression and Matrix Effects in ESI -LC-MS", Children's Hospital of Pennsylvania, Philadelphia, Pennsylvania, April 2008.
3. "Ion Suppression and Matrix Effects in ESI -LC-MS", University of North Carolina, Chapel Hill, North Carolina, April 2008.
4. "Principles and Clinical Applications of Mass Spectrometry", Michigan State University, Lansing, Michigan, June 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Past-President, National Academy for Clinical Biochemistry.
2. Board of Directors, National Academy of Clinical Biochemistry
3. Executive Committee/Journal Management Group, Clinical Chemistry Journal.
4. Member, Council of Scientific Editors.
5. Member, World Association of Medical Editors.
6. Member, National Academy of Clinical Biochemistry
7. Member, American Society for Mass Spectrometry.
8. Member, International Association of Therapeutic Drug Monitoring and Clinical Toxicology.

9. External Promotions Evaluator for University of North Carolina, University of Florida, University of Utah, and University of California Los Angeles.

D. HONORS AND AWARDS
1. National Scholarship to the Notre Dame Mendoza College of Business Executive Management Program, November 2007 (1 of 30 awarded nationally).
2. Who's Who in Science and Engineering, 2008.

VI. Publications

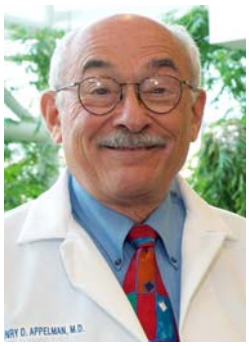
A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Annesley, T.M.**: Methanol-Associated Matrix Effects in Electrospray Ionization Tandem Mass Spectrometry. Clin. Chem. 2007;52:1827-1834.

B. BOOKS/CHAPTERS IN BOOKS
1. Sluss, P., **Annesley, T**., and Sokoll L.: Proteomics, Mass Spectrometry, and Tumor Markers. Self-Assessment in Clinical Laboratory Science II, A. Wu Ed., 177-199, in press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
None.

Henry Appelman, M.D.

M.R. Abell Professor of Pathology



Clinical Activities

A. General surgical pathology service 2 weeks.

B. Gastrointestinal and hepatic pathology services - 7 months.

C. G-I Tumor Conference - 2-3 hours per month.

D. Liver Biopsy Conference - 8 hours per year.

E. Gastroenterology-Pathology conference - 10 hours per year.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology 600 - 2 full class 1-hour lectures.
   2. Director of the 5 laboratories during the Gastrointestinal Sequence.
   3. Senior Elective in Pathology: supervising during diagnostic signout

B. DENTAL STUDENTS
   1. Pathology 630 (dental) - one hour full class lecture.

C. HOUSE OFFICERS AND FELLOWS
   1. Surgical pathology diagnosing room instruction for assigned house officer - 4 months.
   2. Gastrointestinal and hepatic pathology tutoring - full time.

D. LECTURES
   1. Lectures in gastrointestinal and liver pathology to pathology trainees, 2 hours.
   2. Consult conferences, 4-5 hours.
   3. Introduction to liver pathology for Gastroenterology Fellows, 2 hours.

III. Research Activities

A. SPONSORED SUPPORT

1. "Great Lakes/New England Clinical Epidemiology and Validation Center" in Hematology/Oncology (Dr. Dean Brenner PI). 5% effort.

B. PROJECTS UNDER STUDY

1. Marginal collagenous colitis: does it exist? With BJ McKenna, W Xin, M Anderson and L Evans
2. The prevalence of unsuspected invasive carcinomas in specimens resected for high-grade dysplasia in Barrett's mucosa and the gastric cardia. With Weijian Zhu, Barbara McKenna, Steven Ramsburgh, Joel Greenson and members of the Section of Thoracic surgery.
3. Calcium sensing receptors in colorectal carcinoma, with James Varani and colleagues.
4. Reproducibility of diagnosis of villous features and high-grade dysplasia in colorectal adenomas, with Chris Golembeski and Barbara McKenna.
5. Lymphocytic esophagitis, with Julie Purdy, Chris Golembeski and Barbara McKenna.
6. Biomarkers in Barrett's mucosa with Dean Brenner, Kim Turgeon and a national consortium of investigators.
7. Recurrent colorectal adenomas after polypectomy, with Kim Turgeon and a national consortium of investigators.
8. Molecular signature observed in pancreas transplant biopsy specimens, with Matthias Kretzler, Fu Luan and members of the Nephrology Division.
9. Intense mid-zone gastritis, clinicopathologic associations, with Scott Owens.
10. Sloughing esophagitis, with Julianne Purdy and Barbara McKenna.
11. Markers of risk for recurrent Barrett's and cardiac carcinomas in resection specimens following chemo-radiation therapy, with Sharon Bihlmeyer, Barbara McKenna and members of the section of thoracic surgery.

IV. Administrative Activities

A. DEPARTMENTAL

1. Chairman, Advisory Committee on Appointments, Promotion and Tenure

B. INSTITUTIONAL

1. Member, Cancer Work Group

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, American Joint Committee on Cancer, Lung and Esophagus Task Force

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a) Modern Pathology
   b) American Journal of Surgical Pathology
2. Reviewer
   a) American Journal of Gastroenterology
   b) Journal of Clinical Gastroenterology
   c) Archives of Pathology and Laboratory Medicine

B. INVITED LECTURES/SEMINARS

1. Gastrointestinal Pathology topics: What in the hell is dysplasia?
2. Neoplastic and non-neoplastic lesions of the gastroesophageal junction.
3. The role of the pathologist in the diagnosis and management of colitides.
4. Pathology Update for Practicing Pathologists, American Society for Clinical Pathology, Montreal, Canada, July, 2007.
5. "What is the old Ulcerative Colitis we knew and loved?", Southwest Arizona Veterans Affairs Medical Center, Tucson , AZ , September 25, 2007.
6. "A Gastrointestinal Miscellany: New Issues, New Twists, and Golden Oldies", with Barbara McKenna, Anatomic Pathology Slide Seminar, Annual Meeting, American Society for Clinical Pathology, New Orleans, LA, October 20-21, 2007.
7. Slide Seminar and lectures on Stromal Tumors and Ulcerative Colitis, 2007 Annual Meeting, Wisconsin Society of Pathologists, Inc, Waukesha, WI, November 17, 2007.
8. "Chronic colitis and what new stuff we are learning about it", Grand Rounds, Department of Pathology, Cedars-Sinai Medical Center, Los Angeles, CA, December 10, 2007.
9. "No Name Polyps of the Gut", Grand Rounds, Department of Pathology, University of Southern California, Los Angeles, CA, December 11, 2007.
10. "It is easy to talk about dysplasia of the gut, but it is impossible to diagnose it", Meeting of the Los Angeles Society of Pathologists, Los Angeles , CA , December 11, 2007.
11. "Case based seminar with new twists and unusual aspects of gastrointestinal biopsies involving the upper gut: esophagus, stomach and duodenal bulb, with some resections thrown in as well", 29th Annual Seminar: pathology review: GI and Breast Pathology, Educational Symposia, Snowmass, CO, February 11, 2008.
12. "Histologic classification of dysplasia in Barrett's Mucosa", "What are the histologic features in biopsies from Barrett's mucosa containing high-grade dysplasia that indicate that there is invasive carcinoma in the lamina propria as well?", "What is the prevalence of intestinal metaplasia in carditis, and what is its role in carcinogenesis at this site?", "What is the result of the prospective evaluation of the progression of HGD to adenocarcinoma?" Lectures at the 9th World Congress of the World

Organization for Specialized Studies on Diseases of the Esophagus (OESO), Monte Carlo, Monaco, April 6-9, 2008.

13. "Why do biopsies of ulcerative colitis seem to look more and more like Crohn's disease: Whatever happened to the old ulcerative colitis that we knew and lover?, Rodger C. Haggitt Lecture, Dept of Pathology, University of Washington, Seattle, WA, May 1, 2008.
14. "Common diagnostic problems in hepatobiliary and pancreatic pathology", "Common diagnostic problems in gastrointestinal pathology", "Non-controversial, pitfall-free, and never updated gastrointestinal pathology tidbits", presented 2008 Spring conference, Pacific Northwest Society of Pathologists, Vancouver, BC, Canada, May 3-4, 2008.
15. "PatholoGISTs and GISTS: our constant battle with stromal tumors". William M. Christopherson Society Lecture, University of Louisville, Louisville, KY, May 16, 2008.
16. "Why do biopsies from ulcerative colitis colons look more and more like Crohn's colitis" and Barrett's mucosa and its dysplasias, definitions and diagnostic criteria", Anatomic and Clinical Pathology Update 2008, Department of Pathology and Laboratory Medicine, University of Louisville, Louisville, KY, May 17, 2008.
17. "Fabulous contributions of Japanese doctors to relevant gastrointestinal, especially esophageal, pathology in the United States as well as areas of contention" and "One American pathologist's view of the diagnosis of Barrett's mucosa and its neoplastic complications: We don't always have to agree, but we need to respect our differences", Japanese Esophageal Society, Tokyo, Japan, June 21, 2008.
18. “Neoplastic diseases of the intestine”, sponsored by the American Society of Clinical Pathologists. Santa Barbara, CA, June 3, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. United States and Canadian Academy of Pathology, Past President
2. Organization for Statistical Studies of Diseases of the Oesophagus (OESO), President
3. American Society for Clinical Pathology, Fellow
4. American Gastroenterology Association, Member
5. American College of Gastroenterology, Fellow
6. Rodger C. Haggitt Gastrointestinal Pathology Society, Member

D. HONORS AND AWARDS

1. Visiting professorships
   a) Neuroenteric Unit, Division of Gastroenterology, University of Arizona and Southwest Arizona Veterans Affairs Medical Center , Tucson , AZ September 2007.
   b) Medical College of Wisconsin, November 2007.
   c) Cedars-Sinai Medical Center, Los Angeles, CA, December 2007.

d) University of Southern California, Los Angeles, CA, December 2007.
e) University of California at Los Angeles, Los Angeles, CA, December 2007.
f) University of Washington, Seattle, WA, May 2008.

2. Named Lectureships:
   a) Rodger C. Haggitt Lecture, University of Washington, Seattle, WA, 2008.
   b) William M. Christopherson Society Lecture, University of Louisville, Louisville, KY, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Bhagavathula N, Hanosh AW, Nerusu KC, **Appelman H**, Chakrabarty S, Varani J. Regulation of E-cadherin and beta-catenin by Ca2+ in colon carcinoma is dependent on calcium-sensing receptor expression and function. Int J Cancer. 2007 Oct 1;121(7):1455-62.
2. **Appelman HD.** CON: High-grade dysplasia and villous features should not be part of the routine diagnosis of colorectal adenomas. Am J Gastroenterol, in press.
3. Purdy JK, **Appelman HD**, McKenna BJ. Lymphocytic esophagitis. Am J Clin Pathol, March, 2008, Accepted for publication.
4. Polydorides AD, Gruber SB, McKenna BJ, **Appelman HD**, Greenson JK. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC, Am J Surg Pathol, March 2008, Accepted for publication.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Polydorides AD, Gruber SB, McKenna BJ, **Appelman HD**, Greenson JK. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. Mod Pathol. 21(Suppl 1):132A, 2008.
2. Purdy JK, **Appelman HD**, McKenna BJ. Sloughing esophagitis: a type of contact esophageal injury in debilitated patients? Mod Pathol. 21(Suppl 1):133A, 2008.

Ulysses G. J. Balis, M.D.

Director of Pathology Informatics, Associate Professor of Pathology

I. Clinical Activities

A. Operational oversight of all Clinical Computational Services provided by Pathology Informatics and oversight of data center infrastructure and operations for all centrally-placed Pathology core research computational platforms
B. Liaison activities with numerous standing committees within the greater health center, in support of Pathology Informatics
C. Careweb Clinical Advisory Committee - member
D. Ambulatory Care Information Search Committee - member
E. Long Term Committee for Outside Laboratory Results - Chair
F. UMHS/BCBS All Payers Repository Task Force - founding member
G. Process reengineering in the AP accessioning areas, allowing for use of automated positive patient ID solutions to avoid specimen mis-identification.

II. Teaching Activities

A. GRADUATE STUDENTS
   1. Participation as faculty member of the newly-formed Medical Innovations Center (MIC)
   2. Participation as a domain content specialist on the newly-formed MIC Technical Advisory Group.

B. HOUSE OFFICERS AND FELLOWS
   1. Limin Yu, M.D. Postdoctoral Fellow
   2. Jerome Cheng, M.D., Pathology Informatics Fellow

III. Research Activities

A. SPONSORED SUPPORT
   1. CTSA U54

B. PENDING SUPPORT
   1. SPORE GRANT

IV. Administrative Activities

A. DEPARTMENTAL
   1. Administrative Director of Pathology Informatics

B. REGIONAL/NATIONAL/INTERNATIONAL
   1. Association for Pathology Informatics: President and Past President for the 2007-2008 academic
   2. World Congress on Pathology Informatics:Co-Organizer
   3. Lab Infotech Summit: Co-Organizer

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. *Archives of Pathology and Laboratory Medicine* - Section Editor for Pathology Informatics
   2. Reviews
      a. BMC Bioinformatics
      b. Clinical Chemistry
      c. Molecular Diagnostics
      d. *Pattern Recognition*

B. INVITED LECTURES/SEMINARS
   1. APIII 2007, Pittsburgh - Computational Advances in Histopathologic Region of Interest based Query,
   2. Lab Infotech Summit, March 2008– AP Middleware
   3. Lab Infotech Summit, March 2008 - The Federated Electronic Health Record (FEHR)
   4. Washington G2 Conference 2008 -The Federated Electronic Health Record (FEHR)

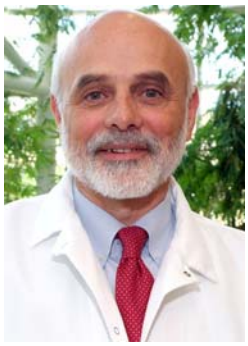
C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Association for Pathology Informatics
      a. President
      b. Past President
   2. Health Informatics Society of Australasia
      a. Congress Co-Organizer
      b. Member
   3. IEEE, Member
   4. American Foundation for Greek Language and Culture, Managing Web Editor
   5. International Foundation for Greek Language and Culture, Managing Web Editor

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Nagrath S, Sequist LV, Maheswaran S, Bell DW, Irimia D, Ulkus L, Smith MR, Kwak EL, Digumarthy S, Muzikansky A, Ryan P, **Balis UJ**, Tompkins RG, Haber DA, Toner M. Isolation of rare circulating tumour cells in cancer patients by microchip technology. *Nature*. 2007 Dec 20;450(7173):1235-9.
   2. Drake TA, Braun J, Marchevsky A, Kohane IS, Fletcher C, Chueh H, Beckwith B, Berkowicz D, Kuo F, Zeng QT, **Balis U**, Holzbach A, McMurry A, Gee CE, McDonald CJ, Schadow G, Davis M, Hattab EM, Blevins L, Hook J, Becich M, Crowley RS, Taube SE, Berman J;Shared Pathology Informatics Network.A system for sharing routine surgical pathology specimens across institutions: the Shared Pathology Informatics Network. *Hum Pathol.* 2007 Aug;38(8):1212-25.

Christopher Beecher, Ph.D.

Research Professor



I. Clinical Activities - None

II. Teaching Activities

A. LECTURES

1. Bioinformatics 551 Lecture (1) on Metabolomics.
2. Cancer Biology Tutorial Lecture (1) on Metabolomics.
3. Pathology Seminar Lecture (1) on Metabolomics

III. Research Activities

A. SPONSORED SUPPORT

1. Consultant, Integrative Metabolomics of Prostate Cancer Progression, NCI, $1,250,000 (direct, Awarded, 2008 to 2013).
2. Co-Investigator, Nutrigenomic and Metabolomic Response of Peripheral Blood to Macronutrients, CCMB, $77,625 (direct, Awarded, 2008).
3. Co-Investigator, National Center for Integrative Biomedical Informatics, year 4 5% time.

B. PENDING PROJECTS

1. Co-Investigator, Roles for Wnt Signaling in adipose tissue PI, Dr. McDougald.
2. Co-Investigator, Metabolomic markers for early detection of prostate cancer, PI, Dr. Sreekumar.
3. Co-Investigator, Multiplex Urine Metabolites as Diagnostic Markers for Prostate Cancer, PI, Dr. Sreekumar.

C. PROJECTS UNDER STUDY

1. Development of Metabolomics lab.

IV. Administrative Activities

A. DEPARTMENTAL – None

B. INSTITUTIONAL – None

C. REGIONAL/NATIONAL/INTERNATIONAL – None

V. Other Relevant Activities – None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
None

B. BOOKS/CHAPTERS IN BOOKS

1. Xiaodong Lin, Susan Simmons, **Chris Beecher**, Young Truong, S. Stanley Young Statistical Learning on a Complex Metabolomic Dataset in *Frontiers of Biostatistics and Bioinformatics*, University of Science and Technology of China Press (2008).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
None.

Bryan L. Betz, Ph.D.

Assistant Professor of Pathology
Technical Director, Clinical Molecular Diagnostics Laboratory

I. Clinical Activities

A. Molecular Diagnostics Laboratory - New Test Development

1. Completed and Implemented
   a. KIT D816V mutation detection for diagnosis of mastocytosis and t(8;21) AML.
   b. JAK2 V617F mutation detection (gel based) for diagnosis of myeloproliferative disorders.
   c. BCR/ABL kinase mutation analysis for drug resistance mutations in CML.
   d. NPM1 mutation detection for prognosis of AML.
   e. BCL2/IGH-JH translocation detection for diagnosis of follicular lymphoma.
   f. PML/RARA fusion transcript detection for diagnosis/monitoring of APL.
   g. EWSR1/ATF1 fusion transcript detection for diagnosis of clear cell sarcoma.
   h. HER2 FISH for detection of gene amplification in breast cancer.
2. Near-Completion
   a. Urovysion FISH for detection of bladder cancer.
   b. KIT exon 9 and 11 mutation analysis for diagnosis/prognosis of GIST.

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Resident Rotations Block E
   a. Matthew Wasco, Julie Jorns, Jennifer Hummel, August 2007.
   b. Kajal Sitwala, December 2007.
   c. Larry Bischof, Lindsay Schmidt, January, February and May 2008.

B. LECTURES

1. Molecular Diagnostics Lab Meeting - "BCR-ABL Mutational Analysis in CML", January 15, 2008.
2. Hematopathology Educational Conference - "BCR-ABL Mutational Analysis in CML", February 26, 2008.

3. Molecular Diagnostics Lab Meeting - "PML/RARA Fusion Transcript Detection: For Diagnosis and Monitoring of Acute Promyelocytic Leukemia", May 15, 2008.

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL

1. Molecular Diagnostics Laboratory Administration
   a. Oversaw, developed, and validated new clinical molecular tests.
   b. Worked closely with laboratory technical staff and supervisor to carryout the development of the tests.
   c. Established working collaborations with Cytogenetics directors/staff for FISH assays.
   d. Fostered collaborations with various AP divisions to advance the implementation and utilization of new tests.
   e. Implemented standardized procedures for documenting and performing new test validations.
   f. Troubleshot existing assay problems.
   g. Evaluated QA/QC procedures.
   h. Oversaw interviewing and hiring of new FISH tech Catherine Dixon.
   i. Oversaw and performed CAP self-inspection of MDL lab.

V. Other Relevant Activities – None

VI. Publications - None

Sharon Betz, Ph.D.

Assistant Professor of Pathology
Assistant Director of Clinical Cytogenetics
and Molecular Diagnostic Laboratories

I. Clinical Activities

A. Assistant Director, Clinical Cytogenetics and Molecular Diagnostics Laboratories.

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Rotations in Cytogenetics
   a. Pathology residents (N=6)
   b. Peds Hematology/Oncology fellow (N=1)
   c. Peds Genetics fellow (N=1)
2. Clinical Cytogenetics teaching
   a. Leukemia Conference (Biweekly)
   b. Medical Genetics Conference (Monthly)
3. Rotations in Cytogenetics
4. Genetic Counseling graduate student (N=6)

B. LECTURES

1. Clinical Cytogenetics: Who, What and How
2. The Cytogenetics of Leukemia and Lymphoma
3. Microarray-Base Comparative Genomic Hybridization and its Application in the Cytogenetics Laboratory
4. ISCN 2005 Nomenclature workshop

III. Research Activities

A. SPONSORED SUPPORT – None

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY
1. Implementing FISH for EWSR1 translocations in paraffin-embedded Ewings sarcoma specimens with Dr. David Lucas.
2. Telomere association studies with Dr. Corrado Caslini to investigate if MLL knockout induces telomere fusions and karyotypic abnormalities.
3. Validating FISH with common lymphoma translocation probes to add to test menu for HemePath diagnostic assays on paraffin-embedded tissues.
4. Validating CLL panel for in-house use (currently sent to Mayo).
5. Designing procedure for BAC probe labeling in order to verify abnormal microarray results in the absence of commercially available probes.
6. Establishing normal cut-offs for FISH probes used in the lab according to standard guidelines

IV. Administrative Activities

A. DEPARTMENTAL
1. Assistant Director, Clinical Cytogenetics and Molecular Diagnostics Laboratories

B. REGIONAL/NATIONAL/INTERNATIONAL
1. American Board of Medical Genetics
2. Fellow, American College of Medical Genetics

V. Other Relevant Activities – None

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS
1. Kearney H.M. and Betz S.L. Molecular Karyotyping. IN Molecular and Translational Pathology. ed Elenitoba-Johnson

Mila Blaivas, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. 20.5 weeks of Surgical Neuropathology and on call Service; weekly Brain Tumor Board

B. 45 days of Autopsy Service including weekend autopsy calls

C. All muscle and nerve biopsies at the UMHS and referred by other hospitals in- and out-of-state throughout the year (368 muscle biopsies and 66 nerve biopsies)
   1. About 10% of muscle biopsies with EM
   2. Nearly 100% of nerve biopsies with EM and 12 with teasing
   3. About 45 cases were tested with antidystrophy antibody or screened by IPOX and several other additional new techniques

D. Diagnostic EM on skin for CADASIL and other various rare disorders, including other tissues, 13 cases

E. Cutting autopsied brains with Pathology house officers, microscopic evaluation of these brains as well as brains from other autopsies with the residents for the diagnosis

F. Consulting on brain, muscle and nerve pathology, intradepartmental cases, VAH and other hospitals in MI and other states. 82 personal consults

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Instructed residents, fellows and staff in Neurology, Rheumatology and Pediatrics and students on muscle, nerve and brain biopsies
   2. Taught pathology residents how to perform and read-out autopsies
   3. Lectures on muscle and nerve pathology to residents and fellows in Neurology
   4. Conferences on muscle and nerve cases with Neurology Department
   5. Neuropathology cases review with pathology residents

6. Weekly and monthly conferences with Neuromuscular staff, other residents and students rotating in the service
7. Tutoring of four neurology residents and seven pathology resident on Neuropathology
8. Helping a number of residents, fellows and faculty, with a variety of requests clinical and research, regarding humans and animals

III. Research Activities

A. SPONSORED SUPPORT

1. NIH 5R21-NS052681-02. Protein Interactions with CADASIL Mutants of Notch 3. Principal Investigator, Michael M. Wang, M.D., Co-Investigator, Mila Blaivas, M.D., Ph.D., 10% effort.
   Budget 7-01-06 through 6-30-2008. $161,700. 2/1/2008 – 1/31/2009 $141,400.
2. NCI R21-F32 CA126295. Nanoparticle-enabled Brain Tumor Surgery.
   Principal Investigator, Daniel Orringer. Proposed dates of support 07/01/07 through 06/30/09. Mila Blaivas, M.D., Ph.D., Consultant with no money effort assigned. Approved and funded by NCI 8/15/07.
3. NCI R21/R33. Nanobiophotonics Enabled Tumor Surgery and Intraoperative PDT. Principal Investigator, Raoul Kopelman, M.D., Co-Principal Investigators, Oren Sagher, M.D., Brian Ross, M.D., Alnawaz Rehemtulla, M.D., Martin Philbert, M.D. Proposed dates of support 9-1-06 through 8-31-10 . Proposed total budget, $2,453,808. Mila Blaivas, M.D., Consultant with no money effort assigned. Approved and funded, with the budget $75,000 per year.
4. NIAMS PA-05-051. The Role of Mig-2 in Myogenesis, Muscle Maintenance and Childhood Myopathy.
   Principal Investigator, James J. Dowling, Lecturer. Dates of proposed support 12-01-06 through 11-30-11. Total budget costs $642,600. Mila Blaivas, M.D., Consultant with no money effort assigned. Grant approved. The budget is being negotiated.

IV. Administrative Activities

A. DEPARTMENTAL

1. Supervision of the muscle histochemistry and muscle and nerve biopsy handling
2. Working on improvement of interdepartmental and interinstitutional coordination of muscle and nerve biopsy service
3. Improvements in immunoperoxidase stainings, expansion of anti-dystrophy workup
4. Daily monitoring muscle histochemistry group performance

B. INSTITUTIONAL

1. Member of the Neuropathy Center

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Consulting with outside pathologists, neurologists and family practitioners on muscle and nerve biopsies performance and interpretation, brain biopsies
   2. Member, American Association of Neuropathologists, World Muscle Society, IAP, CAP, PNS, EFNS and AAN

V. Other Relevant Activities

A. Editorial Boards and Reviews
   1. Ad-hoc reviewer
      a. Archives of Pathology and Laboratory Medicine
      b. Archives of Ophthalmology
      c. Journal of Neurophthalmology
      d. Journal of Neuropathology
      e. Experimental Neurology.

B. Provided illustrations and legends for London, Z. *The Oxford Neurology Pocket Handbook for Residents*

C. Edited (extensive editing for the 2nd ed.) the book by Ramsburgh S., Quick Compendium of Surgical Pathology, ASCP Press, Chicago 2008, 768 pages

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Chang A, **Blaivas M**, Hirschbein L, Sullivan S. Bifrontal compressive meningioma causing personality changes during pregnancy: case report. Accepted to J*ournal of Neurology, Neurosurgery, and Psychiatry*.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Afshari ZS, **Blaivas M**, Dowling J, Gruis K. A novel skeletal muscle alpha-actin gene (ACTA1) missence mutation in a patient with dilated cardiomyopathy. Presented at the ANA Meeting, April 12-19, 2008, Chicago, Illinois.

Corrado Caslini, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Contribution during the academic year 2007-08 for training activities of the following students
   a. Sara Monroe, Ph.D. Student
   b. Brendan Crawford, M.D./Ph.D. Student
   c. Stephanie Jo, M.D./Ph.D. Student (2% of time effort)

B. HOUSE OFFICERS AND FELLOWS

1. Contribution during the academic year 2007-08 for training activities of the following fellows
   a. Jim Connelly, M.D. Pediatric Hematology-Oncology Second Year Fellow (8% time effort)

III. Research Activities

A. SPONSORED SUPPORT

1. Start-up money support, Department of Pathology University of Michigan Medical School, PIG# U016907, PO# 279800, $50,000/year, 9/01/2005 - 8/30/2007.

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY

1. Functional characterization of MLL binding with telomeric and centromeric heterochromatin.
2. Targeting of MLL-menin interaction as therapeutic strategy for MLL-mediated leukemia.

3. BMI1-mediated silencing of differentiation-determining GATA genes in ovarian cancer.

IV. Administrative Activities

A. DEPARTMENTAL

1. Pathology postdoctoral and faculty candidate interviews.

B. INSTITUTIONAL – None

C. REGIONAL/NATIONAL/INTERNATIONAL – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Selected as peer review panel member for the Breast Cancer Research Program (BCRP) 2007 molecular biology MBG-1 review panel of the Department of Defense (DoD), United States Army Medical Research and Materiel Command, Congressionally Directed Medical Research Programs (CDMRP). Session 3: August 19-21, 2007.

B. INVITED LECTURES/SEMINARS

1. “MLL regulates telomere length and beginning of replicative senescence in mammalian cells”. Molecular and Cellular Pathology Graduate Program - 6th Annual Pathology Research Symposium - University of Michigan, Ann Arbor, MI. November 9, 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. 01-2007 – present - American Society of Hematology, Active Member N 1010309.

D. HONORS AND AWARDS

1. Bibliographic profile on Who's Who in America - 2007 (61st) Edition.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Caslini C.**, Yang Z., El-Osta M., Milne T.A., Slany R.K., Hess J.L. Interaction of MLL amino terminal sequences with menin is required for transformation. Cancer Research, 2007 vol. 67 (15), pp. 7275-7283.

B. BOOKS/CHAPTERS IN BOOKS – None

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **Caslini C.**, Serna A., Fidanza V., Hess J.L. MLL regulates length and initiation of replicative senescence in mammalian cells. Keystone Symposia: Cell Death and Cellular Senescence, Breckenridge, CO, February 7-12, 2008.

Priscilla Chamberlain, M.D.

Clinical Instructor/Lecturer

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. 12.5 weeks of coverage 25% SP cases primary pathologist
2. 25% frozen section coverage
3. 5% of SP cases -- 2nd opinion
4. Half of retrospective 5% review

B. CYTOLOGY
1. 50% of GYN & Non GYN sign out
2. 60 Fine Needle Aspirations performed with rapid evaluation
3. 10% GYN Second Opinion & Negative Pap review
4. >5% of NonGYN cases Consultation & 2nd opinion

C. AUTOPSY
1. 13 weeks
   a) Off Hours (on call) coverage for the VA AP / CP

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 pathology lab 28 hours (14 hrs lab + 14 hrs preparation)

B. GRADUATE STUDENTS
1. Pathology Graduate Course - 20 hours

C. HOUSE OFFICERS AND FELLOWS
1. Pathology residents SP 500 hours - supervision & sign out
2. Pathology residents Cytology Elective 25 hours
3. Pathology resident Autopsy 35 hours
4. Lecture series for ENT residents 25hours (20 hrs prep + 5 hrs lecture)

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL-VA MEDICAL CENTER PATHOLOGY DEPARTMENT

1. Director of Cytopathology for VA Hospital
2. High Grade pap clinical follow-up reporting
3. QA review of concurrent SP cases
4. Atypical pap review reporting
5. Annual Cytology Report
6. Cytopathology CME for all pathologists
7. Medical Director Chemistry Laboratory
8. Medical Director Microbiology/Immuno Laboratory
9. Medical Director Ancillary Testing
10. Medical Director Toledo Outpatient Laboratory
11. Medical Director of Central Receiving
12. Pathologists' Scheduling

B. INSTITUTIONAL

1. Medical School Admissions Committee
2. Tumor Board
3. Cancer Committee
4. Safety Case Management Committee

V. Other Relevant Activities – None

VI. Publications - None

Stephen W. Chensue, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. Chief, Pathology and Laboratory Medicine Service, VA Ann Arbor Healthcare System, responsibilities include, overall laboratory supervision and administration, equipment and methodology evaluation, review and consultation regarding quality management programs, personnel evaluation, counseling and grievance procedures.

B. Hematology, daily evaluation of pathologist referred blood smears, lymph nodes, bone marrow smears, VA Ann Arbor Healthcare System (6 months/year)

C. Surgical/Frozen Section Diagnosis (2.5 months/year)

D. Surgical Case Diagnosis VA Ann Arbor Healthcare System (2.5 months/year)

E. Autopsy Service, rotational basis, on call 13 weeks/year

F. Special Chemistry/Immunology, daily interpretation of protein electrophoreses and problem ligand studies (6/months/year), VA Ann Arbor Healthcare System

G. Blood Bank, consults and investigations, full time as needed, VA Ann Arbor Healthcare System

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology 600 laboratory

B. GRADUATE STUDENTS
   1. Pathology 581 lectures

C. HOUSE OFFICERS AND FELLOWS
1. Pathology house officers, surgical pathology and autopsy supervision and instruction

D. OTHER
1. Technologists, technicians and hospital staff, ongoing continuing medical education instruction on clinical laboratory topics
2. Research mentoring for post-doctoral, graduate, undergraduate, and high school trainees

III. Research Activities

A. SPONSORED SUPPORT
1. Principal Investigator, Chemokine Receptor Dynamics in Granuloma Formation, NIH AI43460 ($150,000 direct costs annually, 2003-2007).
2. Principal Investigator, Chemokine Determinants of Pulmonary Immunity, VHA Merit, (125,000 direct costs annually, 2006-2009).
3. Co-investigator, Molecular Mechanisms of Lung Host Defense, VA REAP Grant (250,000 annually, 2006-2009).

B. PENDING PROJECTS
1. Principal Investigator, Chemokine Receptor Dynamics in Granuloma Formation, NIH AI43460 ($200,000 direct costs annually, 2007-2012).

C. PROJECTS UNDER STUDY
1. Regulation and participation of chemokine receptors during Th1 and Th2 immune and inflammatory responses.
2. Effect of aging on T regulatory cell function in the lung.
3. Role of chemokine receptors in dendritic cell recruitment and activation and in vivo migration during innate stages of granuloma formation and Mycobacteria infection.
4. Role of chemokine receptors (CCR4 and CCR6) in Th1 and Th2 cell-mediated responses to lung infection.

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology Graduate Program Preliminary Exam Committee Member of graduate student thesis committees
2. Interviewing and evaluation of residents and faculty

B. INSTITUTIONAL
1. Dean's Committee, University of Michigan Medical School and VA Ann Arbor Healthcare System, voting member
2. Clinical Executive Board, VA Ann Arbor Healthcare System, voting member

3. Professional Standards Board, VA Ann Arbor Healthcare System, voting member
4. Invasive Procedures Committee, VA Ann Arbor Healthcare System, voting member
5. Residency Review Board, VA Ann Arbor Healthcare System, voting member
6. VHA VISN 11 Laboratory Equipment Standardization Committee
7. Chief of Staff Advisory Committee, VA Ann Arbor Healthcare System, voting member
8. Personnel employment and annual performance evaluations
9. Anatomic Pathology Quality Assurance evaluation and reporting
10. Editor, VALabs Newsletter and webmaster for VA Laboratory webpage

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Implementation Committee, VHA National Bar Code Expansion Project

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Review
   a) *American Journal of Pathology*
   b) *Journal of Immunology Inflammation Research, Section Editor*
   c) *American Journal of Respiratory Cell and Molecular Biology*
   d) *Journal of Clinical Investigation*
   e) *Journal of Leukocyte Biology*
   f) *Infection and Immunity*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Investigative Pathology American Association of Immunologists

C. HONORS AND AWARDS
1. Department of Veterans Affairs Performance Award, January 2007

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Freeman, C.M, Curtis, J. L. and **Chensue, S.W.** CCR5 and CXCR6 expression by lung CD8+ cells correlates with chronic obstructive pulmonary disease severity. *Am. J. Pathol.* 2007, 171:767-76.
2. Chiu, B., Freeman, C.M., Stolberg, V.R. and **Chensue, S.W.** Mononuclear phagocyte-derived IL-10 suppresses the innate pulmonary granuloma cytokine response in aged mice. *Am. J. Pathol*. 2007, 171:829-37
3. Choi, S.W., Hildebrandt, G.C., Olkiewicz, K.M., Hanauer, D.A., Chaudhary, M.N., Silva, I.A., Rogers, C.E., Deurloo, D., Fisher, J.M., Liu, C., Adams, D., **Chensue, S.W.,** Cooke K.R. CCR1:CCL5 (RANTES) receptor ligand interactions modulates allogeneic T cell responses and reduces graft-versus-host disease following stem cell transplantation. *Blood*. 2007, 110:3447-55.

4. Ito,T., Schaller, M., Hogaboam, C.M., Standiford, T.J., **Chensue, S.W.** and Kunkel, S.L. Toll-like receptor 9 activation is a key event for the maintenance of a Mycobacterial Ag-elicited pulmonary granulomatous response. *Eur. J. Immunol.* 2007, 37:2847-55.
5. Chiu, B., Freeman, C.M., Stolberg, V.R. Zhang, H., and **Chensue, S.W.** Increased Foxp3+ Treg Cell Activity Reduces Dendritic Cell Costimulatory Molecule Expression in Aged Mice. *Mech. Ageing Dev*. 2007, 128:618-27.
6. Chiu, B., Stolberg, V.R., and **Chensue, S.W.** Age-related Loss of CD62L Impairs Lymph Node CD4 T cell Mobilization. *Open Aging J*., 2007, 1:1-7.

B. BOOKS/CHAPTERS IN BOOKS - None

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Freeman, C.M., Martinez, F.J., **Chensue, S.W.**, Murphy, H.S., Arenberg, D.A., Sonstein, J., Meldrum, C., Thompson D.L., and Curtis J.L. Lung CD8+ T cells expression of IL-18R and CD69 increases with COPD severity. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.
2. Freeman, C.M., Martinez, F.J., **Chensue, S.W.**, Murphy, H.S., Arenberg, D.A., Sonstein, J., Meldrum, C., Thompson D.L., and Curtis J.L COPD severity correlates with an increased percentage of dendritic cells expressing CD80 and CD83. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.
3. Freeman, C.M., Martinez, F.J., Arenberg, D.A., **Chensue, S.W.**, Murphy, H.S., Meldrum, C., Han, M., Flaherty, K., Frederick, M., Thompson D.L., and Curtis J.L. Lung IL-15 production in COPD correlates with measures of disease severity: a study using LTRC resources. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.

Arul M. Chinnaiyan, M.D., Ph.D.

S.P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director of Michigan Center for Translational Pathology

I. Clinical Activities

A. Board-Certified in Clinical Pathology (2002), Diplomate of the American Board of Pathology

II. Teaching Activities

A. GRADUATE STUDENTS

1. Mentor, Graduate/Medical Students
   a. Scott Tomlins (MSTP, Molecular and Cellular Pathology)
   b. Qi Cao (Molecular and Cellular Pathology)
   c. Jianjun Yu (Bioinformatics)
   d. Julie Kim (Bioinformatics)
   e. Laila Poisson (Biostatistics Masters Student)
   f. Beth Helgeson (Molecular and Cellular Pathology)
   g. J. Chad Brenner (Cellular and Molecular Biology)
   h. Lee Sam (Bioinformatics)
   i. Mathew Iyer (Bioinformatics)

B. HOUSE OFFICERS AND FELLOWS

1. Mentor, Postdoctoral Fellows
   a. Jindan Yu
   b. Adaikkalam Vellaichamy
   c. Xiasong Wang
   d. Nameeta Shah
   e. Ram Shankar
   f. Bushra Ateeq
   g. Anastasia Yocum
   h. Christopher Maher

2. Mentor, Clinical Fellows
    a. Rou Wang, MD (Urology)
    b. David Seung Lae Kim, MD (Pathology)
    c. Bo Han, MD, PhD (Molecular Pathology)
    d. Simon Kim, MD (Urology)
    e. Jingsong Zhang, MD (Hematology-Oncology)

C. OTHER
1. Mentor, Junior Faculty
    a. David Hanauer, MD, MS (Pediatrics Instructor)
    b. Sami Malek, MD (Assistant Professor, Internal Medicine)
    c. Soory Varambally (Research Assistant Professor, Pathology)
    d. Arun Sreekumar (Assistant Professor, Pathology)
    e. Mohan Dhanasekran (Research Investigator, Pathology)
    f. Daniel Rhodes (Research Investigator, Pathology)
    g. Rohit Mehra (Research Investigator, Pathology)
    h. Bharathi Laxman (Research Investigator, Pathology)
    i. George Wang, PhD (Research Investigator, Pathology)
    j. Jindan Yu, Ph.D. (Research Investigator, Pathology)
2. Mentor, Undergraduate Students
    a. Nicole Kasper (CMB Student)
    b. Benjamin Briggs (Honors Math Major, UM)
    c. Mithel Pandl (Kalamazoo College)
    d. Pavan Ravipati (Albion College)
    e. Nishi Singhal (Public Policy and International Studies, UM)
    f. Nirmish Singla (Engineering, UM)
3. Mentor, High School Students (Research Rotation)
    a. Pavan Ravipati (Novi High School)
    b. Santosh Shanmugam (Plymouth Canton High School)
    c. Michael Pienta (Catholic Central)
4. Prelim-Committees
    a. Prelim committee for Bioinformatics Graduate Student, Lan Dai
5. Thesis Committees
    a. Qi Cao, Molecular and Cellular Pathology Graduate Program (Chair)
    b. Julie Kim, Bioinformatics Graduate Program (Chair)
    c. Jianjun Yu, Bioinformatics Graduate Program (Chair)
    d. Lei Wang, Biochemistry Graduate Program
    e. Dawei Liu, Biostatistics Graduate Program
    f. Greg Gurda, Physiology Graduate Program
    g. Jun Ma, Molecular Cellular and Developmental Biology Graduate Program

6. Interviewed prospective MSTP, PIBS, and Bioinformatics students

III. Research Activities

A. SPONSORED SUPPORT

1. Co-I (1.2 cal), “Role of gene fusions in prostate cancer”, NCI, P50 CA69568 (PI: Pienta), 06/01/08-05/31/13, $196,297 annual direct costs.
2. Co-Director (0.5 cal), “Tissue/Informatics Core Director”, NCI, P50 CA69568 (PI: Pienta), 06/01/08-05/31/13, $335,726 annual direct costs.
3. PI (1.2 cal), “Epitomic Biomarkers of Prostate Cancer”, NIH, U01 CA111275, 09/20/04-08/31/09, $404,077 annual direct costs.
4. Co-I (0.35 cal), “National Center for Integrative Biomedical Informatics, NIH, 1 U54 DA021519-01A1, (PI: Athey), 09/25/05-08/31/10, $2,543,758 annual costs.
5. PI (1.2 cal)“Integrative Proteomic Genomic Analysis of Prostate Cancer Progression”, DOD, W81XWH-06-1-0224, 12/15/05-01/14/09, $106,000 annual direct costs.
6. PI (1.8 cal), “Autoantibody Profiles for Cancer Diagnosis, Prognosis, and Therapy”, Burroughs Wellcome Fund, 07/01/06-06/30/11, $150,000 annual direct costs.
7. Co-I (0.18 cal), “Integrative Metabolomics of Prostate Cancer Progression”, 1R01CA133458-01 NIH, R01 (PI: Sreekumar), 04/01/2008 – 03/31/2013, $250,000 annual direct costs.
8. PI (1.2 cal), “Characterization of SPINK1 in Prostate Cancer”, DOD, PC073710, 04/15/08 – 07/14/11, $125,000 annual direct costs.
9. Howard Hughes Medical Institute (HHMI) 02/01/2008-01/31/2013.
10. PI (1.2 cal), “Molecular Sub-typing of Prostate Cancer Based on Recurrent Gene Fusions”, NIH, R01CA132874-01, 12/01/2008 – 11/31/2013, $225,000 annual direct costs.
11. PI (2.4 cal), “A Search for Gene Fusions/Translocations in Breast Cancer”, DOD, BCO75023, 09/01/2008 – 08/31/2013, $500,000 annual direct costs.
12. PI (0.24 cal) “The Role of Avodart in Regulating the Expression of TMPRESS-ETS Family Fusion Genes in Prostate Cancer Cell Lines”, GlaxoSmithKline (GSK), 07/01/07 – 01/30/08, $52,165 annual direct costs.
13. PI (0 cal) “The Role of Gene Fusion in Prostate Cancer”, 2007 Prostate Cancer Foundation Research Award”, 02/01/07 – 01/31/08, $100,000 total direct costs.
14. PI (0.18 cal) “University of Michigan/Gen-Probe Partnership to Develop Gene Fusion Based Diagnostic for Prostate Cancer”, 08/01/06-01/31/08, $254,908 annual direct costs.

B. PENDING PROJECTS

1. PI (3.6 cal), "Distinguished Clinical Scientist Award for Excellence in 'Bench to Bedside' Research", Doris Duke Foundation, Semi-Finalist, 01/01/09-12/31/13, $275,000 annual direct costs.

C. PROJECTS UNDER STUDY

1. Gene Fusions/Translocations in Cancer

2. EZH2 and Cancer Epigenetics
3. Genomic Profiling
4. Cancer Bioinformatics
5. Biomarkers
6. Proteomics
7. Immunomics
8. Metabolomics
9. Bioinformatics

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Michigan Center for Translational Pathology.
2. Director, Division of Research Informatics.
3. Director, Prostate SPORE Tissue-Informatics Core.

B. INSTITUTIONAL

1. Director, Michigan Center for Translational Pathology.
2. Member, MSTP Career Advisory Panel.
3. Bioinformatics student interviews.
4. Faculty Candidate Interviews for the Department of Urology and the Cancer Center.
5. MSTP student interviews.
6. Director of Cancer Bioinformatics, Comprehensive Cancer Center.
7. Bioinformatics Program Executive Committee, Member.
8. University of Michigan Medical School Conflict of Interest Board, Member.
9. Career Development Committee, Dr. Sami Malek, Physician-Scientist, Assistant Professor.
10. Tissue Usage Committee, Prostate SPORE.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Ad-hoc Member, Modeling and Analysis of Biological Systems (MABS) Study Section, NIH, 2005.
2. Scientific Review Board, 2005 Genome Canada.
3. American Cancer Society Canary Fund Peer-Review Committee, 2005.
4. National Cancer Institute, EDRN Associate Membership Review Committee, 2005.
5. External Advisory Board Member, UCSF Breast SPORE (PI Joe Gray).
6. External Advisory Board Member, MD Anderson Ovarian SPORE (PI, G. Mills).
7. External Advisory Board Member, Johns Hopkins Prostate Cancer SPORE.
8. AACR Grants Committee - Subcommittee for Clinical and Translational Research, American Association for Cancer Research, January 2008.
9. Reviewer, 2008 NIH Director's New Innovator Award Program, January 2008.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board:
   a. *Cancer Genomics and Proteomics*
   b. *Cancer Informatics*
   c. *Cancer Research*
2. Ad hoc reviewer
   a. *Nature*
   b. *Proceedings of the National Academy of Science, U.S.A.*
   c. *Nature Genetics*
   d. *Nature Cancer Reviews*
   e. *Nature Medicine*
   f. *American Journal of Pathology*
   g. *Journal of Biomedical Informatics*
   h. *Cancer Research*
   i. *Oncogene*
   j. *Neoplasia*
   k. *Cell Death & Differentiation*
   l. *Cytokine*
   m. *Clinical Cancer Research*
   n. *Molecular Diagnosis*
   o. *BMC Cancer*
   p. *Urology*
   q. *Cancer Cell*
   r. *Journal of Biological Chemistry*

B. INVITED LECTURES/SEMINARS

1. 19th Pezcoller Symposium, Invited Speaker, Session V: New Opportunities, "Bioinformatics as an Engine for Oncology Discovery", Verona, Italy, July 16, 2007.
2. 15th Annual Spore Workshop, Award plenary talk "Recurrent Gene Fusions in Prostate Cancer: A Discovery Made Possible through the SPORE Program"; Prostate session, "Distinct Classes of Chromosomal Rearrangements Create Oncogenic ETS Gene Fusions in Prostate Cancer." Baltimore, MD, July 6-8, 2007.
3. Han-Mo Koo Memorial Seminar Series, Van Andel Research Institute, "Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Grand Rapids, Michigan, August 15, 2007.
4. Department of Defense, Prostate Cancer Research Program Meeting, Innovative Minds in Prostate Cancer Today, Plenary Session, Translational Research, "The Role of Gene Fusions in Prostate Cancer", Atlanta, Georgia, September 6, 2007.
5. 15th Early Detection Research Network (EDRN) Steering Committee Meeting, "Results of the EDRN Challenge", Ann Arbor, Michigan, September 18, 2007.

6. CNIO-Nature Symposium on Oncogenes and Human Cancer: The Next 25 years, Invited speaker, "Recurrent Gene Fusions in Prostate Cancer", Madrid, Spain, October 6, 2007.
7. National Functional Genomics Center (NFGC), 5th Annual External Advisory Board Meeting, "The UMCCC Center for Genetic Origins of Cancer", Clearwater Beach, Florida, October 11, 2007.
8. 2007 Prostate Cancer Foundation Scientific Retreat, "Discovering and Now Treating 'Master on Switches' for Prostate Cancer", and "Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Lake Tahoe, Nevada, October 12, 2007.
9. American Association Cancer Research (AACR) Centennial Conference, Invited speaker "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Singapore, November 6, 2007.
10. RECOMB Satellite Conference on Systems Biology, Invited Speaker, "Bioinformatics as an Engine for Oncology Discovery", University of California, San Diego, November 30 December 1, 2007.
11. DF/ HCC Cancer Cell Biology/Gynecologic Cancers Retreat, Key-note speaker, "Searching for Genomic Alterations in Solid Tumors: Lessons from Prostate Cancer", Boston, MA, December 10, 2007.
12. French Cancer Society Meeting, Omic's approaches in cancer: clinical applications, Keynote Speaker, **"**Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Paris, France, January 21, 2008.
13. Columbia University Medical Center, Herbert Irving Comprehensive Cancer Center Seminar Series, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", New York, New York, February 4, 2008.
14. Ludwig Institute, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", New York, New York, February 5, 2008.
15. Hospital Foundation Day Oration, Invited Speaker, "Zeroing in on a cause of common solid tumors, Implications for translation", Mumbai, India, February 29, 2008.
16. The EBM on Molecular Diagnostics, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets" and "Bioinformatics as an Engine for Oncology Discovery", Mumbai, India, March 1, 2008.
17. Hungerford Lecture, "Genomic Alterations in Prostate Cancer and Other Solid Tumors", Bangalore, India, March 3, 2008.The ISCO Congress 2008, Invited Speaker, " "Discovery of recurrent gene fusions in prostate cancer: A new class of biomarkers and therapeutic targets", Amsterdam, Netherlands, March 8, 2008.
18. ASIP Symposium, Chair "Genetics and Epigenetics of Cancer Initiation, Progression and Metastasis", San Diego, CA, April 8, 2008.

19. AACR EDRN Session, Invited Speaker, "Recent discoveries of gene fusions in prostate cancer", San Diego, CA, April 15, 2008.
20. AACR 2008 Annual Meeting, Co-chair "Molecular and Clinical Insights into Cancers Affecting Under-represented Populations", San Diego, CA, April 15, 2008.
21. AACR 2008 Annual Meeting, Award for Outstanding Achievement in Cancer Research award lecture, "Discovery for Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", San Diego, CA, April 16, 2008.
22. Susan Swerling Lecture Series, Dana Farber Institute, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets, Boston, MA, May 13, 2008.
23. Barcelona BioMed Conference, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Barcelona, Spain, May 21, 2008.
24. Cancer and Systems Biology Symposium, University of Chicago, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets", Chicago, Illinois, May 30, 2008.
25. Prostate Cancer Research Foundation Forum 2008, Invited Speaker, Experimental Diagnostic Session, "TMPRSS-2 erg", Toronto, CA, June 12, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Affiliated Faculty of the Bioinformatics Program
2. Pew Scholars Program in the Biomedical Sciences, Pew Charitable Trusts
3. Member, Michigan Comprehensive Cancer Center
4. Joint Appointment in the Department of Urology
5. Member of the Faculty Search Committee for the Bioinformatics Program
6. MSTP Career Advisory Panel, University of Michigan
7. Member, Michigan Urology Center
8. Member, Center for Computational Medicine and Biology
9. 1992 present Member, American Medical Association
10. 1999 present Associate Member, American Association of Cancer Research
11. 1999 present Member, College of American Pathologists
12. 1999 present Member, American Society of Clinical Pathologists
13. 1999 present Member, American Society of Investigative Pathologists (ASIP)
14. 2004 present Member, Society of Basic Urological Research (SBUR)
15. 2004 present Member, United States and Canadian Academy of Pathology (USCAP)
16. 2004 present Member, Michigan Society of Pathologists (MSP)
17. 2005 present Member, Association for Pathology Informatics (API)
18. 2005 present Affiliate Member, American Urological Association (AUA)
19. 2006 present Member, American Society of Clinical Investigation (ASCI)

20. 2007 – present Member, Multiple Myeloma Genomics Initiative External Advisory Board.

D. HONORS AND AWARDS
   1. July 2007, 2007 SPORE Translational Science Award
   2. February 2008, Howard Hughes Medical Institute Investigator
   3. April 2008, AACR Award for Outstanding Achievement in Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Schmidt F, Bittinger F, **Chinnaiyan AM**, Rubin MA. Developing a molecular marker profile for prognosis of the course of benign prostatic hyperplasia. *Urologe A*. 2007 Sep;46(9):1188-9.
2. Loberg RD, Bradley DA, Tomlins SA, **Chinnaiyan AM**, Pienta KJ. The lethal phenotype of cancer: the molecular basis of death due to malignancy. 2007 Jul-Aug; 57 (4): 225-41 . Review. Erratum in: CA *Cancer J Clin.* 2007 Nov-Dec; 57(6):380.
3. Wang Q, Li W, Liu XS, Carroll JS, Janne OA, Keeton EK, **Chinnaiyan AM**, Pienta KJ, Brown M. A hierarchical network of transcription factors governs androgen receptor-dependent prostate cancer growth. *Mol Cell*. 2007 Aug 3;27(3):380-92. PMID: 17679089.
4. Tomlins SA, Dhanasekaran SM, Laxman B, Cao Q, Helgeson BE, Cao X, Morris DS, Menon A, Jing X, Han B, Montie JE, Rubin MA, Pienta KJ, Roulston D, Shah RB, Varambally S, Mehra R, **Chinnaiyan AM**. Distinct Classes of Chromosomal Rearrangements Create Oncogenic ETS Gene Fusions in Prostate Cancer. *Nature*. 2007 Aug 2;448(7153):595-9.
5. Choi H, Shen R, **Chinnaiyan AM**, Ghosh D. A Latent Variable Approach for Meta-Analysis of Gene Expression Data from Multiple Microarray Experiments. *BMC Bioinformatics.* 2007 Sep 27;8(1):364. PMID: 17900369.
6. Kim JH, Dhanasekaran SM, Mehra R, Tomlins SA, Gu W, Yu J, Kumar-Sinha C, Cao X, Dash A, Wang L, Ghosh D, Shedden K, Montie JE, Rubin MA, Pienta KJ, Shah RB, **Chinnaiyan AM**. Integrative analysis of genomic aberrations associated with prostate cancer progression. *Cancer Res.* 2007 Sep 1;67(17):8229-39. PMID: 17804737.
7. Mehra R, Han B, Tomlins SA, Wang L, Menon A, Wasco MJ, Shen R, Montie JE, **Chinnaiyan AM**, Shah RB. Heterogeneity of TMPRSS2 gene rearrangements in multifocal prostate adenocarcinoma: molecular evidence for an independent group of diseases. *Cancer Res.* 2007 Sep 1;67(17):7991-5. PMID: 17804708.
8. Mueller D, Bach C, Zeisig D, Garcia-Cuellar MP, Monroe S, Sreekumar A, Zhou R, Nesvizhskii A, **Chinnaiyan A**, Hess JL, Slany RK. A role for the MLL fusion partner ENL in transcriptional elongation and chromatin modification. *Blood.* 2007 Dec 15;110(13):4445-54. Epub 2007 Sep 12.

9. Hanauer DA, Miela G, **Chinnaiyan AM**, Chang AE, Blayney DW. The registry case finding engine: an automated tool to identify cancer cases from unstructured, free-text pathology reports and clinical notes. *J Am Coll Surg.* 2007 Nov; 205 (5): 690-7 PMID: 17964445.
10. Nikiforov MA, Riblett M, Tang WH, Gratchouck V, Zhuang D, Fernandez Y, Verhaegen M, Varambally S, **Chinnaiyan AM**, Jakubowiak AJ, Soengas MS. Tumor cell-selective regulation of NOXA by c-MYC in response to proteosome inhibition. *Proc Natl Acad Sci U S A.* 2007 Dec 4; 104 (49): 19488-93 . Epub 2007 Nov 27. PMID: 18042711.
11. Tomlins SA, Rubin MA, **Chinnaiyan AM**. Integrative biology of prostate cancer progression. *Annu Rev Pathol*. 2006; 1 243-71. PMID: 18039115.
12. Yu J, Yu J, Rhodes DR, Tomlins SA, Cao X, Chen G, Mehra R, Wang X, Ghosh D, Shah RB, Varambally S, Pienta KJ, **Chinnaiyan AM**. A polycomb repression signature in metastatic prostate cancer predicts cancer outcome. *Cancer Res.* 2007 Nov 15; 67 (22): 10657-63. PMID: 18006806.
13. Yu J, Cao Q, Mehra R, Laxman B, Yu J, Tomlins SA, Creighton CJ, Dhanasekaran SM, Shen R, Chen G, Morris DS, Marquez VE, Shah RB, Ghosh D, Varambally S, **Chinnaiyan AM**. Integrative genomics analysis reveals silencing of beta-adrenergic signaling by polycomb in prostate cancer. *Cancer Cell*. 2007 Nov; 12 (5): 419-31. PMID: 17996646.
14. Zhao B, Wei X, Li W, Udan RS, Yang Q, Kim J, Xie J, Ikenoue T, Yu J, Li L, Zheng P, Ye K, **Chinnaiyan A**, Halder G, Lai ZC, Guan KL. Inactivation of YAP oncoprotein by the Hippo pathway is involved in cell contact inhibition and tissue growth control. *Genes Dev.* 2007 Nov 1; 21 (21): 2747-61. PMID: 17974916.
15. Taylor BS, Pal M, Yu J, Laxman B, Sundaram SK, Zhao R, Menon A, Wei JT, Nesvizhskii AI, Ghosh D, Omenn GS, Lubman DM, **Chinnaiyan AM**, Sreekumar A. Humoral response profiling reveals pathways to prostate cancer progression. *Mol Cell Proteomics*. 2008 Mar; 7(3):600-11.
16. Joshua AM, Evans A, Van der Kwast T, Zielenska M, Meeker AK, **Chinnaiyan A**, Squire JA. Prostatic preneoplasia and beyond. *Biochim Biophys Acta.* 2008 Apr;1785(2):156-81. Epub 2007 Dec 8.
17. Yu J, Yu J, Cordero KE, Johnson MD, Ghosh D, Rae JM, **Chinnaiyan AM**, Lippman ME. A transcriptional fingerprint of estrogen in human breast cancer predicts patient survival. *Neoplasia*. 2008. Jan;10(1):79-88.
18. Tomlins SA, Laxman B, Varambally S, Cao X, Yu J, Helgeson BE, Cao Q, Prensner JR, Rubin MA, Shah RB, Mehra R, **Chinnaiyan AM**. Role of the TMPRSS2-ERG Gene Fusion in Prostate Cancer. *Neoplasia*. 2008 Feb; 10 (2): 177-88. PMID: 18283340.
19. Laxman B, Morris DS, Yu J, Siddiqui J, Cao J, Mehra R, Lonigro RJ, Tsodikov A, Wei JT, Tomlins SA, **Chinnaiyan AM**. A first-generation multiplex biomarker analysis of urine for the early detection of prostate cancer. *Cancer Res*. 2008 Feb 1; 68 (3): 645-9. PMID: 18245462.

20. Helgeson BE, Tomlins SA, Shah N, Laxman B, Cao Q, Prensner JR, Cao X, Singla N, Montie JE, Varambally S, Mehra R, **Chinnaiyan AM** Characterization of TMPRSS2: ETV 5 and SLC 45A3: ETV 5 gene fusions in prostate cancer. *Cancer Res*. 2008 Jan 1; 68 (1): 73-80. PMID: 18172298.
21. Mullins C, Lucia MS, Hayward SW, Lee JY, Levitt JM, Lin VK, Liu BC, **Chinnaiyan AM**, Rubin MA, Slawin K, Star RA, Getzenberg RH; MPSA Consortium. A Comprehensive Approach Toward Novel Serum Biomarkers for Benign Prostatic Hyperplasia: The MPSA Consortium. *J Urol*. 2008 Apr;179 (4):1243-56. Epub 2008 Feb 20.
22. Tseng-Rogenski SS, Arredouani MS, Neeley YC, Lu B, **Chinnaiyan AM**, Sanda MG. Fas-mediated T cell deletion potentiates tumor antigen-specific tolerance in a mouse model of prostate cancer. *Cancer Immunol* 2008 Sep;57 (9):1357-65. Epub 2008 Feb 12.
23. Begley LA, Kasina S, Mehra R, Adsule S, Admon AJ, Lonigro RJ, **Chinnaiyan AM**, Macoska JA. CXCL5 promotes prostate cancer progression. *Neoplasia*. 2008 Mar; 10 (3): 244-54. PMID: 18320069.
24. Perner S, Wagner PL, Demichelis F, Mehra R, Lafargue CJ, Moss BJ, Arbogast S, Soltermann A, Weder W, Giordano TJ, Beer DG, Rickman DS, **Chinnaiyan AM**, Moch H, Rubin MA. EML 4- ALK fusion lung cancer: a rare acquired event. *Neoplasia*. 2008 Mar; 10 (3): 298-302. PMID: 18320074.
25. Huang W, Zhang Y, Varambally S, **Chinnaiyan AM**, Banerjee M, Merajver SD, Kleer CG. Inhibition of CCN 6 (Wnt-1-induced signaling protein 3) down-regulates E-cadherin in the breast epithelium through induction of snail and ZEB1. *Am J Pathol.* 2008 Apr; 172 (4): 893-904.
26. Morris DS, Tomlins SA, Montie JE, **Chinnaiyan AM**. The discovery and application of gene fusions in prostate cancer. *BJU Int.* 2008 Apr 16. [Epub ahead of print] PMID: 18422767.
27. Mehra R, Tomlins SA, Yu J, Cao X, Wang L, Menon A, Rubin MA, Pienta KJ, Shah RB, **Chinnaiyan AM**. Characterization of TMPRSS2-ETS gene aberrations in androgen-independent metastatic prostate cancer. *Cancer Res.* 2008 May 15; 68 (10): 3584-90. PMID: 18483239.
28. Setlur SR, Mertz KD, Hoshida Y, Demichelis F, Lupien M, Perner S, Sboner A, Pawitan Y, Andrn O, Johnson LA, Tang J, Adami HO, Calza S, **Chinnaiyan AM**, Rhodes D, Tomlins S, Fall K, Mucci LA, Kantoff PW, Stampfer MJ, Andersson SO, Varenhorst E, Johansson JE, Brown M, Golub TR, Rubin MA. Estrogen-dependent signaling in a molecularly distinct subclass of aggressive prostate cancer. *J Natl Cancer Inst.* 2008 Jun 4; 100 (11):815-25. Epub 2008 May 27. PMID: 18505969 .
29. Tomlins SA, Rhodes DR, Yu J, Varambally S, Mehra R, Perner S, Demichelis F, Helgeson BE, Laxman B, Morris DS, Cao Q, Cao X, Andrn O, Fall K, Johnson L, Wei JT, Shah RB, Al-Ahmadie H, Eastham JA, Eggener SE, Fine SW, Hotakainen K, Stenman UH, Tsodikov A, Gerald WL, Lilja H, Reuter VE, Kantoff PW, Scardino PT,

Rubin MA, Bjartell AS, **Chinnaiyan AM**. The role of SPINK1 in ETS rearrangement-negative prostate cancers. *Cancer Cell*. 2008 Jun; 13 (6): 519-28. PMID: 18538735.

30. Ghosh D, **Chinnaiyan AM**. Genomic outlier profile analysis: mixture models, null hypotheses, and nonparametric estimation. *Biostatistics*. 2008 Jun 6. [Epub ahead of print] PMID: 18539648.
31. Kumar-Sinha C, Tomlins SA, **Chinnaiyan AM**. Recurrent gene fusions in prostate cancer. Nat Rev Cancer. *Nat Rev Cancer*. 2008 Jul; 8 (7): 497-511.
32. Tomlins SA, Laxman B, Varambally S, Cao X, Yu J, Helgeson BE, Cao Q, Prensner JR, Rubin MA, Shah RB, Mehra R, **Chinnaiyan AM**. Role of the TMPRSS2-ERG gene fusion in prostate cancer. *Neoplasia*. 2008 Feb; 10 (2): 177-88. PMID: 18283340.
33. Mullins C, Lucia MS, Hayward SW, Lee JY, Levitt JM, Lin VK, Liu BC, **Chinnaiyan AM**, Rubin MA, Slawin K, Star RA, Getzenberg RH; MPSA Consortium. A comprehensive approach toward novel serum biomarkers for benign prostatic hyperplasia: the MPSA Consortium. *J Urol*. 2008 Apr; 179 (4): 1243-56.
34. Shen R, **Chinnaiyan AM**, Ghosh D. Pathway analysis reveals functional convergence of gene expression profiles in breast cancer. *BMC Med Genomics.* 2008 Jun 27; 1 (1): 28.
35. Zhao B, Ye X, Yu J, Li L, Li W, Li S, Yu J, Lin JD, Wang CY, **Chinnaiyan AM**, Lai ZC, Guan KL. TEAD mediates YAP-dependent gene induction and growth control. *Genes Dev.* 2008 Jun 25.

B. BOOKS/CHAPTERS IN BOOKS – None

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Several abstracts have been submitted from the Chinnaiyan Lab (during this period) to various national meetings including USCAP, American Association for Cancer Research (AACR), NCI S.P.O.R.E. meeting, and the Fall Research Symposium of the University of Michigan Cancer Center. Please refer to the published manuscripts that have resulted from these abstracts.

Kathleen R. Cho, M.D.

Peter A. Ward Professor of Pathology
Professor of Pathology and Internal Medicine

I. Clinical Activities

A. Gynecological Pathology case sign-out in surgical pathology (11 weeks).

B. Section Head, Gynecological Pathology.

C. Gynecological Pathology consultation service (26 weeks).

D. Multidisciplinary Gynecological Oncology tumor board (monthly).

II. Teaching Activities

A. GRADUATE STUDENTS

1. Pre-doctoral Students:
   a. Kaanan Shah 09/07 12/07; PIBS rotation student, Department of Pathology, University of Michigan School of Medicine
   b. Matthew Vanbeek 01/08 04/08; PIBS rotation student, Department of Pathology, University of Michigan School of Medicine
2. Dissertation Committees
   a. Ph.D. Candidate: Neali Hendrix (Lucas), Department of Pathology, Cho Laboratory (Dissertation Committee Chair), University of Michigan Medical School, 2003 2007 (Ph.D. awarded 2007).
   b. Ph.D. Candidate: Scott Tomlins, MSTP, Department of Pathology, Laboratory of Dr. Arul Chinnaiyan (Dissertation Committee Chair), University of Michigan Medical School, 2005 2007 (Ph.D. awarded 2007).
   c. Pathology 581: Tissue, Cellular and Molecular Basis of Disease (course faculty, University of Michigan Medical School, Winter Terms 2000 - present)

B. HOUSE OFFICERS AND FELLOWS
   1. Gynecological pathology case sign-out (11 weeks).
   2. Staff consult conference (one hour-UM house officers; one hour Memorial Sloan Kettering fellows).
   3. Didactic conference - review of cervical pathology (one hour).
   4. Supervised one month elective in gynecological pathology for Malti Kshirsagar (PGY4).

C. LECTURES
   1. AP Grand Rounds, Cervical Pathology Review, January 2008.
   2. New Frontiers in Diagnostic Pathology, case presentation, September 2007.

D. OTHER
   1. Research/laboratory supervisor for the following UM undergraduate students:
      a. Kit Yuen, UM undergraduate student - part time research assistant, Cho laboratory, 2006-07 and 2007-08 academic years; full time research assistant, summer 2007; part time research assistant, summer 2008.
      b. Betty Pang, UROP student - part time research assistant, Cho laboratory, 2007 academic year.

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH/NCI RO1 CA 94172 (Cho: PI), 02/01/02 05/31/12, 2.4 calendar (20% effort), $177,300 annual direct costs Molecular Pathogenesis of Ovarian Endometriosis Adenocarcinoma (OEAs).
   2. NIH/NCI RO1 CA10010 (Lubman: PI, Cho: Co-I), 04/15/03 04/14/08 (no cost extension for 04/15/08 - 04/14/09), .36 calendar (2.5% effort), $178,000 annual direct costs, Liquid Proteomics for Marker Screening of Ovarian Cancer.
   3. NIH/NCI P50 CA098252, (Wu, T-C: Program PI, Cho: Project 2 PI), 09/30/03 08/31/08, 2.4 calendar (20% effort, Project 2), $133,448 annual direct costs, SPORE in Cervical Cancer Project 2 - Molecular Markers of Invasion in Cervical Cancer Progression.
   4. NIH/NCI P50 CA098252, (Wu, T-C: Program PI, Cho: Project 1 Co-I), 09/30/03 08/31/08, 0.6 calendar (5% effort, Proj 1) $180,786 annual direct costs, SPORE in Cervical Cancer Project 1 - Markers of Progression to Cervical Cancer in Rural India.
   5. NIH/NCI 2 RO1 CA82223-06, (Fearon: PI, Cho: Co-I), 08/15/99 03/31/09, 0.9 calendar (7.5% effort), $202,500 annual direct costs, CDX2 Tumor Suppressor Pathway Defects in Colon Cancer.
   6. NIH/NCI RO1 CA85463, (Fearon: PI, Cho: Cho-I), 06/01/00 to 05/31/10, 0.9 calendar (7.5% effort) $191,250 annual direct costs, The Role of -catenin/Tcf Pathway Defects in Cancer.

7. ARMY, Department of Defense, W81XWH-08-1-0453 (Initiating PI: Cho, Partnering PI: Rehemtulla) Ovarian Cancer Research Program Translational Research Partnership: "Development of Mouse Models of Ovarian Cancer for Studying Tumor Biology and Testing Novel Molecularly Targeted Therapeutic Strategies", 07/01/08 - 09/30/11, 1.8 calendar (15% effort) $125,000 annual direct costs.

B. PENDING PROJECTS
1. NIH/NCI RO1 CA132755 (PI: Yu, Xiaochun), Molecular Mechanisms of Brca1-Dependent DNA Damage Response and Tumorigenesis, 07/01/08 - 06/30/13, 0.6 calendar (5% effort), $1,250,000 direct costs requested. The major goal of this grant is to examine the functions and mechanisms of BRCA1 in DNA damage response.
2. NIH/NCI CA130899 (PI: Yu, Xiaochun), Regulation of Ionizing Radiation Induced DNA Damage Response, 12/01/08 -11/30/13, 0.6 calendar (5% effort), $1,250,000 direct costs requested. The major goal of this grant is to study the role of RNF8 in the activation of DNA damage response.

C. PROJECTS UNDER STUDY
1. Molecular profiling of ovarian epithelial tumors using liquid proteomics and Affymetrix gene chip technologies.
2. Identification and characterization of molecular markers of ovarian carcinomas.
3. Identification of novel genes amplified in ovarian carcinomas.
4. Evaluation of the role of Wnt/-catenin/Tcf and PI3K/Akt/Pten pathway defects in the pathogenesis of ovarian endometrioid adenocarcinomas.
5. Development of murine models of ovarian cancer.
6. Identification of genes involved in cervical cancer progression.

IV. Administrative Activities

A. DEPARTMENTAL
1. Department of Pathology, Internal Advisory Committee on Appointments, Promotions and Tenure, 2002 present.
2. Department of Pathology Graduate Student Admissions Committee, 2002 present.
3. Department of Pathology, Projects in Anatomic Pathology Funding Committee, Committee Chair, 2006 – present.
4. Department of Pathology, Graduate Program Advisory Committee for the Molecular and Cellular Pathology (MCP) Graduate Program, 2007 – present.
5. Section Head, Gynecological Pathology.

B. INSTITUTIONAL
1. Institutional Review Board, University of Michigan School of Medicine (IRB-MED), regular member 2001-2007.

2. Cancer Research Committee, University of Michigan Comprehensive Cancer Center, 2007 – present.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Benjamin Castleman Award Committee, United States and Canadian Academy of Pathology (3 year appointment beginning 2005).
2. Organizer/Moderator, American Society for Investigative Pathology (ASIP) Companion Meeting, USCAP 2008.
3. Councilor, American Society for Investigative Pathology (ASIP).
4. Chair, Committee for Career Development Women and Minorities, American Society for Investigative Pathology, 2008.
5. Secretary, International Society of Gynecological Pathologists.
6. Member, Laboratory Research Awards Selection Committee (AACR-G.H.A. Clowes Memorial Award and AACR Award for Outstanding Achievement in Cancer Research, AACR (two year appointment beginning 2007).

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a. International Journal of Gynecological Pathology
   b. Human Pathology
   c. *Clinical Cancer Research* (Associate Editor)
   d. *Cancer Research* (Associate Editor)
      i. Senior Editor, Molecular Biology, Pathobiology and Genetics Section as of August 2007.
   e. Diagnostic Molecular Pathology
   f. Clinical and Translational Science
   g. *Laboratory Investigation* (Associate Editor, effective summer 2008).

B. INVITED LECTURES/SEMINARS

1. Annual Symposium of the International Society of Gynecological Pathologists, "Molecular Biology of Ovarian Cancer with Morphological Correlation", United States and Canadian Academy of Pathology, Annual Meeting, San Diego, California, March, 2007.
2. Distinguished Visiting Professor, Pathology Grand Rounds, "Ovarian Cancer Pathogenesis: From Women to Mice and Back Again", Department of Pathology, The Johns Hopkins University School of Medicine, Baltimore, Maryland, May 2007.
3. Department of Pathology, Research Seminar Series, "Ovarian Cancer Pathogenesis: From Women to Mice and Back Again", Case Western Reserve University School of Medicine, Cleveland, Ohio, September, 2007.

4. Department of Pathology, Grand Rounds, "Of Mice and (Wo)men: Tales of Ovarian Cancer Pathogenesis", Memorial Sloan Kettering Cancer Center, New York, New York, December, 2007.
5. Annual Companion Meeting of the American Society for Investigative Pathology, "Molecular Insights into the Morphological Heterogeneity of Ovarian Carcinomas Does Histological Type Matter?", United States and Canadian Academy of Pathology, Annual Meeting, Denver, Colorado, March, 2008.
6. Cell, Development and Cancer Seminar Series, "Ovarian Cancer Pathogenesis: Insights from Morphology, Molecules, and Mice", Denver, Colorado, April, 2008.
7. Pathology Grand Rounds, "Of Mice and (Wo)men: Molecular Insights into the Morphological Heterogeneity of Ovarian Carcinomas", Weill Cornell Medical College, New York, New York, May, 2008.
8. Translational Research Seminar Series, " Ovarian Cancer Pathogenesis: Insights from Molecular Profiling and Mouse Models", Barbara Ann Karmanos Cancer Institute, Detroit, Michigan, May 2008.
9. ENDO 08 Annual Meeting of the Endocrine Society, Symposium on Ovarian and Uterine Neoplasias: Genetics & Genomics, "Wnt and PI3K Signaling in Ovarian Cancer", San Francisco, California, June 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology
2. International Society of Gynecological Pathologists.
   a. 2003-present, Secretary
3. American Association for Cancer Research.
4. American Society for Investigative Pathology.
   a. 2006-present, Councilor (3 year term).
   b. 2008-present, Chair, Committee for Career Development Women and Minorities,
5. American Society for Clinical Investigation.
6. Michigan Society of Pathologists.
7. Laboratory Research Awards Selection Committee (AACR-G.H.A. Clowes Memorial Award and AACR Award for Outstanding Achievement in Cancer Research, AACR (two year appointment beginning 2007).
8. Member, Association of American Physicians.

D. HONORS AND AWARDS
1. Election to the Association of American Physicians, April 2008.
2. Peter A. Ward endowed professorship in Pathology, Dec 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Feng Y, Bommer GT, Zhai Y, Akyol A, Hinoi T, Winer I, Lin HV, Cadigan KM, **Cho KR**, and Fearon ER. Drosophila split ends homologue SHARP functions as a positive regulator of Wnt/?-catenin/T-cell factor signaling in neoplastic transformation. *Cancer Research*. 67:482-91, 2007.
2. Wu R, Hendrix ND, Kuick R, Zhai Y, Schwartz DR, Akyol A, Hanash S, Misek DE, Katabuchi H, Williams BO, Fearon ER, and **Cho KR**. Mouse model of human ovarian endometrioid adenocarcinoma based on somatic defects in the Wnt/?-catenin and PI3K/Pten signaling pathways. *Cancer Cell*. 11:321-33, 2007.
3. Bommer GT, Gerin I, Feng Y, Kaczorowski AJ, Kuick R, Love RE, Zhai Y, Giordano TJ, Qin ZS, Moore BB, MacDougald OA, **Cho KR**, and Fearon ER. p53-mediated activation of miRNA34 candidate tumor suppressor genes. *Current Biology.* 17:1298-307, 2007.
4. Hinoi T, Akyol A, Theisen BK, Ferguson DO, Greenson JK, Williams BO, **Cho KR**, and Fearon ER. Mouse model of colonic adenocarcinoma progression based on somatic Apc inactivation. *Cancer Research*. 67:9721-30, 2007 (cover feature).
5. Zhai Y, Kuick R, Nan B, Ota I, Weiss SJ, Trimble CL, Fearon ER, and **Cho KR.** Gene expression analysis of pre-invasive and invasive cervical squamous cell carcinomas identifies HOXC10 as a key mediator of invasion. *Cancer Research*. 67:10163-72, 2007.
6. Greer BE, Koh WJ, Abu-Rustum N, Bookman MA, Bristow RE, Campos S, **Cho KR**, Copeland L, Eifel P, Huh WK, Jaggernauth W, Kapp DS, Kavanagh J, Lipscomb GH, Lurain JR 3rd, Morgan M, Morgan RJ Jr, Powell CB, Remmenga SW, Reynolds RK, Secord AA, Small W Jr, Teng N. Cervical Cancer. *Journal of the National Comprehensive Cancer Network.* 6:14-36, 2008.
7. Wang SS, Smiraglia DJ, Wu Y-Z, Ghosh S, Rader JS, **Cho KR,** Bonfiglio TA, Nayar R, Plass C, Sherman ME. Identification of novel methylation markers in cervical cancer using restriction landmark genomic scanning (RLGS). *Cancer Research*. 68:2489-97, 2008.
8. Kim H, Wu R, **Cho KR**, Thomas DG, Gossner G, Liu JR, Giordano TJ, Shedden KA, Misek DE, Lubman DM. Comparative proteomic analysis of low stage and high stage endometrioid ovarian adenocarcinomas. *Proteomics- Clinical Applications*. 2:571-584, 2008.

B. BOOKS/CHAPTERS IN BOOKS
1. **Cho, K.R**. and Shih, I.M. Ovarian Cancer. *Annual Review of Pathology: Mechanisms of Disease*, vol 4, 2008 (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS - None

Laura L. W. Cooling, M.D.

Assistant Professor of Pathology
Associate Director, Blood Bank

I. Clinical Activities

A. Associate Medical Director, Transfusion Medicine
   1. Blood Bank, clinical coverage and administration
   2. Bone Marrow/Peripheral Stem Cell Collection and Processing
   3. Clinical Consultation/Management, Special Product Requests
   4. Clinical Coverage, Therapeutic Apheresis

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Medical school admission interviews
   2. Lectures, 4th year pathology elective

B. Nursing/Physician Assistants
   1. Lecture, evaluation and treatment of transfusion reactions

C. HOUSE OFFICERS AND FELLOWS
   1. Resident Education
      a. Responsible/Share didactic teaching activities for the following
         i. Blood Component Therapy
         ii. Transfusion Reaction Evaluation
         iii. Evaluation and management of platelet refractoriness
         iv. Fundamentals of Clinical Apheresis (with nursing staff)
         v. Evaluation and Management of Therapeutic Apheresis Requests
         vi. Administrative Issues on-call
      b. Clinical Teaching
         i. Supervision Resident/ Fellow Activities (6 mo/yr)
            (i) Morning Report
            (ii) Transfusion reaction sign-out
            (iii) Clinical apheresis requests/patient management

(iv) Special product request evaluation and clinical follow-up
(v) Case-based informal teaching
(vi) Other Clinical Teaching: non-pathology house staff

c. Resident Applicant Interviews.

D. LECTURES
1. 5/2007 Clinical Pathology Grand Rounds, University of Michigan. Complications and toxicity of progenitor/stem cell infusions.

III. Research Activities

A. SPONSORED SUPPORT
1. University of Michigan Pilot Collaborative Grant Program for Translational and Clinical Research, Title: Platelet Glyconjugates as Thrombotic/Neoplastic Markers in Myeloproliferative Disorders, PI: Laura Cooling, Budget: $50,000.

B. PENDING PROJECTS
1. University of Michigan Pilot Collaborative Grant Program for Translational and Clinical Research, Title: Platelet Glyconjugates as Thrombotic/Neoplastic Markers in Myeloproliferative Disorders PI: Laura Cooling Co-PI: James L. Park Budget: $50,000.

C. PROJECTS UNDER STUDY
1. The Regulation and Biology of Glycosphingolipids
   a. Molecular basis and regulation of b1,3 galactosyltransferase V on globo- and lacto, and neolacto-antigen expression.
   b. Globo/lacto antigens in, hematopoietic development, infectious disease and cancer.
   c. Molecular/biochemical analysis of globo-glycotypes.
2. Clinical Research
   a. Factors effecting stem cell collection and engraftment.
   b. Platelet immunology, role in transfusion therapy.

IV. Administrative Activities

A. DEPARTMENTAL
1. Associate Director, Transfusion Medicine
2. Director, Stem Cell Processing

B. INSTITUTIONAL
1. Hospital
   a. Transfusion Subcommittee
   b. Data Analysis Council

2. Medical School Admissions Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Regional
      a. Michigan Association of Blood Banks
         i. Board of Directors
         ii. Chair, 2007 Annual Meeting
         iii. President, 2008
   2. National
      a. Scientific Section Coordinating Committee (SSCC).
         i. Secretary, SSCC.
         ii. SSCC Liaison to Annual Meeting Education Unit.
      b. AABB-Fenwal Scholarship Review.
      c. Chair, Technical/Clinical Education Tract, 2008 Annual Meeting, Montreal, Canada.
      d. American Association of Blood Banks Abstract Selection Unit National Blood Foundation Grant Review.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. *Blood*
   2. *Transfusion*
   3. *Immunohematology*

B. INVITED LECTURES/SEMINARS
   1. Transfusion Reactions: Complications of stem cell infusions. 53rd Annual Meeting, Michigan Association of Blood Banks, Livonia, MI, September 2007.
   2. Hematology Noon Conference, University of Michigan. Faculty, L. Cooling, R. Davenport. Adventures in Blood Banking: Liver Transplantation in an IgA Deficient Patient, September 2007.
   3. American Association of Blood Banks Annual Meeting, Anaheim, CA. ABO typing discrepancies in children requiring long-term nutritional support: It is the gut after all! October 2007.
   4. Acrodose™ pre-pooled platelets: The hospital experience. South Central Blood Bank Association, Houston, TX, April 2008.
   5. Clinical Pathology Grand Rounds, University of Michigan. Transfusion support for the serologically-challenging patient, April 2008.
   6. Problem Solving in the Blood Bank. Faculty, Laura Cooling, Sharon Lowry, Charles Muck. Current Topics in Blood Bank, University of Michigan, Ann Arbor, MI, May 2008.
   7. Molecular Biology for Dummies. Blood Bank Association of New York Annual Meeting, Verona, NY, June 2008.

8. Serologic Case Studies Workshop (2 hrs), Blood Bank Association of New York Annual Meeting, Verona, NY, “Post-partum hemolysis”, “ABO discrepancies associated with long-term parenteral nutrition”, “Acute hemolysis in a BMT patient with ITP”, “WAA and anti-Kp^b in a double-cord transplant patient”, June 2008.
9. Transfusion when nothing is compatible. American Red Cross, Detroit, MI, June 2008.
10. New Perspectives in Preoperative Blood Recovery and Reinfusion. American Association of Blood Banks Annual Meeting, Anaheim, CA. Director and Moderator, October 2007.
11. Red Cell Serology I, American Association of Blood Banks Annual Meeting, Anaheim, CA. Moderator, October 2007.
12. Pediatric Transfusion Medicine, American Association of Blood Banks Annual Meeting, Anaheim, CA. Moderator, October 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Michigan Association of Blood Banks Board of Directors
2. 2008 President-Elect Chair, Annual Meeting American Association of Blood Banks
3. Elected, Scientific Section Coordinating Committee (SSCC Secretary, SSCC Liaison to Annual Meeting Education Unit)
4. AABB-Fenwal Scholarship Review
5. Annual Meeting Abstract Selection Unit
6. National Blood Foundation Grant Review
7. Society for Glycobiology International
8. Society for Blood Transfusion
9. American Society for Apheresis

D. HONORS AND AWARDS
1. Outstanding Poster, American Association of Blood Banks Annual Meeting, Anaheim CA. Distinct platelet glycotypes in normal platelet donors.
2. Outstanding Poster, American Association of Blood Banks Annual Meeting, Anaheim CA. Isoagglutinin titers in pooled group O platelets are comparable to apheresis platelets.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Cooling L**, Downs T, Butch S, Davenport R. Anti-A and anti-B titers in group O pooled platelets are equivalent to apheresis platelets. *Transfusion*. In press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Cooling L.** Transfusion Practices. In *Blood Transfusion Therapy. A Physicians Handbook*, ed. K King. AABB Press, Bethesda, MD. In press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Dake LR, Howard JK, Judd WJ, **Cooling LL**. Validation of the human erythrocyte antigen (HEA) BeadChip™ after implementation of the web-based (wHEA™ v.1.1. Beta) kit. *Transfusion* 2007; 47(3S): SP378.
2. **Cooling LW**, Sitwala K, Dake LR, Judd J, Davenport R. ABO typing discrepancies in children requiring long-term nutritional support: It is the gut after all! *Transfusion* 2007; 47(3S): S19-030E.
3. **Cooling LW**, Thomas R, Mullis N, Shayman JA, Judd J. A LKE-negative phenotype due to an apparent weak P phenotype. *Transfusion* 2007; 47(3S): SP304.
4. **Cooling LW**, Butch S, downs T, Davenport R. Isoagglutinin titers in pooled group O platelets are comparable to apheresis platelets. *Transfusion* 2007; 47(3S): SP102.
5. **Cooling LW**, Smith M, Luoma T, Bahodori A, Koerner T, Shayman JA. Distinct platelet glycotypes in normal platelet donors: correlation with HLA B7. *Transfusion* 2007; 47(3S): SP279.
6. **Cooling LW**, Shayman JA. Expression of a LKE-related globo-glycosphingolipid in platelets is dependent on specific platelet glycotypes. *Transfusion* 2007; 47(3S): SP289.
7. Hoffmann S, Herrst M, Butch S, **Cooling LW**. Prestorage leukocyte reduced, CMV untested blood components are safe for use in CMV-negative allogeneic bone marrow transplant recipients. *Transfusion* 2007; 47(3S): SP512.
8. Muck CA, Armelagos H, Meade MJ, Herrst M, Hoffmann S, Davenport R, **Cooling LL**. Prospective comparison analysis of the GAMBRO BCT COBE Spectra AUTO PBSC set versus GAMBRO BCT COBE Spectra WBC SET for collection of peripheral blood progenitor cells in multiple myeloma. *J Clin Apheresis* 2008;23:21.
9. **Cooling L**, Dake L, Pagani F, Hickey A, Butch S, Davenport R. RBC alloimmunization in patients undergoing left ventricular assist device placement. *Transfusion*. In press.
10. Shah-Khan F, **Cooling L**, Hoffmann S, Mineishi S, Hersst M, Davenport R. DT-PACE is equivalent or superior to Cytoxan + G-CSF or G-CSF alone for the collection of CD34 cells in multiple myeloma. *Transfusion*. In press.
11. **Cooling L**, Luoma T, Bahdori A, Shayman J. Wide variation in platelet ganglioside content in individual platelet donors. *Transfusion.* In press.

Robertson D. Davenport, M.D.

Associate Professor
Director of Blood Bank and Transfusion Services

I. Clinical Activities

A. MEDICAL DIRECTOR, BLOOD BANK AND TRANSFUSION

B. CYTOPATHOLOGY STAFF

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 Hematology sequence, Blood Transfusion.

B. HOUSE OFFICERS AND FELLOWS

1. Daily teaching rounds for pathology house officers assigned to the blood bank.
2. Cytopathology sign-out with pathology house officers and cytopathology fellows.
3. Current Topics in Blood Banking Conference, Towsley Center for Continuing Medical Education.
4. M2 Hematology sequence, Blood Transfusion.
5. Hematology fellows, blood transfusion.
6. Blood banking/transfusion medicine core lecture series for residents and fellows.

C. LECTURES

1. Component Therapy in Transplantation. CP Grand Round, May 15, 2007.
2. Relevance of the Preoperative Hemoglobin Concentration. Current Topics in Blood Banking, Ann Arbor, MI, June 8, 2007.

III. Research Activities

A. SPONSORED SUPPORT

1. Wallis H. Coulter Foundation, Co-Investigator, “Rapid Sensor-Based Method to Detect S-Nitrosohemoglobin Deficiency/Stability in Red Blood Cells”, $100.00.

B. PROJECTS UNDER STUDY

1. Nitrosohemoglobin content of stored red blood cells.

2. Clinical impact of preoperative anemia.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Fellowship Program in Blood Banking/Transfusion Medicine.

B. INSTITUTIONAL

1. Chair, Transfusion Committee.
2. Regular Member, Institutional Review Board C1.

C. C. REGIONAL/NATIONAL/INTERNATIONAL

1. Chair, Medical Advisory Committee, American Red Cross, Southeastern Michigan Blood Services Region.
2. Member, Board of Directors, American Red Cross, Southeastern Michigan Region.
3. Member, Executive Committee, Board of Directors, American Red Cross, Southeastern Michigan Region.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. *Transfusion*
2. *Chest*
3. *American Journal of Hematology*
4. *International Journal of Laboratory Hematology*

B. INVITED LECTURES/SEMINARS

1. Update on TRALI. Michigan State Society American Medical Technologists.
2. Applications of Genotyping to Red Cell Serology. Current Topics in Blood Banking.
3. Transfusion Reactions: Recognition and Management. Blood Banks Association of New York State.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Clinical Transfusion Medicine Committee, AABB.
2. Plasma Transfusion Guidelines Task Force, AABB.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Yazer MH Judd WJ **Davenport RD** Dake LR Lomas-Francis C Hue-Roye K, Powell V, Reid M. Case Report and Literature Review: Transient Inab Phenotype and an Agglutinating Anti-IFC in a Patient with a Gastro-Intestinal Problem. *Transfusion* 2006;46:1537-42.

2. Fung MK, Crookston K, Wehrli G, Domen R, Lopez-Plaza I, **Davenport R**, Gottschall J, Spitalnik S. A Proposal for Curriculum Content in Transfusion Medicine/ Blood Banking Education in Pathology Residency Programs. *Transfusion*, In Press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Davenport RD.** Therapeutic Apheresis. In: Robeck J (ed): *Technical Manual* 16th ed. AABB Press, Bethesda, MD. In press.
2. **Davenport, RD.**:Hemolytic Transfusion Reactions. In: Simon TL, Snyder EL, Solheim BG, Stowell CP, Strauss RG, Petrides M (eds.): *Rossi's Principles of Transfusion Medicine* 4th ed. Lippincott Williams and Wilkins, Philadelphia, PA.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Cooling LW, Sitwala K. Dake LR, Judd W, **Davenport R**. ABO Typing Discrepancies In Children Requiring Long-Term Nutritional Support: It Is The Gut After All! *Transfusion* 2007 47(3S):10A.
2. Cooling LW, Butch S, Downs T, **Davenport R**. Isoagglutinin Titers in Pooled Group O Platelets Are Comparable to Apheresis Platelets. *Transfusion* 2007 47(3S):78A.

Yali Dou, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Advised one graduate student: Elizabeth Townsend, Ph.D. candidate.

B. LECTURES

1. Two lectures for 582 Critical Analysis.

III. Research Activities

A. SPONSORED SUPPORT

1. University of Michigan, 3 P30 AG013283, "Pilot funding by the Nathan Shock Center for the Biology of Aging", 7/1/2007 - 6/30/2008, $40,000 direct costs.
2. NIH, R01 CA092251-07A1, Hess, PI, "Transcriptional deregulation by MLL fusion proteins", 9/27/2007 - 8/31/2012.

B. PENDING PROJECTS

1. NIH, R01 RGM082856A, PI, "Epigenetic regulations of transcription by mixed lineage leukemia protein MLL", 4/1/2008 - 3/31/2013, $250,000 annual direct costs.
2. University of Michigan, Liu, PI, "New Inter/Multi-Disciplinary Research Pilot Grant".

IV. Administrative Activities

A. DEPARTMENTAL

1. Organized faculty research presentation.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript reviews (journals and number of instances).
   a) *Molecular Cell Biology*
   b) *Plos Biology*

c) *BBA, Gene Structure and Expression*
d) *Aging Cell*

B. INVITED LECTURES/SEMINARS
1. The coordinated functions of chromatin modifying enzymes (2008). Presented at the 3rd ICH/GOSH Childhood Leukaemia Symposium Molecular Basis of Childhood Leukaemia, sponsored by the Institute of Child Health. London, UK.
2. The histone modifying enzymes (2008). Presented at Cayman Chemicals, Inc. Ann Arbor, Michigan.
3. The coordinated functions of histone modifying enzymes (2007). Presented at the Frontiers in Epigenetics and Chromatin Signaling Symposium, sponsored by the Structural Genomics Consortium. Toronto, Canada.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for the Advancement of Science
2. American Chemical Society
3. American Association for Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Hyllus D, Stein C, Schnabel K, Schiltz E, Imhof A, **Dou Y**, Hsieh J, Bauer UM (2007). PRMT6-mediated methylation of R2 in histone H3 antagonizes H3 K4 trimethylation. *Gene Dev.* 21:3369-3380.
2. Wen H, **Dou Y**, Hogaboam CM, Kunkel SL (2008). Epigenetic regulation of dendritic cell-derived interleukin-12 facilitates immunosuppression after a severe innate immune response. *Blood*. 111(4):1797-1804.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Wen H, Schaller MA, **Dou Y**, Hogaboam CM, Kunkel SL (2008). Dendritic cells at the interface of innate and acquired immunity: the role for epigenetic changes. *J Leukoc Biol.* 83:439-446.
2. **Dou Y** and Hess JL (2008). Mechanisms of transcriptional regulation by MLL and its disruption in acute leukemia. *Inter J Hematol*. 87(1):10-8.

Gregory R. Dressler, Ph.D.

Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Pre-doctoral Students Supervised
   a) Marc Prindle, CMB
   b) Peng Zhang, Pathology
2. Post-doctoral Trainees Supervised
   a) Doyeob Kim, Ph.D.
   b) Hong Xiao, M.D., Ph.D.
   c) Kristopher Schwab, Ph.D.
   d) Gaelle Lefevre, Ph.D.
3. Ph. D. Thesis Committee Member
   a) Alicia Yallowitz, CDB
   b) Sara Monroe, Pathology
   c) Tushar Menon, Biochemistry

B. LECTURES

1. Course Lectures Path 582, Course Director, 21 hours
2. Summer Postdoctoral Training Course for Medical Fellows, 40 hours

C. OTHER

1. Undergraduate Student Supervised, John Nan

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, NIDDK R01DK073722, PI (30% effort), “Epigenetic Regulation of Kidney Development”, 7/01/2006 - 4/30/2011, Annual direct costs $205,000.
2. NIH, NIDDK 1 R01 DK54740-05, PI (30% effort), “PAX2 Interacting Proteins in Development and Disease”, 1/1/2003 - 3/31/2007, Annual Direct Costs $174,000.

3. NIH, NIDDK R01 DK52886, Co-Investigator (5% effort), “Novel SAPK activating kinase in renal epithelial stress”, 8/1/1998 - 7/31/2007, Annual Direct Costs $225,000**.**
4. NIH, NIDDK R01 DK071929, Wellik, P.I.; Duckett, Co-Investigator (7.5% effort), “Molecular Genetics of Hox Genes and Kidney Development”, 5/1/2006 - 4/30/2011, Annual Direct Costs $208,000.
5. NRSA training award to Dr. Kristopher Schwab, Mentor, “Analysis of Pax2 target genes involved in metanephric kidney development”, $147,000 total costs.

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY
1. The identification of co-factors required for Pax protein mediated transcription activation.
2. The development of novel methods for identifying genes regulated by Pax proteins.
3. The role of PTIP in histone methylation, differentiation, and aging.
4. The GDNF/RET signaling pathway in the developing kidney.
5. The role of novel TGF-beta inhibitors in renal development and fibrotic disease.

IV. Administrative Activities

A. DEPARTMENTAL
1. Department of Pathology - Curriculum Committee

B. INSTITUTIONAL
1. CMB Preliminary Exam Coordinator
2. Center for Organogenesis
   a) Interim Co-Director
   b) Steering Committee
   c) Training Grant Review Committee
   d) Advisory Committee
   e) Seminar Committee (Chair)

C. REGIONAL/NATIONAL/INTERNATIONAL
1. NIDDK, GUDMAP Advisory Board
2. Center for Scientific Review, UKGD, Ad-hoc
3. American Society of Nephrology Basic Science Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a) *Developmental Dynamics*
   b) *Journal of the American Society of Nephrology*

2. Manuscript Reviewer
   a) *Developmental Cell*
   b) *Nature Genetics*
   c) *Nature Medicine*
   d) *Science*
   e) *Development*
   f) *Proceedings of the National Academy of Sciences*
   g) *Developmental Dynamics*
   h) *Developmental Biology*
   i) *Journal of the American Society of Nephrology*
   j) *American Journal of Physiology*
   k) *Journal of Clinical Investigation*
   l) *Molecular and Cellular Biology*
   m) *Genes & Development*
   n) *Kidney International*
   o) *Journal of Cell Biology*
   p) *American Journal of Pathology*

B. INVITED LECTURES/SEMINARS
   1. Dept. of Medicine, Vanderbilt University, Nashville, TN.
   2. California National Primate Center, UC Davis, CA.
   3. International Symposia on Kidney Development and Tissue Engineering, Oulu, Finland.
   4. International Developmental Nephrology Workshop, IPNA, Pecs, Hungary.
   5. Dept. of Pediatrics, University of Cincinnati, OH.
   6. Plenary lecture, American Society of Nephrology Annual Meeting, San Francisco, CA.
   7. Div. of Nephrology, Wayne State University Medical School, Detroit, MI.
   8. Frontiers in Urologic Cancer: Molecular Mechanisms and Therapeutic Strategies, Van Andel Institute, Grand Rapids, MI.
   9. The First Midwest Conference on Stem Cell Biology and Therapy, Oakland University, Rochester, MI.
   10. The Kidney: Development, Repair, and Regeneration. Kidstem International Conference, Liverpool, UK.
   11. McGill Cancer Center, McGill University, Montreal, Canada.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Society of Nephrology
   2. Society for Developmental Biology
   3. University of Michigan Comprehensive Cancer Center
   4. Center for Organogenesis, University of Michigan

D. HONORS AND AWARDS

1. PATENTS:
   a) Procedure for the Differentiation of Stem Cells into Renal Epithelial Cells. US Patent Application No.60/700234.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Kim, D, Wang, M., Cai, Q., Brooks, H. and **Dressler, G.R.** (2007) The Pax2 Interacting Protein PTIP is Required for Urine Concentration and Osmotolerance in Collecting Duct Epithelia. *J. Am. Soc. Nephrol*. 18, 1458-1465.
2. Kim, D. and **Dressler, G. R.** (2007) PTEN modulates GDNF/RET mediated chemotaxis and branching morphogenesis in the developing kidney. *Dev. Biol.*, 307, 290-299.
3. Cho, Y.W., Hong, T., Hong, S.H., Yu, H., Kim, D., Guszczynski, T., **Dressler, G.R.**, Copeland, T., Kalkum, M. and Ge, K. (2007) PTIP associates with MLL3 and MLL4 containing histone H3 lysine 4 methyltransferase complex. *J. Biol Chem.* 282, 20395-20406.
4. Gong, K.Q., Yallowitz, A.R., Sun, H., **Dressler, G.R.** and Wellik, D.M. (2007) A Hox-Eya-Pax complex regulates early kidney developmental gene expression. *Mol. Cell Biol.* 27, 7661-7668.
5. Viana, R., Batourina, E., Hunag, H., **Dressler, G.R.,** Behringer, R.R., Kobayashi, A., Shapiro, E., Hensle, T. and Mendelsohn, C. (2007) The development of the bladder trigone, the center of the anti-reflux mechanism. *Development*. 134, 3763-3769.
6. Patel, S.R., Kim, D., Levitan, I. and **Dressler, G.R.** (2007) The BRCT-domain containing protein PTIP links Pax2 to a histone H3, lysine 4 methyltransferase complex. *Developmental Cell* 13, 580-592.
7. **Dressler, G.R.** (2008) Another Niche for Notch. *Kidney Int*. 73, 1207-1209.
8. **Dressler, G.R.** (2008) Epigenetics, development, and the kidney. *J. Am. Soc. Nephrol*. in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Dressler, G.R.** (2007) Stem cells in kidney development and regeneration. In *Principles of Tissue Engineering.* (R. Lanza, R. Langer, J. Vacanti eds) Academic Press, 787-799.

Colin S. Duckett, Ph.D.

Associate Professor of Pathology
Associate Professor, Mechanisms of Disease Program

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Julie Rumble, Graduate Student, Immunology Program
2. Rebecca Csomos, Graduate Student, Pathology Program
3. Karolyn Oetjen, MSTP Student, Pathology Program
4. Graham Brady, MSTP Student, Pathology Program

B. HOUSE OFFICERS AND FELLOWS

1. Clara Hwang, M.D., Fellow, Department of Internal Medicine
2. Casey Wright, Ph.D., Postdoctoral Fellow
3. Stefanie Galban, Ph.D., Postdoctoral Fellow
4. Kristin Landis-Piwowar, Ph.D., Postdoctoral Fellow

C. LECTURES

1. Pathology 852
2. Pathology 581
3. Course Director, Immunology 815
4. Postdoctoral Research Training Program
5. Immunology 851
6. Director, Cancer Biology Training Program

III. Research Activities

A. SPONSORED SUPPORT

1. NIGMS, R01 GM067827-01, PI (30%) "Control of Apoptosis and Signaling by XIAP", 2005 - 2010, $175,770 per annum, $883,080 total direct costs.
2. The Sandler Program for Asthma Research, Senior Investigator Award, PI (0%), "IAP Proteins as Novel Molecular Targets for the Treatment of Asthmatic Diseases," 2007 - 2010, $150,000 per annum, $450,000 total direct costs.

3. R01, Merajver, PI (2.5%), "Prevention of Mammary Cancer in Her-2neu Transgenic Mice," 2003 - 2009 $183,582 per annum, $931,164 total direct costs.
4. NIAID, RO1, "SCF in eosinophilic airway inflammation", 2004 - 2008, $195,300 per annum, $790,600 total direct costs.

B. FELLOWSHIP AWARDS SERVINGS AS MENTOR
1. NHLBI, "CD30-mediated p100/NF-KB2 processing and activation", $283,056 per annum, $1,458,972 total direct costs.
2. NCI, "Understanding the roles of IAPs and TRAFs in CD30 malignancies", $272,412 per annum.
3. DOD, "The role of X-linked Inhibitor of Apoptosis in Breast Cancer", $30,000 per annum, $90,000 total direct costs.
4. DOD, "Role of the XIAP-copper axis in prostate cancer", $30,000 per annum, $90,000 direct costs.

C. PENDING PROJECTS
1. NIH/NHLBI, R01 HL079944-01 (Lukacs) (15% effort) "TLR3-mediated immune mechanisms in RSV infection" Role: Co-investigator.
2. NIH/NHLBI, R01 HL57243 (Standiford) (5% effort) Role of TLR9 in Lung Antibacterial Host Defense" Role: Co-Investigator.

D. PROJECTS UNDER STUDY
1. X-linked IAP (XIAP) as a regulator of apoptosis.
2. XIAP in cancer.
3. E3 ubiquitination properties of XIAP.
4. Caspase-independent signaling properties of XIAP.
5. X-linked lymphoproliferative disorder (XLPD) and XIAP.
6. Role of XIAP in copper homeostasis and metabolism.
7. c-IAPs: Key intracellular signaling molecules with diverse roles in neoplasia and inflammation.
8. IAP antagonists: Apoptotic sensitizers and signaling modulators.

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology graduate program prelim committee

B. INSTITUTIONAL
1. Director, Cancer Biology Training Course
2. Associate Director, Molecular Mechanisms of Disease Program
3. Immunology graduate program graduate student affairs committee
4. Immunology graduate program prelim committee
5. Cellular and Molecular Biology graduate program prelim committee

6. Immunology graduate program curriculum review committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Ad hoc Reviewer, British Biotechnology and Biological Sciences Research Council (BBSRC)
2. Ad hoc Reviewer, The Wellcome Trust
3. Ad hoc Reviewer, Italian Association for Cancer Research (AIRC)
4. Ad hoc Reviewer, Australian National Health and Medical Research Council (NHMRC)
5. Scientific Advisory Board, Aegera Therapeutics
6. Permanent Reviewer, NIH Cellular and Molecular Immunology -B Study Section
7. Selected Member of the 2007-2008 Defense Science Study Group (DSSG) administered by the Institute for Defense Analyses (IDA), sponsored by the Defense Advanced Research Projects Agency (DARPA)
8. Ad hoc Reviewer, Cancer Research UK Science Funding Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Associate Editor, *Biochemical Journal*
2. Ad hoc Reviewer (selected journals shown)
   a) *Cancer Cell*
   b) *Cell*
   c) *Cell Death and Differentiation*
   d) *Current Biology*
   e) *Developmental Cell*
   f) *EMBO Journal*
   g) *EMBO Reports*
   h) *Genes and Development*
   i) *Immunity*
   j) *Journal of Clinical Investigation*
   k) *Molecular Cell*
   l) *Nature Cell Biology*
   m) *Nature Reviews Cancer*
   n) *Nature Reviews Molecular Cell Biology*
   o) *Oncogene*
   p) *Proceedings of the National Academy of Sciences USA*
   q) *Science*

B. INVITED LECTURES/SEMINARS

1. Role of IAP Proteins in the control of cell survival. The Breakthrough Toby Robins Breast Cancer Research Centre, Institute of Cancer Research, Chester Beatty Laboratories, London, England. October 2, 2007.
2. The X-linked inhibitor of apoptosis protein (XIAP): what doesn't it do? University of Utrecht Medical Center, The Netherlands. October 3, 2007.
3. Two distinct signaling cascades target the NF-κB regulator c-IAP1 for degradation. Keystone Symposium on Cell Death in the Immune System, Breckenridge, CO, February 9, 2008.
4. IAP proteins as novel molecular targets for the treatment of asthmatic disease. Sandler Program for Asthma Research Annual Symposium, San Francisco, CA, May 8, 2008.
5. Multiple cell roles for IAP proteins. Gordon Research Conference on Cell Death (session chair), Tuscany, Italy, July 1, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for Cancer Research
2. American Society of Cell Biology
3. American Society for Biochemistry and Molecular Biology
4. American Association for the Advancement of Science
5. American Gastroenterological Association
6. Biochemical Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Mufti, A.R, Burstein, E. and **Duckett, C.S.** XIAP: Cell death regulation meets copper homeostasis. *Arch. Biochem. Biophys.* 463:168-174 (2007).
2. Hwang, C., Giri, V.N., Wilkinson, J.C., Wright, C.W., Wilkinson, A.S., Cooney, K.A. and **Duckett, C.S.** EZH2 regulates the transcription of estrogen-responsive genes through association with REA, and estrogen receptor corepressor. *Breast Canc Res Treat*. 107:235-242 (2008).
3. Wilkinson, J.C., Wilkinson, A.S., Csomos, R.A., Galban, S. and **Duckett, C.S.** AIF is a target for ubiquitination through interaction with XIAP. *Mol. Cell. Biol.* 28:237-247 (2008).
4. Hwang, C., Oetjen, K.A., Kosoff, D, Wojno, K.J., Albertelli, M.A., Robins, D.M., Cooney, K.A. and **Duckett, C.S.** X-linked inhibitor of apoptosis deficiency in the TRAMP mouse prostate cancer model. *Cell Death Diff.* 15:831-840 (2008).
5. Wright, C.W. and **Duckett, C.S.** New insights into the function of IAP proteins: modulation of the MYC/MAX/MAD network. *Dev Cell.* 14:3-4 (2008).

Kojo Elenitoba-Johnson, M.D.

Associate Professor of Pathology
Director of Translational Pathology

I. Clinical Activities

A. DIRECTOR, MOLECULAR DIAGNOSTICS LABORATORY

B. SIGN-OUT OF HEMATOPATHOLOGY CASES – 16 WEEKS, 12 WEEKENDS ON CALL

C. SIGN-OUT ON HEMATOPATHOLOGY SERVICE 1 WEEK

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Lectures to Pathology House Officers in Anatomic and Clinical Pathology
2. Lectures to Hematopathology Fellows
3. Sign-out teaching of Pathology House Officers and Hematopathology Fellows
4. Resident slide conference
5. Rodney Miles, M.D., Ph.D., Post-doctoral Fellow

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NCI, R33 CA112061, Elenitoba-Johnson, PI, 07/01/2006-03/30/2009, $192,801 annual direct costs, Proteomic studies of follicular lymphoma transformation. The objective of this study is to develop and optimize technologies to enable the high-throughput large-scale identification of proteins using mass spectrometry-based proteomic strategies to study primary transformed follicular lymphoma samples.
2. Leukemia and Lymphoma Society of America, SCOR - Licht, PI; Project Core B - Elenitoba-Johnson, PI, “Targeting the MLL transcription complex in acute myelogenous leukemia”,10/01/2007 - 09/30/2012, $50,000 annual direct costs. The objective of this study is to characterize the interactions and function of proteins known to mediate epigenetic functions in the pathogenesis of acute myelogenous leukemia.

3. University of Michigan Cancer Center Discovery Research Fund, Elenitoba-Johnson, PI, “IGF1R as target for transformed follicular lymphoma therapy”, 07/01-2008-06/30/2009, $49,000 annual direct costs.
   The objective of this pilot study is to generate xenograft models of IGF1R expressing lymphomas in immunocompromised mice.
4. NIH, R01, Lim, PI; Elenitoba-Johnson, Collaborator, “Converting an oncogene to an apoptotic factor by manipulating signal sequences”, 04/01/2008 - 03/31/2012, $207, 000 annual direct costs.
   The objective of this study is to develop versions of BCR-ABL that are inactivated by their localization to the nucleus and hence switching the oncogene to an apoptotic factor; a new paradigm for cancer therapy.
5. Multiple Myeloma Research Foundation, Sreekumar, PI; Elenitoba-Johnson, Co-Investigator, “Multiple Myeloma Proteomics Initiative”, 03/01/2008 - 02/28/2011, $242,834 annual direct costs.
   The objective of this study is to develop optimal protocols to enable proteomic profiling of multiple myeloma.

B. PENDING PROJECTS

1. NIH, R01, Elenitoba-Johnson, PI, “Mass spectrometry-driven systems biologic analysis of salivary MALT lymphoma”, 07/01/2008 - 06/31/2013, $250,000 annual direct costs.
   The objective of this study is to identify the deregulated proteomic pathways involved in salivary MALT lymphoma pathogenesis.
2. NIH, R01, Elenitoba-Johnson, PI, “Proteomic analysis of api2-MALT1 positive gastric MALT lymphoma”, 09/01/2008 - 08/31/2012, $250,000 annual direct costs.
   The objective of this study is to identify proteomic biomarkers associated with api2/MALT1-positive gastric MALT lymphoma.
3. NIH, R21, Elenitoba-Johnson, PI, “Large-scale proteomic identification of SCF-E3 ubiquitin ligase substrates”, 04/01/2009 - 03/31/2011, $120, 000 annual direct costs.
   The objective of this study is to develop a robust strategy for the identification of the targets of Cullin-ring based E3 ligases.
4. NIH, R21, Bahler, PI; Elenitoba-Johnson, Co-investigator**,** “Sjogren's syndrome associated salivary gland lymphomagenesis”, 07/01/2008 - 06/31/2010.
   The objective of this study is to identify antigens involved in salivary MALT lymphoma pathogenesis.
5. NIH, R21, Lim, PI; Elenitoba-Johnson, Co-investigator, 01/01/2009-12/31/2010, “Phosphoproteomics of formalin-fixed paraffin-embedded tissues”, $137,500 annual direct costs.
   The objective of this study is to develop a robust protocol for enrichment of phosphopeptides from formalin-fixed paraffin-embedded tissues. The extraction of phosphopeptides will be used to determine the feasibility of tandem mass spectrometry-based identification of phosphopeptides from formalin-fixed paraffin-

bedded tissues.

C. PROJECTS UNDER STUDY
1. Biologic events underlying lymphoma pathogenesis and progression.
2. Identification of protein substrates of ubiquitin ligases involved in cell cycle deregulation and cancer pathogenesis.
3. Development of novel mass spectrometry-based proteomics techniques for large scale interrogation of complex mixtures.
4. Novel technologies for molecular diagnosis of hematopoietic malignancies.
5. Molecular profiling of genes predicting biologic behavior of follicular lymphoma.
6. Deregulation of Growth Factor Receptors in Follicular Lymphoma Progression.
7. Identification of TCL-1 interaction partners by tandem mass spectrometry.
8. Proteomic studies of follicular lymphoma transformation.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director Division of Translational Research
   a. Mass spectrometry-based Proteomics Resource
2. Director Molecular Diagnostics Laboratories
3. Director - Molecular Genetic Pathology Fellowship Training Program
4. Interviewer - Candidates for faculty, fellows, house officer and postdoctoral positions

B. INSTITUTIONAL
1. Member, Pathology - Program in Biomedical Sciences (PIBS)
2. Member, Program in Cell and Molecular Biology
3. Member, Michigan Comprehensive Cancer Center
4. Michigan Cancer Center Pilot grant review committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Chair-Elect, Hematopathology Division, Association for Molecular Pathology (AMP)
2. Scientific Advisory Board, Lymphoma Research Foundation (SAB-LRF)
3. A. James French Society
4. American Society of Investigative Pathologists (ASIP)
5. United States-Canadian Academy of Pathology (USCAP)
6. Michigan Society of Pathologists
7. Association for Molecular Pathology
8. Association for Molecular Pathology-Abl mutation working Committee
9. FDA Medical Devices Advisory Committee Panel on Molecular/Clinical Genetics Devices
10. American Society of Hematology
11. American Society for Biochemistry and Molecular Biology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Associate Editor, *Journal of Hematopathology*
2. Reviewer
   a. *Journal of Pathology*
   b. *Proteomics Journal*
   c. *BLOOD*
   d. *Cancer Research*
   e. *American Journal of Pathology*
   f. *American Journal of Surgical Pathology*
   g. *American Journal of Clinical Pathology*
   h. *Modern Pathology*
   i. *Cancer*
   j. *American Journal of Hematology*
   k. *Journal of Molecular Diagnostics, Molecular Diagnostics and Therapy*
   l. *Proteomics*

B. INVITED LECTURES/SEMINARS

1. First World Congress on Pathology Informatics (WCIP): "Bioinformatics: The critical integrator of high-throughput technologies in translational research." Brisbane, Queensland, AUSTRALIA, August 16, 2007.
2. A.J. French Society Meeting: "New Frontiers in Diagnostic Pathology": Role of molecular testing in the diagnosis and follow-up of patients with chronic myelogenous leukemia. Ann Arbor, MI, September 7, 2007.
3. A.J. French Society Meeting "New Frontiers in Diagnostic Pathology": Post-transplant lymphoproliferative disorders. Ann Arbor, MI, September 7, 2007.
4. Invited speaker: Integrated genomic and proteomics studies on the molecular pathogenesis of follicular lymphoma progression. Department of Pathology, Queen's University, Kingston, Ontario, CANADA. October 4, 2007.
5. USCAP Lecturer for Advanced Molecular Pathology Short Course: Mass Spectrometry as a driver of discovery in lymphoma pathogenesis, Denver, CO., March 4, 2008.
6. Molecular Medical Conference, Molecular Medicine: Applying Current & Emerging Technologies, presented: Proteomics in Pathology Research and Diagnostics, University of Florida, Orlando, Lake Buena Vista, FL, March. 28, 2008.
7. Invited Speaker at Rhode Island Society of Pathology, Spring Meeting. Lecture: What Hematopathology Teaches Us About the Future Practice of Pathology. Providence, RI, April 27, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Schumacher JA, Crockett DK, **Elenitoba-Johnson KS**, Lim MS. Proteome-wide changes induced by the Hsp90 inhibitor, geldanamycin in anaplastic large cell lymphoma cells. *Proteomics*. 2007 Aug;7(15):2603-16.
2. Sjogstrom C, Seiler C, Crockett DK, Tripp SR, **Elenitoba-Johnson KS**, Lim MS. Global proteome profiling of NPM/ALK-positive anaplastic large cell lymphoma. *Exp Hematol.* 2007 Aug;35(8):1240-8.
3. Leventaki V, Drakos E, Medeiros LJ, Lim MS, **Elenitoba-Johnson KS**, Claret FX, Rassidakis GZ. NPM-ALK oncogenic kinase promotes cell-cycle progression through activation of JNK/cJun signaling in anaplastic large-cell lymphoma. *Blood.* 2007 Sep 1;110(5):1621-30.
4. Alsop S, Sanger WG, **Elenitoba-Johnson KS**, Lim MS. Chronic myeloid leukemia as a secondary malignancy after ALK-positive anaplastic large cell lymphoma. *Hum Pathol.* 2007 Oct; 38(10):1576-80.
5. Wallentine JC, Kim KK, Seiler CE 3rd, Vaughn CP, Crockett DK, Tripp SR, **Elenitoba-Johnson KS**, Lim MS. Comprehensive identification of proteins in Hodgkin lymphoma-derived Reed-Sternberg cells by LC-MS/MS. *Lab Invest.* 2007 Nov;87(11):1113-24.
6. Schumacher JA, **Elenitoba-Johnson KS**, Lim MS. Detection of the c-kit D816V mutation in systemic mastocytosis by allele-specific PCR. *J Clin Pathol*. 2008 Jan; 61(1):109-14.
7. Mathivanan S, Ahmed M, Ahn NG, **Elenitoba-Johnson, KS**, et al. Human Proteinpedia enables sharing of human protein data. *Nat Biotechnol*. 2008 Feb; 26(2):164-7.
8. Bohling SD, Jenson SD, Crockett DK, Schumacher JA, **Elenitoba-Johnson KS**, Lim MS. Analysis of gene expression profile of TPM3-ALK positive anaplastic large cell lymphoma reveals overlapping and unique patterns with that of NPM-ALK positive anaplastic large cell lymphoma. *Leuk Res.* 2008 Mar; 32(3):383-93.

B. BOOKS/CHAPTERS IN BOOKS

1. van Krieken, JHJM, Onciu, M, **Elenitoba-Johnson, KSJ**, Jaffe ES. Lymphoproliferative diseases associated with primary immune disorders. in: *WHO Classification Tumors of Haematopoietic and Lymphoid Tissues*. Eds (Swerdlow, SH., and Ohgaki H.) WHO-IARC press Lyon, France (2008).
2. **Elenitoba-Johnson, KSJ.** High-throughput analysis of complex protein mixtures by mass spectrometry. In: *High-Throughput Analysis in the Pharmaceutical Industry*. Ed (Perry G. Wang) Taylor & Francis, Boca Raton, FL (2008).

Joseph C. Fantone III, M.D.

Godfrey D. Stobbe Professor in Pathology Education
Director of Pathology Education
Associate Dean for Medical Education

I. Clinical Activities

A. AUTOPSY SERVICE (10 WEEKS)

II. Teaching Activities

A. MEDICAL STUDENTS

1. Course Director; Pathology Teaching Laboratories
2. Laboratory Instructor; M1 Histopathology
3. Laboratory Instructor; M2 Pathology Labs
4. Lecturer and small group leader; M1 Immunology Course
5. Small group leader, M1 & M2 Longitudinal Cases
6. Medical Student Advisor (3rd and 4th year)

B. DENTAL STUDENTS

1. Lecturer, Dental Pathology IMS-1 Course

C. HOUSE OFFICERS AND FELLOWS

1. Director; Resident Training Program
2. Resident teaching, autopsy service

III. Research Activities

A. SPONSORED SUPPORT – None

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY

1. Outcomes measures of undergraduate medical education
2. Curriculum development in medical student education

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Pathology Educational Programs
2. Director, Resident Training Program
3. Department ACAPT Committee
4. Faculty Sexual Harassment Contact Person

B. INSTITUTIONAL
1. Associate Dean for Medical Education
2. CD/ACD Education Committee (Chair)
3. Curriculum Policy Committee (Chair)
4. Medical Student Basic Science Academic Review Board (Chair)
5. Medical Student Clinical Academic Review Board (Chair)
6. Medical School Academic Hearing Committee (Chair)
7. Faculty Group Practice, Finance Committee
8. Dental School Internal Review Committee
9. Interim Director, Open Educational Resources (OER) program

C. REGIONAL/NATIONAL/INTERNATIONAL
1. National Board of Medical Examiners: Member
2. USMLE, Step 1 IRC Test Committee
3. USMLE, Strategic Planning Committee
4. USMLE, International Collaborations Advisory Committee
5. ACGME: Pathology Residency Review Committee.Consultant
6. Pathology Resident Directors Committee (PRODS)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. USMLE Stemmler Fund Review Committee

B. INVITED LECTURES/SEMINARS
1. Consultant, Touro University Medical School: Curriculum Development, 2007.
2. Moderator, Workshop on Faculty Development and Promotion for Pathology Teachers. Association of Pathology Chairs and PRODS Meeting, Colorado Springs, Co. 2007.
3. Invited Speaker, Symposium on Curriculum Reform, Peking Union Medical College, Beijing, China, 2007.
4. Invited Speaker,. PUMC Medical Education Reformation Symposium. Peking Union Medical College, Beijing, China, 2008.
5. University of Michigan: Michigan-China University Leadership Forum, May, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Pathologists (aka: ASIP)
2. American Association for the Advancement of Science

3. The United States and Canadian Academy of Pathology
4. American Association of Immunologists
5. American Medical Association

D. HONORS AND AWARDS
   1. National Board of Medical Examiners Edithe Leavitt Distinguished Service Award.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. White, C.B., Dey, E.L., **Fantone, J.C.,** Analysis of Factors that Predict Clinical Performance in Medical School.**,** *Adv. in Health Sci. Educ.* 2007; DOI 10.1007/s10459-007-9088-9.

B. Kumagai, A**.**K., White, C.B., Ross, P.T., Perlman, R.L**., Fantone, J.C**. Impact of facilitation of small group discussions of psychosocial topics in medicine on faculty growth and development. *Academic Medicine* in press.

Eric R. Fearon, M.D., Ph.D.

Emanuel N. Maisel Professor of Oncology
Professor of Internal Medicine, Human Genetics and Pathology
Associate Director and Deputy Director for Basic Science, U of M Comprehensive Cancer Center

I. Clinical Activities - None

II. Teaching Activities

A. MEDICAL STUDENTS

1. Medical School Interviews Interviewed medical school applicants for incoming class of 2007 (2 Fridays X 6 applicants/Friday)
2. Medical Admissions Executive Committee (reviewed about 70-80 applications and attended about 7-8 AEC meetings)
3. Medical Scientist Training Program interviewed prospective MSTP students (5-6 interviews)

B. GRADUATE STUDENTS

1. Andrew Kaczorowski; CMB Thesis Student; May 1, 2006-present
2. Andrew Hanosh; Dept of Pathology graduate student; February 1 April 30, 2007
3. Alison Bryson; PIBS Rotation Student; January 20 March 1, 2007

C. LECTURES

1. Human Genetics 803 Sept 6, 13, 20, 27, 2006 (1.5 hr/ seminar)
2. Cell Developmental Biology 682 Sept 19, 28, 2006 (1.5 hr/lecture and panel discussion)
3. Pathology 582 Sept 25, 27, Oct 2, 4, 2006 (1 hr lecture/seminar)
4. Micro/Immuno/Path 554 (Cancer Biol) October 5, 2006 (1.5hr/lecture)

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NCI, 5 P30 CA46592-20, Wicha, PI (25% effort); Fearon (salary support only), "University of Michigan Comprehensive Cancer Center Core Grant", 6/1/2006-5/31/2011, $3,434,995.

2. NIH/NCI, 1RO1 CA82223-09, Fearon, PI (25% effort), "CDX-2 Tumor Suppressor Pathway Defects in Colon Cancer", 08/15/1999-05/31/2009, Year 8 direct costs - $197,741.
3. NIH/NCI, 1 RO1 CA85463-08, Fearon, PI (25% effort), "The Role of b-catenin/Tcf Pathway Defects in Cancer", 06/01/2000-05/31/2010, Year 7 direct costs - $191,250.
4. NIH/NCI, R01 CA94172-05, Cho, PI (5% effort); Fearon, Co-Investigator (salary support only), "Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)", 02/01/2002 - 01/31/2007, Year 5 direct costs - $178,000.
5. NIH/NCI, 1RO1 CAS1488-09, Gruber, PI (5% effort); Fearon, Co-Investigator (salary support only), "Molecular Epidemiology of Colorectal Cancer", 01/01/1999-03/31/2009, $772,892 (direct annual).
6. NIH/NCI, 1R01 C116516-01A1, Weiss, PI (10% effort), Fearon, Co-Investigator (salary support only), "Snail-Dependent Regulation of EMT in Cancer", 09/20/2006 07/31/2011, $159,750 (direct annual).

B. PENDING PROJECTS
1. NIH/NCI, R01 CA94172-06A1, Cho, PI (5% effort); Fearon, Co-Investigator (salary support only), “Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)", 07/01/07 06/30/2012.

IV. Administrative Activities

A. INSTITUTIONAL
1. Associate Director of Basic Science and Deputy Director, University of Michigan Comprehensive Cancer Center
2. Program Co-Leader, Cancer Genetics, University of Michigan Comprehensive Cancer Center
3. Chair, University of Michigan Biological Sciences Program Search Committee
4. Vice-Chair, Admissions Executive Committee, University of Michigan School of Medicine
5. Member, CTSA Initial Review Group
6. Member, University of Michigan School of Medicine Space Policy Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Planning Committee, ASCI/AAP Annual Meeting
2. External Advisory Committee member at various cancer centers (Mayo Clinic, Dartmouth/Norris Cotton, Albert Einstein, Columbia Univ)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. *Cancer Research*
2. *Current Biology*
3. *Genes Chromosomes and Cancer*

4. *Journal of Biological Chemistry*
5. *Journal of Clinical Investigation*
6. *Laboratory Investigation*
7. *Molecular Cancer Research*
8. *Neoplasia*

B. INVITED LECTURES/SEMINARS
1. UT-MD Anderson Cancer Center, Department of Cancer Biology Cancer Metastasis Research Program Seminar Series, Houston, TX; "Role of b-catenin Defects in Cancer", December 12, 2006.
2. Department of Pathology Research Seminar, Case Western Reserve University School of Medicine, Cleveland, OH; "Clinical Implications of Advances in Understanding of the Molecular Pathogenesis of Colorectal Cancer, February 5, 2007."
3. Medical Scientist Training Program Seminar, University of Iowa School of Medicine, Iowa City, IA; "Clinical Implications of Advances in Understanding of the Molecular Pathogenesis of Colorectal Cancer", April 9, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Investigation
2. Association of American Physicians

D. HONORS AND AWARDS
1. May 2007 - Election to Johns Hopkins University Society of Fellows.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Winer IS, Bommer GT, Gonik N, **Fearon ER**. Lysine residues K19 and K49 of b-catenin regulate its levels and function in T cell factor transcriptional activation and neoplastic transformation. *J Biol Chem* 2006, 281:26181-7.
2. Yook JI, Li XY, Ota I, Hu C, Kim HS, Kim NH, Cha SY, Ryu JK, Kim J, **Fearon ER**, Weiss, SJ. Wnt signaling induces snail1-dependent mesenchymal transition in cancer cells via axin2-regulated control of GSK3b compartmentalization. *Nat Cell Biol* 2006, 8:1398-406.
3. Feng Y, Bommer GT, Winer I, Zhai Y, Lin HV, Cadigan KM, Cho KR, **Fearon ER**. Drosophila split ends homologue SHARP functions in a positive feedback loop to enhance Wnt/b-catenin/TCF signaling and neoplastic transformation. *Cancer Res* 2007, 67:482-91.
4. Wu R, Hendrix ND, Kuick R, Zhai Y, Schwartz DR, Akyol Aytekin, Hanash S, Misek DE, Katabuchi H, Williams BO, **Fearon ER**, Cho KR. Mouse model of human ovarian

endometrioid adenocarcinoma based on somatic defects in the Wnt/b-catenin and PI3K/Pten signaling pathways. *Cancer Cell* 2007, 11:321-33.

5. Bommer GT, **Fearon ER**. Role of c-Myc in Apc-mutant intestinal phenotype case closed or time for a new beginning? *Cancer Cell* 2007, 11:391-4.
6. Bommer GT, Gerin I, Feng Y, Kaczorowski AJ, Kuick R, Love RE, Zhai Y, Giordano TJ, Qin ZS, Moore BB, MacDougald OA, Cho KR, **Fearon ER**. p53-mediated activation of miRNA34 candidate tumor suppressor genes. *Current Biol* 2007, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. Bommer GT, **Fearon ER**. Developmental Signaling Networks, Wnt/b-catenin Signaling in the Gastrointestinal Tract. In: *Physiology of the Gastrointestinal Tract.* 4th Edition. Elsevier, 2006, pp. 247-270.
2. Bommer GT, **Fearon ER**. Molecular abnormalities in colon and rectal cancer. In: Mendelsohn J, Howley P, Liotta L, Israel M, eds. *The Molecular Basis of Cancer*, 3rd Edition. Cambridge, MA: W.B. Saunders Company, in press 2007.
3. **Fearon ER**, Bommer GT. Molecular biology of colorectal cancer. In: DeVita VT, Jr, Rosenberg SA, Lawrence TS. *Principles & Practice of Oncology*, 7th edition.Lippincott Williams & Wilkins, Philadelphia, PA, in press 2007.

David O. Ferguson, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Board Certified in Clinical Pathology - 2002

II. Teaching Activities

A. GRADUATE STUDENTS

1. Graduate Students in Research Laboratory
   a. Todd Festerling (Toxicology) Qualified-3rd year
   b. Ajay Prakash (MD/PhD program - 3 months)
   c. Andrew Hanosh (Pathology)(1.5 months)
   d. Diane Calinski (Pharmacology) (3 months)

B. HOUSE OFFICERS AND FELLOWS

1. Post Doctoral Fellows in Research Laboratory
   a. Yipin Wu Ph.D. (Postdoctoral Fellow)
   b. Jeff Buis (Postdoctoral Fellow)
   c. Maria Dinkleman (Postdoctoral Fellow)

C. LECTURES

1. Pathology 581 (1 hour)
2. Pathology 582 (2 hours)
3. Pathology 850 - graduate student seminar "feedback teaching" (2 contact hours)
4. CMB 850 - graduate student seminar "feedback teaching" (2 contact hours)

D. OTHER

1. Thesis Committee Member
   a. Yunfang Man (Pathology)
   b. Phillip Palmbos (MSTP-CMB)
   c. Sandra Durkin (Genetics)
   d. Fred Derheimer (CMB)
   e. Kyunghee Burkitt (Toxicology)

f. Rebecca Csomos (Pathology)
g. Ryan Ragland (Genetics)
h. Devin L. Horton (Pathology)

2. Preliminary Exam Committee Member
   a. Lara Kelley (Pathology)
   b. Paul Marinec (Pathology)
   c. Srikanth Patury (Pathology)
   d. Toru Ishii (Pathology)
   e. Victoria Cancelli (CMB)

III. Research Activities

A. SPONSORED SUPPORT

1. R01 HL079118-01, Ferguson, PI (50% effort), "Roles of Mre11 in lymphocyte development and DNA repair", 4/1/2005 - 3/31/2009, $250,000/year direct ($1,000,000/4 years direct).

B. PENDING PROJECTS

1. DOD BC045203, Ferguson, PI (0% effort, Lab support only), Roles of the Mre11 DNA repair protein in breast cancer" 7/01/2008 - 6/30/2009, $75,000 direct.

C. PROJECTS UNDER STUDY

1. Roles of Mre11 in lymphocyte development and DNA repair.
2. To investigate roles of Mre11 in development through generation of a mouse lines harboring partial loss of function and conditional alleles of Mre11.
3. Genomic Instability in Cancer: Mechanisms of Gene Amplification and Roles of Mre11.
4. To investigate roles of Mre11 in gene amplification and cancer.
5. Roles of the MRN complex in endoreduplication and breast cancer.

IV. Administrative Activities

A. DEPARTMENTAL

1. Pathology graduate program student qualifying exam committee
2. Pathology student recruitment activities (lunch, dinners, poster sessions, meetings)
3. Faculty candidate interviews and recruitment

B. INSTITUTIONAL

1. Program Committee for Graduate Program in Cellular and Molecular Biology
2. Schembechler Adrenal Cancer Program Advisory Board
3. MSTP Advisory Panel
4. Faculty candidate interviews and recruitment (Medicine, Genetics)
5. PIBS student recruiting activities

6. Member, Comprehensive Cancer Center, Division of Cancer Genetics

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc reviewer
   a. *Nature*
   b. *Cell*
   c. *Molecular and Cellular Biology*

B. INVITED LECTURES/SEMINARS

1. "Mre11 and TPP1: Two Tails of Genomic Instability", Keystone Symposium on Genome Instability and Repair, Jan 17 - Jan 22, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for the Advancement of Science
2. Association for Molecular Pathology
3. American Medical Association
4. American Society for Microbiology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Diaz-Perex SV, **Ferguson DO**, Wang C, Csankovski G, Wang C, Tsai SC, Dutta D, Perez V, Kim S, Eller CD, Salstrom J, Ouyang Y, Teitell MA, Kaltenboeck B, Chess A, Huang S, Marahrens Y. A deletion at the mouse Xist gene exposes trans-effects that alter the heterochromatin of the inactive X chromosome and the replication time and DNA stability of both X chromosomes. *Genetics*. 2006 Nov;174(3):1115-33.
2. Shen RR, **Ferguson DO**, Renard M, Hoyer KK, Kim U, Hao X, Alt FW, Roeder RG, Morse HC 3rd, Teitell MA. Dysregulated TCL1 requires the germinal center and genome instability for mature B-cell transformation. *Blood*. 2006 Sep 15;108(6):1991-1998.

William G. Finn, M.D.

Associate Professor of Pathology
Associate Director, Clinical Pathology Laboratories

I. Clinical Activities

A. Associate Director, Division of Clinical Pathology

B. Director, Clinical Hematology Laboratory

C. Diagnostic Hematopathology (Bone marrow biopsies, lymph nodes, blood smears, body fluids)

D. Clinical Flow Cytometry Laboratory

E. Hematopathology Consultation Cases (including M-Labs)

F. Hemoglobin analysis interpretation (HPLC/electrophoresis)

II. Teaching Activities

A. MEDICAL STUDENTS
1. M-2 Hematology Sequence: Section leader for laboratory sessions (8 hours)
2. M-2 Hematology sequence: "Pathology and Classification of Lymphoma" (Lecture) 1 hour

B. DENTAL STUDENTS
1. Dental and Graduate Students: Pathology 580/630: "Pathology of White Blood Cells" (Lecture) 1 hour

C. GRADUATE STUDENTS
1. Leukemia conference/biweekly
2. Lymphoma conference/weekly
3. Hematology conference/biweekly

D. HOUSE OFFICERS AND FELLOWS
1. Sign-out of bone marrow biopsies, aspirates, blood smears, and body fluids in Hematology Laboratory
2. Sign-out of lymph node biopsies and review of hematopathology consultation material
3. Flow Cytometry sign-out
4. Hemoglobinopathy sign-out
5. Clinical Pathology Grand Rounds
6. Clinical Pathology Case Conference – weekly

III. Research Activities

A. PROJECTS UNDER STUDY
1. Analysis of flow cytometry data by embedding on statistical manifolds (collaboration with Prof. Al Hero, EECS)

IV. Administrative Activities

A. DEPARTMENTAL
1. Associate Director of Clinical Pathology
2. Director, Clinical Hematology Laboratory
3. Departmental Advisory Committee on appointment, promotion, and tenure (ACAPT) (pathology) (Henry Appelman, M.D., Chair)
4. Departmental Residency Selection Committee (Joseph Fantone, M.D., Chair)
5. Pathology Quality Assurance Committee (Jeffrey Warren, M.D., Chair)
6. A. James French Society of Pathologists Member Board of Directors Secretary/Treasurer

B. INSTITUTIONAL
1. Member, Hospital Credentialing Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Board of Directors, American Society for Clinical Pathology
2. Member, Commission on Public Policy and Governmental Affairs, American Society for Clinical Pathology
3. Immediate Past President, Michigan Society of Pathologists
4. Executive Committee, Society for Hematopathology
5. Board of Directors, International Society for Laboratory Hematology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Co-Editor-in-Chief, *International Journal of Laboratory Hematology* (Official Journal of the International Society for Laboratory Hematology)
2. Associate Editor, Cytometry Part B: *Clinical Cytometry*

3. Editorial Board, *American Journal of Clinical Pathology*
4. Editorial Advisory Board, *Laboratory Medicine*
5. Ad-hoc, editorial reviewer
   a) *Blood*
   b) *Human Pathology*
   c) *Leukemia & Lymphoma*
   d) *Archives of Pathology & Laboratory Medicine*

B. INVITED LECTURES/SEMINARS
1. "Beyond 'Gating': Treating Clinical Flow Cytometry Data As High Dimensional Objects." Northwestern University Department of Pathology, October 2, 2007.
2. "GI Lymphomas: Views From Surgical Pathology and Hematopathology." Moderator of Hematopathology Symposium, American Society for Clinical Pathology Annual Meeting. New Orleans, LA, October 18, 2007.
3. "Problem Cases in Hematopathology." American Society for Clinical Pathology Annual Meeting. New Orleans, LA, October 20, 2007.
4. "Non-Neoplastic Hematopathology of Bone Marrow for the Practicing Pathologist." Educational Course. American Society for Clinical Pathology Annual Meeting, New Orleans, LA, October 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Clinical Pathologists
2. Society for Hematopathology
   a) 2006-2010, Executive Committee Member-at-Large
3. United States and Canadian Academy of Pathology
4. American Society of Hematology
5. A. James French Society of Pathologists
   a) 2004-present, Member, Board of Directors
   b) 2004-present, Secretary/Treasurer
6. University of Michigan Comprehensive Cancer Center
7. College of American Pathologists
8. Michigan Society of Pathologists
   a) 2004-present, Member, Board of Trustees
   b) 2006 President-Elect
   c) 2007 President
9. International Society for Laboratory Hematology
   a) 2005-present, Member, Board of Directors
10. International Society for Analytical Cytology (ISAC)
11. Clinical Cytometry Society

D. HONORS AND AWARDS
   1. Keynote Speaker, 15th Annual William Bearmont Symposium on DNA Technology in the Clinical laboratory

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. **Finn WG**: Diagnostic pathology and laboratory medicine in the age of "omics." *J Molec Diagn* 9(4):431-6, 2007.
   2. Rawal J, **Finn WG,** Schnitzer B, Valdez R: Site-specific morphologic differences in extranodal marginal zone B-cell lymphomas. *Arch Pathol Lab Med* 131:1673-1578, 2007.
   3. **Finn WG**, Carter KM, Raich R, Stoolman LM, Hero A: Analysis of clinical flow cytometric immunophenotyping data by clustering on statistical manifolds: treating flow cytometry data as high dimensional objects. *Cytometry Part B* 2008; in press.
   4. Mitchell KA, **Finn WG**, Owens SR: Differences in germinal center and non-germinal center phenotype in gastric and intestinal diffuse large B-cell lymphomas. *Leuk Lymphoma*, in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. **Finn WG**: The customer service culture in pathology and laboratory medicine. *Critical Values* (ASCP membership newsletter) April, 2008.

Andrew Flint, M.D.

Professor of Pathology

I. Clinical Activities

A. Surgical Pathology Rotations: July (2/4), August (2/4), October (3/4), November (1/4), December (1/4), January (1/4), February (1/4), March (1/4), April (1/4), May (1/4), June (1/4)

B. Ophthalmic Pathology Service, 52 weeks/year

II. Teaching Activities

A. MEDICAL STUDENTS

1. Pathology 600
2. Pulmonary Infections lecture September 2007
3. Pulmonary Neoplasms lecture September 2007
4. Cardiovascular Pathology Lab Review for Medical Students, September, 2007
5. Pulmonary Pathology Lab Review for Medical Students - September, 2007
6. Gastrointestinal Pathology Lab Review for Medical Students, February, 2008.
7. Endocrine Pathology Lab Review for Medical Students, March, 2008
8. Reproductive Pathology Lab Review for Medical Students, March, 2008
9. Musculoskeletal Pathology Lab Review for Medical Students, November, 2007
10. Introduction to Musculoskeletal Pathology lecture - November, 2007
11. Medical Students Question and Answer sessions, August, 2007 - April, 2008
12. USMLE Pathology Review, March, 2008
13. Laboratory Instructor, August, 2007 - March, 2008
14. M4 Student elective mentor, July 2007-May 2008
15. Course Director, M4 Student Pathology Clerkships, 2007-08

B. DENTAL STUDENTS

1. Introduction to Diseases of the Lung lectures (2 hrs) - March, 2008

C. LECTURES
1. Consultant's Conferences (2)

D. OTHER
1. Attended the following seminars: Introduction to Camtasia - use of podcasting in education; Maximizing the effectiveness of PowerPoint Presentations for student teaching. Teaching with Technology Seminar series. University of Michigan, May, 2008

III. Research Activities

A. SPONSORED SUPPORT
1. Center for Research on Learning and Teaching, University of Michigan, PI, "Investigating Student Learning", 2008 – 2009.
2. NIH/NHLBI, K23HL077719-01, Lama, PI; Flint, Consultant, "Fibroproliferation in Bronchiolitis Obliterans Syndrome".

B. PROJECTS UNDER STUDY
1. Histologic predictors of obliterative bronchiolitis in lung transplant patients.
2. "Virtual Pathology" - application of three-dimensional software to student education. BlueStream Project, University of Michigan 2008.
3. Concept Maps as an assessment tool for learning.
4. Investigating Student learning in the pathology laboratory.

IV. Administrative Activities

A. DEPARTMENTAL – None

B. INSTITUTIONAL
1. Host, Health Sciences Scholars, the University of Michigan, 2007 – 2008

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. *Journal of Neuro-Ophthalmology*

B. INVITED LECTURES/SEMINARS
1. "Pathology for Thoracic Surgeons", lecture, Division of Thoracic Surgery, University of Michigan, 2008

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. International Association of Medical Science Educators, 2007 – 2008

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Smith LB, Pynnonen MA, **Flint A**, Adams JL, Elner VM. Progressive eyelid and facial swelling due to follicular lymphoma. *Arch Ophthalmol* (accepted).
2. VN. Lama, S. Murray, RA. Lonigro, GB.Toews, A. Chang, C. Lau, **A. Flint**, KM.Chan, FJ. Martinez. Course Of FEV1 After Onset of Bronchiolitis Obliterans Syndrome In Lung Transplant Recipients. *Am J Respir Crit Care Med*, 2007 Vol 175. pp. 1192-1198.
3. VN. Lama, L. Smith, L. Badri, **A Flint**, A. Andrei, S. Murray, Z. Wang, H. Liao, GB. Toews, PH. Krebsbach, M. Peters-Golden, DJ. Pinsky, FJ. Martinez, VJ. Thannickal. Evidence For Tissue-Resident Mesenchymal Stem Cells In Human Adult Lung From Studies Of Transplanted Allografts. *Journal of Clinical Investigation*, 2007 117(4):989-996.
4. Scott GR, Frueh BR, **Flint A**, Elner VM. Fibrous dysplasia of the lacrimal sac. *Ophthalmic Plas Reconstr Surg*. (In Press).
5. Hidayat AA, **Flint A**, Marentette L, Torczynski E, Al-Oahtani JM, Ahl NC, Elner VM. Myxomas and angiomyxomas of the orbit: a clinicopathologic study of six cases. *Ophthalmology* 2007;114:1012-9.
6. Boehlke CS, Frueh BR, **Flint A**, Elner VM. Malignant fibrous histiocytoma of the lateral conjunctiva and anterior orbit. *Ophthalmic Plas Recon Surg* 2007;23:338-42.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. VN. Lama, L. Badri, L. Smith, **A. Flint**, S. Murray, GB. Toews. Resident Mesenchymal Stem Cells in Human Adult Lungs. *Proc American* Thor. Soc. 2007; 175: A761.
1. VN. Lama, L. Badri, D.J. Pinsky, G.B.Toews, **A. Flint**, T. Ohtsuka. Engraftment Potential of Lung Resident Mesenchymal Stem Cells. *Proc American Thor. Soc*. 2008; 177: A723.

Douglas Fullen, M.D.

Associate Professor of Pathology and Dermatology
Director of Histology

I. Clinical Activities

A. Dermatopathology Service - 12 months

B. Dermatopathology Consultation Service - 12 months

C. Immunofluorescence evaluation of skin and mucosal biopsies - 12 months

II. Teaching Activities

A. MEDICAL STUDENTS

1. Dermatopathology laboratory instructor, MSII Dermatology Sequence
2. Dermatopathology, Pathology Clerkship, MS IV
3. Dermatopathology, Dermatology Clerkship, MS IV

B. HOUSE OFFICERS AND FELLOWS

1. Dermatopathology sign-out (dermatology and pathology residents and dermatopathology fellow)
2. Review of dermatopathology consultation cases
3. Dermatopathology teaching conference (pathology residents - monthly)
4. Dermatopathology teaching conference (dermatology residents - weekly)
5. Anatomic Pathology Grand Rounds (two lectures)
6. Dermatopathology lectures for dermatology residents (three lectures)
7. Review of immunofluorescence on skin and mucosal biopsies (interesting cases)

C. LECTURES

1. Cutaneous Adnexal Tumors - Part I, Department of Dermatology (one hour lecture)
2. Cutaneous Adnexal Tumors - Part II, Department of Dermatology (one hour lecture)
3. General Approach to Immunofluorescence, Department of Dermatology (one hour lecture)
4. Cutaneous Adnexal Tumors - Part I, Department of Pathology (one hour lecture)

5. Cutaneous Adnexal Tumors - Part II, Department of Pathology (one hour lecture)

D. OTHER
1. Diagnostic Conference, Department of Dermatology (weekly)

III. Research Activities

A. PROJECTS UNDER STUDY
1. University of Michigan, UMMC 2000-0713, Johnson; Wang, Schwartz; Voorhees; Dlugosz; Lowe; Su; Bradford; Cimmino, “Molecular, biochemical and cellular basis of melanoma and other melanocytic lesions”.
2. Ludgate; Lowe; Johnson, “The atypical Spitz tumor of uncertain biological potential: a series of 67 patients from a single institution”.
3. Ludgate; Johnson; Gruber; Raskin; Malek, “Comparative genomic hybridization and fluorescence in situ hybridization on spitzoid melanocytic tumors”.
4. Dlugosz; Gruber; Raskin; Ross; Imperiale, “Molecular genetics of Merkel cell carcinoma”.
5. Quintana-Fernandez; Shackleton; Morrison; Johnson, “Cancer stem cells in melanoma”.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Dermatopathology Fellowship
2. Anatomic Pathology Project Funding Committee Member

B. INSTITUTIONAL
1. University of Michigan Medical School Admissions Committee Member

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Abstract Review Board Member, Dermatopathology Section, United States and Canadian Academy of Pathology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc reviewer
   a. *Journal of Cutaneous Pathology*
   b. *Journal of the American Academy of Dermatology*
   c. *Cancer*
   d. *Archives of Pathology and Laboratory Medicine*
   e. *Medical Science Monitor*
   f. *British Journal of Dermatology*

B. INVITED LECTURES/SEMINARS
   1. "Impact of Pathology Reporting on Managing Patients with Lymphoproliferative Disorders Involving the Skin," New Frontiers in Diagnostic Pathology, A. James French Society Meeting, Ann Arbor, MI, September, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Member, United States and Canadian Academy of Pathology
   2. Fellow, American Society of Dermatopathology
   3. Member, American Academy of Dermatology
   4. Founding Member, Society for Melanoma Research
   5. Member, Michigan Dermatological Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. McHugh JB, **Fullen DR**, Ma L, Kleer CG, Su LD: Expression of polycomb group protein EZH2 in nevi and melanoma. *J Cutan Pathol* 34: 597-600, 2007.
   2. Carvalho J, **Fullen D**, Lowe L, Su L, Ma L: The expression of CD23 in cutaneous non-lymphoid neoplasms. *J Cutan Pathol* 34: 693-698, 2007.
   3. Simon NS, **Fullen DR**, Helfrich YR: Goosefleshlike lesions and hypohidrosis quiz case. *Arch Dermatol* 143: 1323-1328, 2007.
   4. **Fullen DR**, Garrisi AJ, Sanders D, Thomas D: S100A6 expression in a spectrum of cutaneous tumors using tissue microarrays. *J Cutan Pathol* Jan 14 [Epub ahead of print], 2008.
   5. Wasco M, **Fullen D**, Su L, Ma L: The expression of MUM1 in cutaneous T-cell lymphoproliferative disorders. *Human Pathol* 39: 557-563, 2008.
   6. Zarkhin S, Skandamis GC, **Fullen DR**, Sachs DL: Violaceous purpuric plaques on the lower extremity. *Arch Dermatol* 144: 405-410, 2008.
   7. Wu AJ, Rodgers T, **Fullen DR**: Drug-associated histiocytoid Sweet's syndrome: a true neutrophilic maturation arrest variant. *J Cutan Pathol* 35: 220-224, 2008.
   8. Skandamis G, Frohm M, **Fullen DR**, Helfrich YR: Extensive flaccid bullae with milia. *Arch Dermatol* 144: 673-678, 2008.
   9. Olsen SH, Ma L, Schnitzer B, **Fullen DR**. Clusterin expression in cutaneous CD30-positive lymphoproliferative disorders and their histologic stimulants. *J Cutan Pathol* (in press).
   10. Demirci H, Nelson CC, Frueh BR, Musch D, **Fullen DR**, Johnson TM. Management of periocular cutaneous melanoma with a staged excision technique and permanent sections: the "square procedure." *Ophthalmology* (in press).
   11. Pouryazdanparast P, Yu L, Johnson TM, **Fullen D**. An unusual squamo-melanocytic tumor of uncertain biologic behavior: a variant of melanoma? Accepted for publication to the *American Journal of Dermatopathology*.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Cooper LD, Chien A, Ma L, Ross CW, **Fullen DR**. CD30 Expression in large blastoid cells of a marginal zone lymphoma: a potential pitfall in the diagnosis of primary cutaneous CD30-positive T-cell lymphoproliferative disorders. Poster presentation, 44th Annual Meeting, American Society of Dermatopathology, Baltimore, MD, October, 2007.
2. Cooper LD, Olsen SH, Krijanovski OI, Gudjonsson JE, **Fullen DR**. Patch-stage cutaneous T-cell lymphoma two years post bone marrow transplantation for chronic lymphocytic leukemia. Poster presentation, 44th Annual Meeting, American Society of Dermatopathology, Baltimore, MD, October, 2007.
3. Pouryazdanparast P, Fullen DR. Squamo-melanocytic tumor: A case report of an unusual dermal neoplasm and review of histogenesis. Platform presentation, 11th Joint Meeting, International Society of Dermatopathology, San Antonio, TX, January, 2008.

Jason Gestwicki, Ph.D.

Assistant Professor of Pathology
Research Assistant Professor, LSI

I. Clinical Activities - None

II. Teaching Activities

A. UNDERGRADUATE STUDENTS
1. Anthony Bainor (BioMed. Engineering)
2. Daniel Overbeek (CMB)
3. Han Yiau (Sharon) Seh (UROP)

B. GRADUATE STUDENTS
1. Paul Marinec (3rd year, Molecular Cellular Pathology)
2. Srikanth Patury (3rd year, Molecular Cellular Pathology)
3. Christopher G. Evans (3rd year, Chemical Biology)
4. Jerome Quintero (3rd year, Biophysics)
5. Ashley Rienke (2nd year, Biological Chemistry)
6. Lyra Chang (2nd year, Chemical Biology)
7. Yohinari Miyata (1st year Chemical Biology)
8. Matthew Smith (1st year Molecular Cellular Pathology)

C. POSTDOCTORAL FELLOWS
1. Susanne Wisen, Ph.D.
2. Gladis M. Walter, Ph.D.

D. LECTURES
1. CHEMBIO 502 (12 contact hrs, 31 students, course coordinator)
2. MCDB 408 (3 contact hrs, 30 students)
3. ANAT 504 (6 contact hrs, 27 students)
4. PATH 582 (6 contact hrs, 3 students)

E. RESEARCH ROTATIONS
1. Jessica Anand (Med. Chemistry)

2. Molly Doyle (Med. Chemistry)

F. CANDIDACY COMMITTEES
1. Toru Ishii (Molecular Cellular Pathology)
2. Elizabeth Townsend (Molecular Cellular Pathology)
3. Andrew Hanoush (Molecular Cellular Pathology)
4. Stephanie Jo (Molecular Cellular Pathology)
5. Sean Ferris (Biological Chemistry)
6. Rafay Shareef (Med. Chemistry)
7. Diane Calinski (Pharmacology)

G. THESIS COMMITTEES
1. Tasha Francis (Chemical Biology)
2. Jody Lancia (Chemical Biology)
3. Neal Hammer (MCDB)
4. David Thal (Chemical Biology)
5. Yousong Ding (Med. Chemistry)
6. Shengying Li (Med. Chemistry)
7. Graham Brady (MCP)
8. Karolyn Oetjen (MSTP, MCP)
9. Kelly Damm, Ph.D. 2007 (Med. Chemistry)
10. Jingjie Mo, Ph.D. 2008 (Chemistry)
11. Amanda Herath, Ph. D. 2008 (Chemistry)
12. Jonas W. Hojfeldt (Chemical Biology)
13. Candice Paulsen (Chemical Biology)
14. Jamie Moser (Chemical Biology)
15. Yi-Chen Chen (Med. Chemistry)
16. Steve Kawamoto (Med. Chemistry)
17. Yuefeng Pang (Med. Chemistry)

III. Research Activities

A. SPONSORED SUPPORT
1. The McKnight Foundation Neuroscience of Brain Disorders Award, Co-Investigator, "Treatment of a polyglutamine neurodegenerative disease with synthetic bifunctional compounds that target misfolded proteins", 1/1/2007 - 12/31/2009, $100,000 per year.
2. University of Michigan Rackham Graduate School Faculty Grant, Principle Investigator, "Drug discovery for Huntington's disease", 7/1/2007 - 6/31/2008, $15,000.
3. Thermo-Fisher Corp. Collaborative Pilot Projects, Principle Investigator, "Fluorophore-Coated Microtiter Plates for Converting Absorbance Assays to 384-Well, High Throughput Format", 2/1/2008 - 1/31/2009, $55,700.

4. NIH / NINDS, R01NS059690-01, Principle Investigator, "Chaperones and Small Molecules", 2/1/2008 - 1/31/2013, $200,000 per year.
5. Alzheimer's Association, Co-Investigator, "Drug-protein complexes as inhibitors of Abeta aggregation", 5/1/2008 - 4/30/2011, $80,000 per year.
6. UM Center for Comp. Med. Biol., Co-Investigator, "New mechanism of inhibiting HIV-1 protease" (CCMB), 2/1/2008 - 1/31/2010, $33,535.

B. PROJECTS UNDER STUDY
1. Chemical inhibitors of heat shock protein 70 (Hsp70) as probes for neurodegenerative disease.
2. Understanding protein folding decisions via chemical manipulation of chaperone complexes.
3. Bifunctional molecules with tailored pharmacokinetic properties.
4. Small molecule probes for amyloids.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Graduate Program in Medicinal Chemistry
2. Member, Graduate Program in Chemical Biology
3. Member, Graduate Program in Biological Sciences (PIBS)
4. Member, Faculty Search Committee (LSI - Chemistry)
5. Member, LSI Equipment Task Force
6. Member, Executive Committee of the Center for Chemical Genomics (CCG)
7. Graduate Advisory Committee, Molecular and Cellular Pathology (MCP)
8. Preliminary Exam Committee, Mol. Cell. Pathology (MCP)
9. Organizing Committee, 4th Floor Chemical Biology Symposium
10. Planning Committee, Biological Chemistry Retreat
11. Organizing Committee, 7th Annual LSI Symposium "Frontiers in Chemical Biology"
12. Chair, LSI NMR Facility

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Grant Review
   a. Ohio Cancer Research Associates
   b. NIH/NIA study section (ZAG1 ZIJ-5 M1) "Protein Homeostasis"
2. Editorial Review Boards
   a. Chemical Biology and Drug Design
3. Manuscript Peer-Review
   a. Combi. Chem. High Throughput Screening
   b. Journal of the American Chemical Society (2)
   c. Carbohydrate Research
   d. Biochemistry
   e. Chemistry and Biology
   f. Bioorganic Med. Chem. Lett. (2)
   g. *Langmuir*

B. INVITED LECTURES/SEMINARS
1. Biological Sciences Scholar Program (BSSP) Retreat, University of Michigan Medical School, Dec 2007.
2. NSF Workshop on Physical Organic Chemistry, Lake Champlain, VT, Sept. 2007.
3. Chemistry in Neuroscience Planning Meeting, Janelia Farms, VA, Oct. 2007.
4. Department of Chemistry, Wayne State University, Detroit, MI, Jan 2008.
5. Macromolecular Interactions Gordon Conference, Ventura, CA, Jan 2008.
6. ASBMB Experimental Biology Meeting, San Diego, CA, April 2008.
7. Bioorganic Chemistry Gordon Conference, Proctor Academy, NH, June 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for the Advancement of Science
2. American Chemical Society

D. HONORS AND AWARDS – None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Marinec, P. S., Lancia, J. K., **Gestwicki, J. E.** "Bifunctional molecules evade cytochrome P450 metabolism by forming protective complexes with FK506-binding protein." *Mol. Biosystems*. 2008, 4:571-578.
2. Damm, K. L., Ung, P. M. U., Quintero, J. J., **Gestwicki, J. E.**, Carlson, H. A. "A poke in the eye: Inhibiting HIV-1 protease through its flap-recognition pocket." . 2008, 89-643-652.
3. Wisn, S. and **Gestwicki, J. E.** "Identification of small molecules that modify the protein folding activity of heat shock protein 70 (Hsp70)." *Anal. Biochem.* 2008, 374:371-377.
4. Wisn, S., Androsavich, J., Evans, C. G., Chang, L. and **Gestwicki, J. E.** "Chemical modifiers of heat shock protein 70 (Hsp70) by sequential, microwave-accelerated reactions on solid phase." *Bioorgan. Med. Chem. Lett*. 2008, 18:60-65.
5. Chang, L., Bertelsen, E. B., Wisn, S., Larsen, E. M., Zuiderweg, E. R. P., **Gestwicki, J. E.** "High throughput screen for small molecules that modulate the ATPase activity of the molecular chaperone, DnaK." *Anal. Biochem*. 2008, 372:167-176.
6. Hadden, M. K., Galam, L. **Gestwicki, J. E.**, Matts, R. L., Blagg, B. S. J. "Derrubone, an inhibitor of the Hsp90 protein folding machinery." *J. Nat. Prod*. 2007, 70:2014-2018.
7. Reinke, A. A. and **Gestwicki, J. E.** "Structure activity relationships for amyloid beta aggregation inhibitors based on curcumin: Influence of linker length and flexibility." *Chem. Biol. Drug Design.* 2007, 70:206-215.
8. **Gestwicki, J. E.** and Marinec, P. S. "Chemical control over protein-protein interactions: beyond inhibitors." *Combi. Chem. High Throughput Screen.* 2007, 10(8):667-675.
9. **Gestwicki, J. E.** and Kumar, A. "Two- and three-hybrid systems." Encyclopedia of *Chemical Biology*, 2008, (in press).

Donald Giacherio, Ph.D.

Associate Professor of Pathology
Director, Clinical Chemistry

I. Clinical Activities

A. Director, Chemical Pathology Section Laboratories.

B. Direct the operation of blood gas/electrolyte analyzers, coagulation testing meters and hematology analyzers in the University Hospital Emergency Department and in the operating rooms of Main, Mott, Kellogg Hospitals and the Cardiovascular Center.

C. Direct Point-of Care testing group for Ambulatory Care Health Centers.

D. Technical Director for laboratories at four U-M Health Center off-site clinics (East Ann Arbor Health Center, Brighton Health Center, Canton Health Center, and Livonia Surgery Center).

E. Review and sign out of Quad Marker Prenatal Screen results from maternal serum testing.

F. Sign out and interpretation of lipoprotein electrophoresis results.

G. Sign out and interpretation of hemoglobinopathy evaluation cases.

H. Oversee performance of intra-operative-PTH testing at University Hospital and East Ann Arbor Surgery Center.

I. Planning group of new Brighton Health Care Facility.

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Clinical Pathology Grand Rounds (2 lectures).
2. Coordinator, Pathology House Officer rotation through Chemistry Section Labs.
3. Review sign-out and interpretation of lipoprotein electrophoresis results.

4. Review of selected topics in Clinical Chemistry with Block B residents.
5. Review hemoglobinopathy cases with Block B residents.

B. LECTURES
1. Medical Technology Continuing Education Conferences for Chemistry Laboratory (3 lectures).

III. Research Activities

A. SPONSORED SUPPORT
1. NIH 5P60 DK20572, WH Herman, PI, Chemistry Core Lab Director within the Measurement Core of the Michigan Diabetes Research and Training Center (7.5 % effort), Measurement Core, 12/1/2007 - 1/31/2013, $127,696 annual; $713,000 per 5 years; MDRTC $1,810,457 annual; total of $ 8,912,285 per 5 years.

B. PROJECTS UNDER STUDY
1. “Evaluation of automated, multiplex chemiluminescent immunoassay technology for the performance of Epstein Barr viral serology testing and confirmatory testing for ANCA”.
2. Dorje, PI, $50,000 award from Cardiovascular Center Inaugural Grants fund, Nutrient deficiency and ATP depletion after surgery for aortic dissection.
3. Development of a microfluidic point of care device for the measurement of Apolipoproteins A1 and B for assessment of risk for cardiovascular disease, (with Alan Hunt, Biomedical Engineering and Robert Brook, Cardiology).
4. Pancreatic function testing in patients with chronic pancreatitis and impaired glucose tolerance (with DiMagno and Piraka).
5. Relationship of obesity, sex hormone levels, and PSA in screening for prostate cancer (with Beebe-Dimmer, Cooney).
6. Evaluation of methods for bioavailable testosterone.

IV. Administrative Activities

A. DEPARTMENTAL
1. Quality Assurance Committee
2. Director, Chemistry Laboratory
3. Director, Point of Care Testing

B. INSTITUTIONAL
1. Michigan Diabetes Research and Training Center Prevention and Control Division Executive Committee.

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Treasurer, Michigan Section AACC.
2. Executive Committee and Program Committee 2008, Michigan Section AACC.

3. Abstract review committee, AACC National Meeting 2008.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc reviewer, *Clinical Chemistry*

B. INVITED LECTURES/SEMINARS

1. "Good Cholesterol, Bad Cholesterol, Dysfunctional Cholesterol". Clinical Pathology Grand Rounds, Sept 18, 2007.
2. "Apolipoprotein measurement and clinical utility." Clinical Pathology Grand Rounds, Sept 25, 2007.
3. "Issues with the standardization of clinical chemistry tests." Michigan Society for Clinical Laboratory Science Annual Meeting, Kalamazoo, MI, April 4, 2008.
4. "HDL, Measurement, metabolism, and role in atherosclerosis." Michigan Society for Clinical Laboratory Science Annual Meeting, Kalamazoo, MI, April 4, 2008.
5. "Laboratory issues for the endocrinologist." University of Michigan Division of Metabolism, Endocrinology, and Diabetes Resident and Fellows Conference, May 22, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for Clinical Chemistry, Program Chair for Michigan Section.

D. HONORS AND AWARDS

1. Pathology Residents Teaching Award 2008.

VI. Publications - None

Thomas Giordano, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. Surgical Pathology; Room 1, BE, and GYN - 13 weeks

B. Endocrine Surgical Pathology, Departmental and Outside Consultation - 12 months

C. M-Labs Surgical Pathology Consultation - 12 months

D. Frozen section call - 4 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. Sequence Co-Coordinator Component II Endocrine Sequence.
2. Component II Endocrine Sequence - 2 lectures on Endocrine Pathology.
3. Endocrine Pathology Laboratories 2 laboratories.

B. HOUSE OFFICERS AND FELLOWS

1. General Surgical Pathology 3.0 months.
2. Endocrine Surgical Pathology - 12 months.

C. LECTURES

1. Lecture to Genetic Counseling Students, "Pathology of Cancer".
2. Lecture to Molecular Biology Graduate Students, "Pathology of Cancer".

D. OTHER

1. Mentored Anna Eliassen, University of Michigan undergraduate, MCDB 300.
2. Endocrine Tumor Board – weekly.

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, 5 P30 CA46592, Wicha, PI; Giordano, Tissue Core Director (17 .5% effort), "Cancer Center Support Grant", 6/01/2006 - 5 /31/2011, $3,415,190 annual direct.
2. University of Michigan, AACR Clinical Research Initiatives, Principal Investigator (5% effort), "Improved Clinical Evaluation of Thyroid Nodules by Molecular Profiling", 05/01/06 - 05/01/08, $75,000 total directs.
3. NIH/NCI, 5R01CA081488-08, Gruber, PI; Giordano, Co-Investigator (10% effort), "Molecular Epidemiology of Colorectal Cancer", 4/1/1999 - 3/31/2009, $761,843 annual directs.
4. NIH/NIAID, 2 RO1 AI 37141-09A1, Baker, PI; Giordano, Co-investigator (5% effort), "Apoptosis in Thyroiditis", 5/01/2004 - 4/30/2009, $225,000 annual directs.
5. NIH/NHLBI, N01-HR-46162, Martinez, PI; Giordano, Co-Investigator (5% effort), "Lung Tissue Research Consortium", 02/01/2004 - 01/31/2009 $413,032 annual directs.
6. American Cancer Society, RSG DDC-106870, Hammer, PI; Giordano, Co-Investigator (4% effort), "Wnt Signaling in Adrenocortical Development and Cancer", 07/01/2004 - 06/30/2008, $600,000 total direct costs.
7. NIH/NCI, 2RO1 CA072877-07A1, Petty, PI; Giordano, Co-Investigator (3.5% effort), "Role of SEPT9 in cell proliferation and oncogenesis", 12/1/2005 -11/30/2010, $250,000 annual directs.

B. PENDING PROJECTS

1. NIH/NCI, Brenner, GI Spore; Giordano, Biosample Core Director (22.5% effort), "Translational Research in GI Cancer", 2008 - 2013, $8,677,266 total direct costs.

C. PROJECTS UNDER STUDY

1. Principal Investigator, "Molecular Studies of Adrenal Cortical Neoplasms".
2. Principal Investigator, "Molecular Studies of Thyroid Neoplasms".
3. Principal Investigator, "Molecular Studies of Adrenomedullary Neoplasms".
4. Principal Investigator, "Molecular Studies of Pancreatic Endocrine Neoplasms".
5. Co-Investigator with Dr. Jim Baker, "Molecular Studies of Thyroiditis".
6. Co-Investigator with Dr. David Beer, "Molecular Studies of Lung and Esophageal Neoplasms".
7. Co-Investigator with Drs. Steve Gruber, Eric Fearon, and Joel Greenson "Molecular Studies of Colorectal Carcinoma".
8. Co-Investigator with Drs. Larry Baker and Dafydd Thomas, "Molecular Studies of Soft Tissue Sarcomas".
9. Co-Investigator with Drs. Frank Worden and Ron Koenig, "Clinical Trial of Gleevec for Anaplastic Thyroid Carcinoma".

IV. Administrative Activities

A. DEPARTMENTAL

1. Pathology House Officer Candidate Interviews.
2. Pathology Faculty Candidate Interviews.
3. Member, Anatomic Pathology Funding Review Committee.
4. Director, Molecular Pathology Research Laboratory.

B. INSTITUTIONAL

1. Sequence Co-Coordinator Component II Endocrine Sequence.
2. Director, UMCCC Tissue Core.
3. Medical Institutional Review Board (IRB-Med), ad hoc member.
4. MSTP Career Advisory Panel.
5. Member, MICHR Executive Review Committee for Multi-disciplinary Grants.
6. ACCR Committee.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Exam Reviewer, 2007 Pathology Subject Examination, Step 1, National Board of Medical Examiners.
2. Grant Reviewer, National Institutes of Health, National Cancer Institute, "Cooperative Human Tissue Network", Bethesda, MD.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a. *Endocrine Pathology*
2. Ad hoc manuscript reviewer
   a. *Journal of Clinical Endocrinology and Metabolism*
   b. *Journal of Molecular Diagnostics Nature Clinical Practice Endocrinology & Metabolism*
   c. *Endocrine Pathology*
   d. *Proteomics*
   e. *Clinical Cancer Research*
   f. *Disease Markers and Cancer Biomarkers*
   g. *Molecular Cancer Therapeutics*
   h. *Modern Pathology*
   i. *Endocrine Reviews*
   j. *Archives of Pathology and Laboratory Medicine*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker, "Genomic studies of follicular cell thyroid tumors", Northwestern University, Chicago, IL 2007.

2. Resident Slide Seminar, "Adrenal Tumor Pathology", University of Virginia, Charlottesville, VA, 2008.
3. Invited Speaker, "Genomic studies of follicular cell thyroid tumors", University of Virginia Health System, Charlottesville, VA, 2008.
4. Invited Speaker, "Translation genomic studies of thyroid tumors", Medical University of South Carolina, Charleston, SC, 2008.
5. Keynote Speaker, "The role of the pathologist in the era of targeted cancer therapy," 2008 Annual Meeting of The Danish Society of Pathologic Anatomy and Clinical Cytology, Vejle, Denmark, 2008.
6. Invited Speaker, "Translation genomic studies of adrenocortical tumors", Yale University School of Medicine, New Haven, CT, 2008.
7. Invited Speaker, "Transcriptome analysis of endocrine tumors: clinical perspectives," presented at the 51st Journees Internationales d'Endocrinologie Clinique, Paris, France, 2008.
8. Invited Speaker, "Adrenocortical carcinoma genomic profiling: defining diagnostic and therapeutic targets," presented at the 2008 Endocrine Society Meeting, San Francisco, CA, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for the Advancement of Science
2. American Society of Clinical Pathologists
3. United States and Canadian Academy of Pathology
4. University of Michigan Comprehensive Cancer Center
5. American Society for Investigative Pathology
6. A. James French Society of Pathology
7. Association for Molecular Pathology
8. American Association for Cancer Research
9. Michigan Society of Pathologists
10. American Society of Clinical Oncology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Gruber SB, Moreno V, Rozek LS, Rennert H, Lejbkowicz F, Bonner JD, Greenson JK, **Giordano TJ**, Fearon ER, Rennert G. Genetic variation in 8q24 associated with risk of colorectal cancer. *Cancer Biol Ther* 2007 [Epub ahead of print].
2. Bommer, GT, Gerin I, Feng Y, Kaczorowski AJ, Kuick R, Love RE, Zhai Y, **Giordano TJ**, Qin ZS, Moore BB, MacDougald OA, Cho KR, Fearon ER. p53-mediated activation of miRNA34 candidate tumor suppressor genes. *Current Biology* 2007:17; 1-10.

3. Bakshi N, Kunju LP, **Giordano T**, Shah RB. Expression of renal cell carcinoma (RCC) in renal epithelial and nonrenal tumors: diagnostic implications. *Appl Immunohistochem Mol Morphol* 2007:15; 310-315.
4. Weir, BA, Getz G, **Giordano TJ** (22nd of 67 authors) Varmus, H, Wilson RK, Lander E, Meyerson M. Characterizing the cancer genome in lung adenocarcinoma. *Nature* 2007:450;893-8.
5. Lin J, Wasco M, Korobkin M, Doherty G, **Giordano TJ**. Leiomyoma of the adrenal gland presenting as a non-functioning adrenal incidentaloma: case report and review of the literature. *Endocrine Path* 2007:18; 239-243.
6. Kim H, Wu R, Cho KR, Thomas DG, Gossner G, Liu JR, **Giordano TJ**, Shedden KA, Misek DE, Lubman DM. Comparative proteomic analysis of low stage and high stage endometrioid ovarian adenocarcinomas. *Proteomics* 2008:2; 571-584.
7. Else T, **Giordano TJ**, Hammer GD. Evaluation of telomere length maintenance mechanisms in adrenocortical carcinoma. J Clin Endo Metabol 2008:93; 1442-9.
8. Hayes MJ, Thomas D, Emmons A, **Giordano TJ**, Kleer CG. Genetic changes of wnt pathway genes are common events in metaplastic carcinoma of the breast. *Clin Cancer Res* (in press).
9. Perner S, Wagner P, Demichelis F, Mehra R, LaFargue C, Moss B, Arbogast S, Soltermann A, Weder W, **Giordano TJ**, Beer DG, Rickman DS, Chinnaiyan AM, Moch H, Rubin MA. EML4-ALK fusion in lung cancer: a rare acquired event. *Neoplasia* 2008:10; 298-302.
10. Shedden K, Taylor JMG, Enkemann SA, Tsao MS, Yeatman TJ Jurisica, **Giordano TJ**, Gerald WL, Venkatraman ES, Meyerson M, Kuick R, Dobbin KK, Lively T, Jacobson JW, Beer DG. Gene expression-based survival prediction in lung adenocarcinoma: a multi-site, blinded validation study. *Nat Med* (in press).
11. Hodish Location of ectopic adrenocortical hormone-secreting tumors causing Cushing's Syndrome in the paranasal sinuses. *Head & Neck* (in press).
12. Eszlinger M, Krohn K, Hauptmann S, Dralle H, **Giordano TJ**, Paschke R. Perspectives for improved and more accurate classification of thyroid epithelial tumors. *J Clin Endo Metabol* (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. **Giordano TJ**. Transcriptome analysis of endocrine tumors: clinical perspectives. *Ann Endocrinol* (Paris) 2008:69;130-134.
2. **Giordano TJ**. Genome-wide studies in thyroid neoplasia. *Endocrinol Metab Clin North Am* 2008:37;311-331.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Pu RT, **Giordano TJ**, Michael CW. Potential utility of cytology microarrays in marker validation. Presented as the 55th Annual Meeting of the American Society of Cytopathology.

2. **Giordano TJ**, Kuick R, Thomas DG, Vinco M, Sanders D, Bauersfeld J, Else T, Gauger P, Doherty G and Hammer G. Molecular Classification and Prognostication of Adrenocortical Tumors by Gene Expression Profiling. Presented at the 2008 Annual Meeting of the USCAP.
3. **Giordano TJ**, Sanders D, Koenig R, Nikiforov Y and Thomas DG. Automated Quantitative Analysis (AQUA) of Claudin 1 as a Diagnostic Marker of Papillary Thyroid Carcinoma. Presented at the 2008 Annual Meeting of the USCAP.
4. Barlaskar F, Spalding AC, Kim A, Heaton, J, **Giordano TJ**, Ben-Josef E, Hammer GD. Insulin-like Growth Factor Receptor as a Novel Therapeutic Target for Adrenocortical Carcinomas. Presented at the 2008 Meetings of the Endocrine Society.
5. Trovato A, **Giordano TJ**, Kuick R, Hammer G, Else T. Analysis of FOXM1 Expression in Adrenocortical Carcinoma. Presented at the 2008 Meetings of the Endocrine Society.
6. Nucera C, Porrello A, Zhang X, Finn S, Priolo C, **Giordano T**, Jarzab B, Trimarchi F, Pontecorvi A, Nose V, Lawler J, Parangi S. Identification of new BRAFV600E activated pathways by Gene Set enrichment Analysis (GSEA) of human papillary thyroid cancer (PTCs) gene microarray platform. To be presented at the Annual Meeting of the ATA.

David Gordon, M.D.

Professor of Pathology
Associate Dean for Diversity and Career Development

I. Clinical Activities

A. Autopsy service attending

B. Cardiovascular Pathologist for the Department
   1. Cardiac biopsies
   2. Cardiovascular consultant for surgical and autopsy pathology
   3. Referral cases from outside our institution

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Cardiovascular Sequence lecturer (4 cardiovascular pathology lectures) for M2 medical students
   2. Co-developer of the cardiovascular pathology teaching laboratories for the M2 medical student Cardiovascular Sequence (work with Andrew Flint)
   3. Instructor for M2 medical student Pathology teaching laboratories

B. DENTAL STUDENTS
   1. Lecturer for the Dental School Pathology Course (2 lectures)

C. GRADUATE STUDENTS
   1. Lecturer for the Pathology Department Graduate Student course on general pathology (one lecture and teaching laboratory session)

D. HOUSE OFFICERS AND FELLOWS
   1. Occasional lecturer on cardiovascular pathology for our pathology residents, plus teaching residents on autopsy service
   2. Present pathology at monthly Pediatric Cardiology Pathology Conference

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/PO1 HL57346, Ginsburg, PI; Gordon, Morphology Core Director (5%), "Molecular Genetics Coagulation Disorders", 7/1/2003 – 6/30/2008, $99,717 per year for direct costs, resubmitted for a competitive renewal May, 2008.
2. Howard Hughes Medical Institute, Health Occupations Partners in Education (HHMI Precollege Science Education Initiative), Gordon, PI, 9/1/2003 - 8/31/2008, $538,574 with a no-cost time extension until February 2009.
3. UL1 RR024986, Clauw, PI, 09/17/2007 - 05/31/2012.
4. KL2 RR024987, Mentored Career Development Component.
5. TL1 RR024988, Predoctoral Training Grant Component.
6. NIH/NCRR, Michigan Institute for Clinical and Health Research (MICHR), Gordon, Co-Director, Community Engagement Component (5% effort), 1122.RFP.PD, 09/01/2006 - 08/31/2009, $54,619,564 total direct cost, $48,735 per year direct costs.
7. Blue Cross Blue Shield of Michigan Foundation, Gordon, PI, (5% effort), "Encouraging Physicians to Practice in Underserved Communities: Medical School Rotation Strategy".

B. PENDING PROJECTS

1. NIH PO1 HL57346, Ginsburg, PI; Gordon, Morphology Core Director (5%), "Molecular Genetics Coagulation Disorders", 7/1/2003 - 6-30-2008, $99,717 per year for direct costs, resubmitted for a competitive renewal May, 2008.

C. PROJECTS UNDER STUDY

1. Morphology Core support for projects focusing on the interaction between coagulation factors and vascular pathobiology.
2. Mentoring of He Wang (Pathology Resident) interested in academic cardiovascular pathology.
3. Ways to improve the participation of minority groups in clinical research.
4. Assisting pediatric cardiologists in assessing a new ultrasound heart tissue ablation tool.

IV. Administrative Activities

A. INSTITUTIONAL

1. Medical School Dean's Office
   a. Associate Dean for Diversity and Career Development: Overseeing several programs for diversity promotion, health disparities education, and increasing the number of health professionals from minority and disadvantaged backgrounds
   b. Assistance with Faculty Affairs

c. Assistance with Office of Student Programs (including serving on the Medical School Admissions Committee).
d. Work with UMHS Human Resources on leadership development and diversity

2. University of Michigan
   a. Member University of Michigan Diversity Council (regular and steering committees)
   b. Member of the National Center for Institutional Diversity

B. REGIONAL/NATIONAL/INTERNATIONAL - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Cardiovascular Pathology.

B. INVITED LECTURES/SEMINARS
   1. "Rock the Match: strengthening your ERAS application" Talk to medical students at the annual Student National Medical Association, New York, March 21, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Society for Cardiovascular Pathology
   2. American Society for Investigative Pathology
   3. A. James French Society
   4. National Medical Association
   5. Ann Arbor Metro Medical Association
   6. Association of American Medical Colleges Group on Student Affairs-Minority Affairs Section
   7. Association of American Medical Colleges Council of Deans Fellow

VI. Publications – None

Joel K. Greenson, M.D.

Professor of Pathology

I. Clinical Activities

A. Gastrointestinal and Hepatic Pathology Service - 14 weeks

B. Gastrointestinal and Hepatic Consultation Service - 18 weeks

C. Surgical Pathology Call - 4 weeks

D. Liver Transplant Call - 14 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
1. GI Pathology Sequence, In charge of sequence exam (ten contact hours)
2. GI Pathology Sequence, 2 hours full class lecture, 10 hours of lab instruction

B. DENTAL STUDENTS
1. Pathology 630-631 one full class lecture (one contact hour)

C. HOUSE OFFICERS AND FELLOWS
1. Surgical pathology diagnosing room instruction for house officers - 14 weeks
2. One didactic lecture on gastrointestinal pathology - April, 2008
3. Gastrointestinal and hepatic pathology tutoring - 18 weeks
4. Two consultation conferences
5. GI pathology teaching sessions with GI fellows/residents - one hour/month

D. LECTURES
1. 1 Hour lecture to public health students in Epidemiology 631 on Molecular Pathology of Colon Cancer

E. OTHER
1. Liver biopsy conference - one hour every 3 months
2. Multidisciplinary GI tumor board 1.5 hour every third week

III. Research Activities

A. SPONSORED SUPPORT
1. NIH, R01CA81488-01, Co-Investigator (5%), "Molecular Epidemiology of Colorectal Cancer", April 2004 - March 2009, $4,547,772.
2. NIH, RO1 CA 118875-01, A2 Co-Investigator (2.5%), "Hedgehog signaling in upper digestive tract malignancy", $250,000 July 2007-June 2012.
3. FDA OOPD, Co-Investigator (2.5%), “Phase III treatment trial of Tetrathiomolybdate in PBC”.

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY
1. Study of PBC with Fred Askari in Division of Gastroenterology.
2. NIH study of HCV with Anna Lok in Division of Gastroenterology.
3. NIH study of the Molecular Epidemiology of Colon Cancer in Israel.
4. Study of molecular genetic changes in pancreas and colon cancer in Egypt with Amir Soloman (New grant submitted).
5. Study of Barrett's dysplasia with Thomas Wang.
6. Study of pancreas cancer with Mark Zalupski and Diane Simeone.
7. Study of Collagenous Sprue with International Study Group.
8. NIH study of Hedgehog signaling in upper digestive tract tumors with Andrzej Dlugosz.
9. Study of HNPCC adenomas with GI path fellow.
10. Study of PSC/UC dysplasia with Path resident (Suntrea Hammer).
11. Study of molecular pathology of colon polyps with Eric Fearon.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Residency Selection Committee
2. Member and Chair, Departmental Incentive Committee
3. Member AP research funding committee

B. INSTITUTIONAL
1. Member, Medical School Admissions Committee
2. Billing Compliance Officer for Department of Pathology

C. REGIONAL/NATIONAL/INTERNATIONAL
1. American Board of Pathology, Test Question Committee
2. NIH Colon Cancer Family Registry, Advisory Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. *Human Pathology*
   b. *American Journal of Surgical Pathology*
   c. *American Journal of Clinical Pathology*
2. Reviewer
   a. *Cancer*
   b. *Archives of Pathology and Laboratory Medicine*
   c. *Gastroenterology*
   d. *Human Pathology*
   e. *American Journal of Surgical Pathology*
   f. *American Journal of Pathology*
   g. *Modern Pathology*
   h. *Cancer Research*
   i. *American Journal of Gastroenterology*
   j. *British Journal of Cancer*
   k. *Journal of Clinical Oncology*
   l. *Histopathology*
   m. *American Journal of Clinical Pathology*

B. INVITED LECTURES/SEMINARS
1. Invited Speaker, A. James French Society of Pathologists, CME course, Ann Arbor, MI, Sept. 2007.
2. Invited Speaker, "Medical liver biopsies, an algorithmic approach", Michigan Society of Pathologists CME meeting, 2007.
3. Invited Speaker, California Society of Pathology, Annual CME course, San Francisco, CA, Dec. 2007.
4. Faculty Member, ASCP Workshop - Surgical Pathology of the Gastrointestinal Tract, Santa Barbara, CA, June 2008.
5. Invited Speaker, XVII Porto Cancer Meeting, Porto, Portugal, April 2008.
6. Invited Speaker, Molecular genetics of Colon Cancer, National Cancer Institute of Egypt, Cairo University, Egypt, June, 2008.
7. Invited Speaker, Molecular genetics of Colon Cancer, Tanta University Hospital, Tanta, Egypt, June, 2008.

8. Invited Speaker, Molecular genetics of Colon Cancer, Mansoura University Hospital, Egypt, June, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Arthur Purdy Stout Society
2. USCAP
3. ASCP
4. AGA
5. CAP
6. GIPS
7. Hans Popper Hepatopathology Society
8. A.J. French Society

D. HONORS AND AWARDS
1. One of America's Best Doctors
2. One of America's Best Cancer Doctors
3. Who's Who Executives and Professionals

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Gruber SB, Moreno V, Rozek LS, Rennert HS, Lejbkowicz F, Bonner JD, **Greenson JK**, Giordano TJ, Fearon ER, Rennert G. Genetic variation in 8q24 associated with risk of colorectal cancer. *Cancer Biology and Therapy* 6:1143-47, 2007.
2. Soliman AS, Lo A-C, Banerjee M, El-Ghawalby N, Khaled HM, Bayoumi S, Seifeldin IA, Abdel-Aziz A, , Abbruzzese JL, **Greenson JK**, Hamilton SR. Differences in K-ras and P53 Gene Mutations among Pancreatic Adenocarcinomas Associated with Regional Environmental Pollution. *Carcinogenesis* 28:1794-99, 2007.
3. Lo A-C, Soliman AS, El-Ghawalby N, Abdel-Wahab M, Fathy O, Khaled HM, Omar S, Hamilton SR, **Greenson JK**, Abbruzzese JL. Lifestyle, Occupational, and Reproductive Factors in Relation to Pancreatic Cancer Risk. *Pancreas* 35:120-129, 2007.
4. Sharma P, Marrero JA, Fontana RJ, **Greenson JK**, Conjeevaram H, Su GL, Askari F, Sullivan P, Lok AS. Sustained Virologic Response to Therapy of Recurrent Hepatitis C After Liver Transplantation Is Related to Early Virologic Response and Dose Adherence. *Liver Transplantation* 13:1100-1108, 2007.
5. Desai SP, El-Rayes BF, Ben-Josef E, **Greenson JK**, Knol JA, Huang EH, Griffith KA, Philip PA, McGinn C, Zalupski MM. A phase II study of preoperative capecitabine and radiation therapy in patients with rectal cancer. *Am J Clin Oncol* 30:340-345, 2007.
6. Desai SP, Ben-Josef E, Normolle DP, Francis IR, **Greenson JK**, Simeone DM, Chang AE, Colletti LM, Lawrence TS, Zalupski MM. Phase I Study of Oxaliplatin,

Full-Dose Gemcitabine, and Concurrent Radiation Therapy in Pancreatic Cancer. *J Clin Oncol* 25:4587-4592, 2007.

7. Hinoi T, Akyol A, Theisen BK, Ferguson DO, **Greenson JK**, Williams BO, Cho KR, Fearon ER. Mouse Model of Colonic Adenoma-Carcinoma Progression Based on Somatic Apc Inactivation. *Cancer Research* 67:9721-30, 2007.
8. Fryzek JP, Garabrant DH, Schenk M, Kinnard M, **Greenson JK**, Sarkar FH. The Association Between Selected Risk Factors for Pancreatic Cancer and the Expression of p53 and K-ras Codon 12 Mutations. *Int J Gastrointest Cancer*, Nov 30 (E pub) 37:139-145, 2008.
9. Elmunzer J, Higgins P, Kwon Y, Golembeski C , **Greenson JK**, Korsnes S, Elta G. Jumbo forceps are superior to standard large-capacity forceps in obtaining diagnostically adequate inflammatory bowel disease surveillance biopsies. Accepted to *Gastrointestinal Endoscopy*.
10. Polydorides AD, Mukherjee B, Gruber SB, McKenna BJ, Appelman HD, **Greenson JK**. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. Accepted to *Am J Surg Pathol.*
11. **Greenson JK**, Huang S-C, Herron C, Moreno V, Bonner JD, Tomsho LP, Ben-Izhak O, Cohen HI, Trougouboff P, Bejhar J, Sova Y, Pinchev M, Rennart G, Gruber SB. Pathologic predictors of microsatellite instability in colorectal cancer. Accepted to Am *J Surg Pathol*.
12. Owens SR, **Greenson JK**. Coeliac disease and other intraepithelial lymphocytic disorders of the upper gastrointestinal tract. Accepted to *Current Diagnostic Pathology*.

B. BOOKS/CHAPTERS IN BOOKS

1. **Greenson JK**, Odze RD. Inflammatory Diseases of the Large Intestine, In: *Surgical Pathology of the GI Tract, Liver, Biliary tract, and Pancreas*, Second edition. Ed: Robert D. Odze, John R. Goldblum, and James Crawford. Elsevier, Philadelphia, PA. 2008, In Press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Polydorides AD, Gruber SB, McKenna BJ, Appelman HD, **Greenson JK**. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. Platform presentation at USCAP 2008, Mod Pathol 21:132A, 2008.
1. Maguire A, Sheahan K, O'Donoghue D, **Greenson JK**, Lauwers GY, Ginsburg RE, Williams GT, Brown IS. Collagenous Sprue - A clinicopathological study of 9 cases. Platform presentation at USCAP 2008, Mod Pathol 21:128A, 2008.

Jay L. Hess, M.D., Ph.D.

Carl V. Weller Professor and Chair

I. Clinical Activities

A. PERSONAL HEMATOPATHOLOGY CONSULTATION CASES - 12 months

B. ADMINISTRATIVE OVERSIGHT OF ALL CLINICAL LABORATORIES - 12 months

II. Teaching Activities

A. MEDICAL STUDENTS

1. "Career Perspectives", University of Michigan Medical School, Student Biomedical Research Program Research Seminar, June 5, 2008.

B. GRADUATE STUDENTS

1. Sara Monroe (PIBS, Ph.D. Candidate, Thesis Committee)
2. Brendan Crawford (Rotating M.D./Ph.D. Student)
3. Stephanie Jo (M.D./Ph.D. Student)
4. Jiaying Tan (PhD Student)
5. Yongsheng Huang, (PhD Student)
6. Heather Ames (Preliminary Exam Committee)
7. Daniel Sanders (Undergraduate Student)

C. HOUSE OFFICERS AND FELLOWS

1. Kajal Sitwala, M.D., Ph.D.
2. Jim Connelly, M.D.
3. Monisha Dandekar, M.D.
4. Andrew Muntean, Ph.D.

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01-CA78815-07, PI (20%), "Mechanisms of Hox gene regulation by MLL", 7/1/1998 - 6/30/2008, $200,541 annual direct costs.

2. PI (20%), "Mechanisms of Hox Protein Mediated Transformation", 7/1/2006 - 6/30/2011, $172,353 annual direct costs.
3. PI Project 1 (10%), "Consortium for the Study of Chromatin Biology and Epigenetic Targeting in Hematologic Malignancies", LLS SCOR, 10/1/2007 - 9/30/2012, $150,000 annual direct costs.
4. PI Project 1, "New approaches to improve bone marrow transplantation in leukemia", MICHR Grant, 7/1/2007 - 6/30/2008, $55,000 direct costs.
5. NIH R01 CA 922251A1-01, PI (20%), "Transcriptional Deregulation by MLL Fusion Proteins", 9/27/2007 - 8/31/2012, $177,293 annual direct costs.

B. PENDING PROJECTS
1. PI Project 3 (10%) - "Targeting Regulators of HOX Expression in Acute Leukemia", LLS SCOR, 10/1/2008 - 9/30/2009, $210,000 annual direct costs.

C. PROJECTS UNDER STUDY
1. Mechanisms of transcriptional regulation and transformation by the mixed-lineage leukemia protein, MLL.
2. Mechanisms of stem cell expansion and transformation by Hoxa9 and Meis1.

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair, Department of Pathology
2. Chair, Lean Implementation Steering Committee
3. Chair, Marketing Oversight Committee
4. Director, Division of Sponsored Research, Department of Pathology

B. INSTITUTIONAL
1. University of Michigan Comprehensive Cancer Center Executive Committee
2. VA Dean's Advisory Committee Member
3. Endowment for the Basic Sciences Initiative in Protein Chemistry, Committee Member
4. Senior Leadership Council Member
5. Dean's Advisory Committee Member
6. Medical Scientist Training Program Policy Committee
7. Biomedical Sciences Scholars Program Selection Committee
8. Faculty Group Practices Board - Voting Member
9. Faculty Group Practices Board Reorganization Finance Subcommittee Member
10. Faculty Group Practice Budget and Finance Executive Committee
11. Medical School Executive Committee
12. Medical School Executive Committee Business Subcommittee
13. Michigan Center for Translational Pathology Executive Committee
14. Medical School Compensation Committee

15. Dean's Standing Search Committee for Department Chairs
16. Chair, Department of Internal Medicine Chair Search Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
D. American Society of Hematology Abstract Review Committee, Coordinating Reviewer
E. Association of Pathology Chairs Research Committee
F. National Cancer Institute of Canada, Grant Reviewer
G. NIH Molecular Oncogenesis Study Section, Ad Hoc Reviewer
H. MLL Summit Workshop, Stowers Institute, Kansas City, MO, Co-Organizer
I. NIH Biological Chemistry and Macromolecular Biophysics Study Section, Ad Hoc Reviewer
J. Leukemia Research Fund, University of Minnesota Medical School, Grant Reviewer

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
a. *American Journal of Clinical Pathology*
b. *International Journal of Clinical and Experimental Pathology*
c. *Clinical and Translational Science*
d. *Experimental Hematology*
2. Reviewer
a. Proceedings of the National Academy of Sciences, U.S.A.,
b. Blood
c. Cancer Investigation
d. Leukemia
e. EMBO Journal
f. Cancer Cell
g. Genes, Chromosomes and Cancer
h. Modern Pathology
i. Human Pathology
j. American Journal of Clinical Pathology
k. Experimental Hematology
l. DNA and Cell Biology
m. Oncogene
n. Gene
o. Molecular and Cellular Biology
p. *Nature Cell Biology*

B. INVITED LECTURES/SEMINARS
1. "What Hematopathology Tells Us About the Future of Pathology Informatics", World Congress on Pathology Informatics (plenary speaker), Brisbane, Australia, August 16, 2007.

2. "Transcriptional Deregulation by MLL Fusion Proteins", University of Kansas Medical Center, Kansas City, KS, September 6, 2007.
3. "Epigenetic Dysregulation in Mixed Lineage Leukemia", International Society for Experimental Hematology (plenary speaker), Hamburg, Germany, September 28, 2007.
4. "Quantitative cost-benefit analysis on co-locating research labs with clinical facilities", Academic Medical Centers 2007, Tradeline, San Diego, CA, December 3-4, 2007.
5. "Overview of Transcription Factor Targets in Leukemia", American Society of Hematology Annual Meeting, Atlanta, GA, December 8-9, 2007.
6. "MLL: A Histone Methyltransferase Disrupted in Acute Leukemia", Pluto Society Annual Meeting, Cabo San Lucas, Mexico, March 8, 2008.
7. "Epigenetic Dysregulation in Mixed Lineage Leukemia", American Society for Investigative Pathology 2008 Annual Meeting, San Diego, CA, April 8, 2008.
8. "Mechanisms of Transformation by MLL Fusion Proteins, Third Bi-Annual ICH/GOSH Pediatric Haematology-Oncology Symposium: Molecular Basis of Childhood Leukaemia, London, England, May 1, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathologists, Fellow
2. American Society of Hematopathologists
3. United States and Canadian Academy of Pathology
4. American Society of Hematology
5. American Association for Cancer Research
6. Association of Pathology Chairs
   a. Association of Pathology Chairs Research Committee (2005 - Present)
7. Pluto Society (2006 - Present)
8. Michigan Society of Pathologists
9. A. James French Society
10. American College of Physician Executives
11. International Society of Experimental Hematology

D. HONORS AND AWARDS
1. Madison Who's Who Among Executives and Professionals Honors Edition

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Caslini, C, Yang, ZH, Milne, TA, Slany, RK, **Hess, JL**. Interaction of MLL amino terminal sequences with menin is required for transformation. *Cancer Res* 67(15):7275-7283, 2007.
2. Mueller, D, Bach, C, Zeisig, D, Garcia-Cueller, M-P, Monroe, S, Sreekumar, A, Zhou, R, Nesvizhskii, A, Chinnaiyan, A, **Hess, JL**, Slany, RK. A Role for the MLL Fusion

Partner ENL in Transcriptional Elongation and Chromatin Modification. *Blood* 110:4445-4454, 2007.

3. Sitwala, K.V., Dandekar, M.N., **Hess, J.L.** Hox proteins and leukemia. *Intl J Clin and Exp Path* (in press).
4. Dou, Y, **Hess, J.L**., Mechanisms of Transcriptional Deregulation by MLL and its Disruption in Acute Leukemia. *International Journal of Hematology* (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. Milne, T.A., Zhao, K., **Hess, J.L.** Chromatin Immunoprecipitation for Analysis of Histone Modifications and Chromatin-Associated Proteins. So, E. ed.: *Methods in Molecular Medicine*, vol. xx. Totowa, N.J., Humana Press (in press).
2. **Hess, J.L.**, Zutter, M.M.: The hematopoietic system: Lymph node and spleen. In Dehner, L.P., ed.: *Pediatric Surgical Pathology*, Third Edition. Baltimore, Williams and Wilkins (in press).
3. Zutter, M.M., **Hess, J.L**.: The hematopoietic system: Bone marrow. In Dehner, L.P., ed.: *Pediatric Surgical Pathology*, Third Edition. Baltimore, Williams and Wilkins (in press).
4. Maillard, I, **Hess, J.L.** The role of menin in hematopoiesis, K. Balogh and A Patocs, Eds. In *Molecular Mechanisms of MEN1 Syndrome*, (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **Hess, J.L.** What Hematopathology tells us about the Future of Pathology Informatics. *Arch Path Lab Med* (in press).
2. Muntean, AG, **Hess, JL.** The MLL PHD Fingers block MLL Fusion Protein Mediated Transformation. American Society of Hematology, December 8-10, 2007.
3. Sitwala, KV, MacDonald, JW, Giannola, DM, **Hess, JL**. Identification of Hoxa9 targets in myeloid progenitors using conditional expression. American Society of Hematology, December 8-10, 2007.
4. Wing, A, **Hess, JL**. Quantitative cost-benefit analysis on co-locating research labs with clinical facilities. Tradeline, San Diego, CA, December 3-4, 2007.
5. Caslini, C., Serna, A., Fidanza, V., **Hess, J.L.** MLL regulates telomere length and initiation of replicative senescence in mammalian cells. Keystone Symposium: Cell Death & Senescence, Breckenridge, CO, February 7-12, 2008.
6. Monroe, S., Jo, S.Y., Basrur, V., Elenitoba-Johnson, K.S., Slany, R.K., **Hess, J.L.** Identification and Characterization of an MLL Fusion Partner-associated Complex: MPAC. American Association for Cancer Research, Cancer Epigenetics, Boston, MA May 28-31, 2008.

Cory M. Hogaboam, Ph.D.

Associate Professor

I. Clinical Activities - Not applicable

II. Teaching Activities

A. GRADUATE STUDENTS
1. PhD Dissertation Committees
   a. Andrew Shreiner (Graduate Immunology Program)
   b. Adam Hartigan (Graduate Immunology Program)
   c. Hemanth Ramaprakesh (Graduate Immunology Program)

B. UNDERGRADUATE STUDENTS
1. Daniel Fong, University of Michigan
2. Ashley Cherniawski, Kalamazoo College
3. Sameer Oak, University of Michigan
4. Nithin Ravi, University of Michigan

C. HOUSE OFFICERS AND FELLOWS
1. Post-doctoral fellows
   a. Ana Paula Moreira, Ph.D.
   b. Glenda Trujillo, Ph.D.
   c. Amrita Joshi, Ph.D.
   d. Ana Coelho, Ph.D.

D. LECTURES
1. Pathology 582: Inflammation and Tissue Repair. Infectious basis of tissue fibrosis U of Michigan.

E. OTHER
1. PIBS Graduate Student Laboratory Rotations, University of Michigan.
2. Preliminary Examiner for Ph.D. Programs: Molecular and Cellular Pathology and other Graduate Programs, University of Michigan.

a. Mr. Andrew Hanosh
b. Ms. Stephanie Jo
c. Ms. Liz Townsend
d. Mr. Srikanth Patury
e. Mr. Toru Ishii

3. Visiting Graduate Student, Mr. Rogerio Silva Rosada, Doctoral student from the University of Sao Paulo, Ribeirao Preto, Brazil.
4. Therapeutic targeting of TLR3 in acute and chronic inflammatory diseases. Disclosed July 8, 2007.

III. Research Activities

A. SPONSORED SUPPORT

1. R01 DK053224, Colletti, PI, “CXC chemokines and liver regeneration”, 02/01/2005-04/30/2010, $250,000 per annum.
2. P50 HL074024, Standiford, PI of Specialized Center for Clinically Oriented Research (SCCOR); Project 1, Kunkel, PI, “Dynamic effects of chemokines on systemic inflammation”, 12/01/2003 - 11/31/2008, $249,054 per annum.
3. RFP-HR-04-08, Martinez, PI, Lung Tissue Research Consortium: Clinical Centers. 01/30/2004 - 01/29/2009, $3,060,407 total amount of contract.
4. P01HL31963, Kunkel, PI of Program Project, Inflammatory Cells and Lung Injury; Project 4 Lukacs, PI, “Cockroach allergen-induced airway inflammation”, 12/01/2004 -11/30/2009, $225,000 per annum.
5. R01 U10 HL080371, Martinez, PI, “Novel Therapeutic Approaches in IPF”, 04/01/2005 - 03/31/2010, $548,655 per annum.
6. Novartis Institute for Biomedical Research, Hogaboam, PI, “Identification and validation of novel therapeutic targets and biomarkers for idiopathic pulmonary fibrosis”, 02/01/2007-01/31/2010, $515,898 per annum.
7. Novartis Institute for Biomedical Research, Hogaboam, PI, Master Agreement for Services, “Target validation in a SCID model of pulmonary fibrosis”.
   Agreement 1: testing antibodies directed against CCL19, CCL21, and CCR7, $75,041.
   Agreement 2: testing antibodies directed against PDGF receptor alpha and beta, $60,000.
   Agreement 3: testing antibodies directed against PDGF receptor alpha and beta (bleomycin study), $39,052.
8. Array BioPharma, Hogaboam, PI, “Test the efficacy of pharmacological inhibitors of inflammatory pathways”, 10/31/2007 -12/31/2008, $63,872 per annum.
9. Promedior, Inc., Hogaboam, PI, “SAP, CRP, and PTX3 in pulmonary fibrotic conditions”, 10/31/2007 - 9/5/2008, $332,590 per annum.
10. Signal Pharmaceuticals, Celgene Corporation, Hogaboam, PI, “Adoptive fibroblast transfer in SCID mice”, 09/01/2007 - 08/31/2008, $151,227 per annum.

11. Neopharm, Hogaboam, PI, “Effect of Pseudomonas infection or PE38 exposure on the therapeutic efficacy of IL13-PE in bleomycin-induced pulmonary fibrosis”, 02/01/2008 - 01/31/2009, $111,943.00 per annum.
12. Centocor Research and Development, Inc., Hogaboam, PI, “Protective and therapeutic targeting of TLR3 during acetaminophen-induced liver injury”, 05/31/2008 - 06/01/2009, $49,000.00 per annum.

B. PENDING PROJECTS
1. Centocor Research and Development, Inc., Hogaboam, PI, “Validation of two models of viral exacerbation of chronic fungal asthma”, 05/31/2007 - 06/01/2008, $35,000 per annum.
2. NIHNIAID R01 HL69865, Hogaboam, PI, “Role of TREM-1 in innate and adaptive immune responses to Aspergillus fumigatus”, 07/01/2008 - 06/30/2013, $250,000 per annum.
3. NIH/NHLBI R01 HL095369, Hogaboam, PI, “Molecular Phenotypes of Longitudinal Disease Course in IPF”, 09/30/2008 - 09/29/2012, $300,000 per annum.

C. PROJECTS UNDER STUDY
1. Role of chemokines in airway remodeling due to allergic airway disease and asthma.
2. Role of chemokine receptors in airway remodeling due to allergic airway and asthma.
3. Role of chemokines and chemokine receptors in human interstitial fibrotic disease.
4. Novel approaches to targeting IL-4 and IL-13 in chronic allergic airway disease.
5. Role of IL-4 and IL-13 in chronic interstitial fibrotic disease.
6. Novel approaches to targeting IL-4 and IL-13 in human interstitial fibrotic disease.
7. Regulation of fibroblast activities during idiopathic interstitial pneumonias.
8. Role of chemokines and SCF in liver regeneration.
9. Role of CC chemokines in acute and chronic pulmonary inflammation.
10. Role of IL-4 and IL-13 in pulmonary silicosis.
11. Role of bone marrow-derived macrophages in chronic allergic airway and asthma.
12. Identification of novel pattern recognition receptors involved in pulmonary antifungal responses.
13. Pattern recognition receptor involvement in acute and chronic inflammatory diseases of the gut, liver, and lung.
14. M2 activation events in asthma and cancer.
15. Acute exacerbation triggers in chronic lung disease.
16. Regulation of hematopoietic stem cells by chemokine receptors.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Preliminary Examination Committee, Department of Pathology, University of Michigan Medical School

B. INSTITUTIONAL
   1. Member, Graduate Student Affairs Committee (GSAC), Graduate Program in Immunology, University of Michigan Medical School
   2. Member, Committee on Student Biomedical Research (CSBR), University of Michigan Medical School
   3. Member, Mentorship group in the Student Biomedical Research Program (SBRP), U of Michigan Medical School

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Center for Scientific Review, ZRG1 IMB (01) Fellowship (F32) and R15 Review
   2. Committee member, Experimental Medicine, Canadian Institutes of Health Research (CIHR)
   3. Abstract programming co-chair, Immediate Hypersensitivity, Asthma, and Allergic Responses, AAI Annual Meeting 2008

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Associate Editor, *Journal of Immunology* (July 1, 2002 June 30, 2004)
   2. Section Editor, *Journal of Immunology* (July 1, 2004 - June 30, 2008)
   3. Editorial Board Member, *Current Immunology Review* (2004-present)
   4. Editorial Board Member, *BMC Immunology* (2004-present)
   5. Editorial Board Member, *The Open Immunology Journal* (2007-present)
   6. Section Editor of *Pulmonary Diseases, Fibrogenesis and Tissue Repair* (2007-present)
   7. Journal peer-review
      a. J*ournal of Immunology*
      b. American Journal of Physiology
      c. American Journal of Pathology
      d. Journal of Clinical Investigation
      e. Journal of Leukocyte Biology
      f. Journal of Clinical Immunology
      g. American Journal of Respiratory Cell and Molecular Biology
      h. Infection and Immunity
      i. Blood
      j. Journal of Experimental Medicine
      k. Nature
      l. Trends in Microbiology
      m. Clinical Cancer Research
      n. Arthritis and Rheumatism
      o. Nature Medicine
      p. Critical Care Medicine
      q. Respiratory Research

r. *Clinical and Diagnostic Laboratory Immunology*
s. *International Archives of Allergy and Immunology*
t. *American Journal of Respiratory and Critical Care Medicine*

8. Grant peer-review
   a. National Institutes of Health, National Heart, Lung and Blood Institute.
   b. Department of Veterans Affairs, Merit Review.
   c. University of Michigan. Office of the Vice President for Research.
   d. Canadian Institutes for Health Research.
   e. The Wellcome Trust.
   f. British Lung Foundation
   g. Wayne State School of Medicine

B. INVITED LECTURES/SEMINARS
   1. ImmunoRio2007. 13th International Congress of Immunology. Chair of mini-symposium: Immunity to ectoparasites and worms. Rio de Janeiro, Brazil.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Association of Immunologists (AAI)
   2. American Society for Investigative Pathology (ASIP)
   3. American Thoracic Society (ATS)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Wen H., **Hogaboam C.M.**, Lukacs N.W., Cook D.N., Lira S.A., Kunkel S.L. The chemokine receptor CCR6 is an important component of the innate immune response. *Eur. J. Immunol*., 37(9): 2487-2498, 2007.
   2. Ito T., Schaller M., **Hogaboam C.M.**, Standiford T.J., Chensue S.W., Kunkel S.L. Toll-like receptor 9 activation is a key event for the maintenance of a mycobacterial Ag-elicited pulmonary granulomatous response. *Eur. J. Immunol.*, 37: 2847-2855, 2007.
   3. Coelho, A., Schaller M.A., Benjamin C.F., Orlofsky A.Z., **Hogaboam C.M.**, Kunkel S.L. The chemokine CCL6 promotes innate immunity via immune cell activation and recruitment. *J. Immunol.*, 179 (6): 5475-5482, 2007.
   4. Huang S.K., Wettlaufer S.H., **Hogaboam C.**, Flaherty K.R., Martinez F.J., Myers J.L., Colby T.V., Travis W.D., Toews G.B., Peters-Golden M. Resistance to prostaglandin E2 suppression in lung fibroblasts from patients with usual interstitial pneumonia. *Am. J. Respir. Crit. Care Med.*, Jan 1;177(1):66-74, 2008. Oct 4 Epub ahead of print, 2007.
   5. Wen H., Schaller M.A., Dou Y., **Hogaboam C.M.**, Kunkel S.L. Dendritic cells at the interface of innate and acquired immunity: the role for epigenetic changes. *J. Leukoc. Biol.* Mar; 83(3): 439-46, 2008. Nov. 8, Epub ahead of print, 2007.

6. Moore B.B., **Hogaboam C.M.** Murine models of pulmonary fibrosis. *Am. J. Physiol. Lung Cell Mol. Physiol.* Feb; 294(2):L152-60, 2008. Nov. 9, Epub ahead of print, 2007.
7. Joshi A., Raymond T., Coelho A.L., Kunkel S.L., **Hogaboam C.M.** A systemic granulomatous response to S. mansoni eggs alters responsiveness of bone marrow-derived macrophages to TLR agonists. *J. Leukoc. Biol*., Feb; 83(2):314-24, 2008. Nov. 20, Epub ahead of print, 2007.
8. Wen H., Dou Y., **Hogaboam C.M.,** Kunkel S.L. Epigenetic regulation of dendritic cell-derived interleukin-12 facilitates immunosuppression following a severe innate immune response. *Blood*, Feb 15;111(4):1797-804. Nov. 30, Epub ahead of print, 2007.
9. Raymond T., Schaller M., **Hogaboam C.M.**, Lukacs N.W., Rochford R., Kunkel S.L. Toll-like receptors, notch ligands, and cytokines drive the chronicity of lung inflammation. *Proc. Am. Thorac. Soc*. 4: 635-641, 2007.
10. Milam J.E., Keshamouni V.G., Phan S.H., Hu B., Gangireddy S., **Hogaboam C.M.**, Standiford T.J., Thannickal V.J., Reddy R.C. PPAR-γ ligands inhibit pro-fibrotic phenotypes in human lung fibroblasts and bleomycin-induced pulmonary fibrosis. *Am. J. Physiol. Lung Cell. Mol. Physiol*., Dec 27; Epub ahead of print, 2007.
11. Ghia J.E., Galeazzi F., Ford D.C., **Hogaboam C.M.**, Vallance B.A., Collins S.M. Role of M-CSF-dependent macrophages in colitis is driven by the nature of the inflammatory stimulus. *Am. J. Physiol. Gastrointest. Liver Physiol.*, Mar; 294(3):G770-7, 2008. Jan 17; Epub ahead of print, 2008.
12. Daley E., Emson C., Cuignabert C., de Waal Malefyt R., Louten J., Kurup V.P., **Hogaboam C.**, Taraseviciene-Stewart L., Voelkel N.F., Grunig E., Grunig G. Pulmonary arterial muscularization induced by a chronic intermittent antigen challenge. *J. Exp. Med*., Feb 18; 205(2): 361-72, 2008. Epub Jan 28, 2008.
13. Wells, A., **Hogaboam, C.M.** Update in diffuse parenchymal lung disease 2007. *Am. J. Respir. Crit. Care Med*., Mar 15; 177(6): 580-4, 2008.
14. Murray L.A., Argentieri R., Farrell F.X., Bracht M., Sheng H., Whitaker B., Beck H., Tsui P., Cochlin K., Evanoff H.L., **Hogaboam C.M.**, Das A. M. Hyperresponsiveness of IPF/UIP fibroblasts: interplay between TGF-β, IL-13, and CCL2. *Int. J. Biochem. Cell Biol*., Feb. 23: Epub ahead of print, 2008.
15. Trujillo G., O'Connor E., Kunkel S.L., **Hogaboam C.M.** CCR4 deficiency protects mice from bleomycin-induced pulmonary fibrosis via the novel regulation of alternative activation of macrophages. *Am. J. Pathol*., 172(5):1209-21. April 10th: Epub ahead of print, 2008.
16. Bhan U., Trujillo G., Lyn-Kew K., Newstead M.W., Zeng X., **Hogaboam C.M.**, Krieg A.M., Standiford T.J. TLR9 regulates lung macrophage phenotype and host immunity in murine Legionella pneumonia. *Infect. Immun.* April 21; Epub ahead of print, 2008.
17. Buckland K.F., O'Connor E., Murray L.A., **Hogaboam C.M.** Toll like receptor-2 modulates both innate and adaptive immune responses during chronic fungal asthma in mice. *Inflamm. Res*., in press, 2008.

18. Ishii M., **Hogaboam C.M.**, Joshi A., Fong D., Kunkel S.L. CC chemokine receptor 4 modulates Toll-like receptor 9-mediated innate immunity and signaling. *Eur. J. Immunol*., in press, 2008.
19. Meneghin A., Choi E.S., O'Connor E.C., Evanoff H.L., Martinez F.J., Flaherty K.R., **Hogaboam C.M.** TLR9 is expressed in idiopathic interstitial pneumonia and its activation promotes in vitro myofibroblast differentiation. *Histochemistry Cell Biol.*, in press, 2008.
20. Joshi A.D., Schaller M., Lukacs N.W., Kunkel S.L., **Hogaboam C.M.** Toll like receptor 3 modulates immunopathology during Th2-driven immune responses in the lung. *Eur. J. Immunol*., in press, 2008.
21. Glass W., Argentieri R., Michelle B., Michelle B., Farrell F., Das A., Del Vecchio A., Sarisky R., **Hogaboam C.**, Murray L. IL-16 is associated with pulmonary fibrosis. *Cytokine*, in press, 2008.

B. BOOKS/CHAPTERS IN BOOKS

1. Kunkel S.L., Godessart N., **Hogaboam C.**, Chensue S.W., Lukacs N. Chemokines in animal models of inflammation. In: *Chemokine Biology- Basic Research and Clinical Application.* Volume II. Ed: K. Neote, G.L. Letts, B. Moser. Birkhauser Verlag. pp 3-17, 2007.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Silva P.M.R., Ciambarella B.T., Ferreira T.P.T., Arantes A.C., Sampaio E.P., **Hogaboam C.**, Cordeiro R.S.B., Martins M.A. Airway hyperreactivity in acute and chronic phases of silicosis in mice: role of TNF-alpha. *Am J Respir Crit Care Med* 177: A331, 2008.
2. Horowitz D., **Hogaboam C.M**., Syed F. Profiling of human lung fibroblasts from idiopathic pulmonary fibrosis patients for biomarker discovery. *Am J Respir Crit Care Med* 177: A44, 2008.
3. Pechkovsky D.V., Hacker TL., Shaheen F., Churg A., **Hogaboam C.M.**, Knight D.A. Regulation of TGF-beta induced signaling pathways by alpha-v-beta-3 integrin and src kinase in human lung fibroblasts: a new role for alpha-v-beta-3 integrin in IPF. *Am J Respir Crit Care Med* 177: A539, 2008.
4. Jeyanathan M., Zhang X., Mu J., Kugathasan K., Roediger E., **Hogaboam C.**, Xing Z. Manipulation of chemokine profile in the lung by intranasal administration of mycobacterial soluble protein enhanced immunogenecity and protective efficacy of a DNA tuberculosis vaccine. *Am J Respir Crit Care Med* 177: A690, 2008.

Naohiro Inohara, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Postdoctoral Fellow, Mizuho Hasegawa, Ph.D.
2. Hitoyuki Tada, Ph.D.

B. LECTURES

1. 90 hours per year, lectures in biochemistry at the University of Yamanashi, Japan
2. 3 hours per year, lectures in molecular immunology at the University of Yamanashi, Japan
3. 3 hours per year, lectures in cellular biology at the University of Yamanashi, Japan

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/ODCS, R01 DE018503-02, Inohara, PI, "Regulation of Oral Bacteria by Pattern Recognition Receptors", 03/01/200/ - 02/28/2013, $1,250,000.

B. PENDING PROJECTS – None

C. PROJECTS UNDER STUDY

1. Immune responses mediated by Nod proteins and related disease.
2. Regulation of oral microflora by innate immunity.

IV. Administrative Activities - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Reviews
   a. Nature Immunology

b. Infection and Immunity
c. International Immunology
d. *IAI*

B. INVITED LECTURES/SEMINARS
1. Invited lecture in Japanese Society for Bacteriology (Kyoto, Japan, 26th March, 2008).

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Biochemistry and Molecular Biology
2. American Society of Cell Biology
3. Japanese Society of Immunology
4. Japanese Society of Biochemistry

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Huang W, Payne TJ, Ma JZ, Beuten J, Dupont RT, **Inohara N**, Li MD. Significant Association of ANKK1 and Detection of a Functional Polymorphism with Nicotine Dependence in an African-American Sample. *Neuropsychopharmacology*. 2008 Mar 19; [Epub ahead of print].
2. Kim YG, Park JH, Shaw MH, Franchi L, **Inohara N**, Nez G. The Cytosolic Sensors Nod1 and Nod2 Are Critical for Bacterial Recognition and Host Defense after Exposure to Toll-like Receptor Ligands. *Immunity*. 2008 Feb;28(2):246-57. Epub 2008 Feb 7.
3. Srimathi T, Robbins SL, Dubas RL, Hasegawa M, **Inohara N**, Park YC. Monomer/Dimer Transition of the Caspase-Recruitment Domain of Human Nod1. *Biochemistry*. 2008 Feb 5;47(5):1319-1325. Epub 2008 Jan 11.
4. Hasegawa M, Fujimoto Y, Lucas PC, Nakano H, Fukase K, Nez G, **Inohara N**. A critical role of RICK/RIP2 polyubiquitination in Nod-induced NF-kappaB activation. *EMBO J*. 2008 Jan 23;27(2):373-83. Epub 2007 Dec 13.

B. BOOKS/CHAPTERS IN BOOKS - None.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, Harton JA, Hoffman HM, Hugot JP, **Inohara N,** Mackenzie A, Maltais LJ, Nunez G, Ogura Y, Otten LA, Philpott D, Reed JC, Reith W, Schreiber S, Steimle V, Ward PA. The NLR gene family: a standard nomenclature. *Immunity*. 2008 Mar; 28 (3): 285-7.

Jeffrey Jentzen, M.D.

Professor of Pathology,
Director Autopsy and Forensic Services

I. Clinical Activities

A. Provides 30-40% autopsy coverage for UM hospital service

B. Provides coverage for Washtenaw County medical examiner every Friday and every other weekend

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Supervises second year students' autopsy experience and reviews reports

B. HOUSE OFFICERS AND FELLOWS
   1. Provides supervision and teaching for residents on the autopsy service

C. LECTURES
   1. Gross autopsy conference (weekly)
   2. Extended gross conference (monthly)
   3. General forensic pathology conference (monthly)
   4. Multidisciplinary forensic pathology case review (monthly)

D. OTHER
   1. Medicine Grand Rounds: June 6, 2008
   2. Transplant Service Rounds: May 9,2008

III. Research Activities

A. PENDING PROJECTS
   1. Wong, Jentzen, Janneto, et al., "Molecular Autopsy with Pharmacogenomics: A Multi-center Study for Certifying Methadone Deaths: 2006 Update on Data Acquisition and Multiplex Genotyping CYP 450 2D6, 2C9, 2C19, 3A4, and 3A5 by Pyrosequencing", (In Process).

B. PROJECTS UNDER STUDY

1. "Delineation of atrial arterial blood supply" (with Gordon and Buerkel, Cardiac Medicine).

IV. Administrative Activities

A. DEPARTMENTAL

1. Director of Autopsy and Forensic Services

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. *American Journal of Forensic Sciences*

B. INVITED LECTURES/SEMINARS

1. "Bioterrorism Preparedness," Department of Defense MAST-WING, Fort Lee, Virginia, April 12-13.
2. CDC Workshop in "Sudden Unexpected Infant Deaths," Seattle, May 12-13.
3. "The American System of Death Investigation: Coroners, Medical Examiners and the Quest for Reasonable Medical Certainty," Presented at the Honorable Society of King's Inns, Dublin, Ireland, June 12, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. President, National Association of Medical Examiners

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS

1. **Jeffrey Jentzen**, Death Investigation in America: Medical Examiners, Coroners and the Quest for Reasonable Medical Certainty. (Cambridge: Harvard University Press, 2009) (in press).

Xin Jing, M.D.

Clinical Lecturer

I. Clinical Activities

A. Covering cytology service - 33 weeks

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Bi-weekly cytopathology conference for residents
2. Weekly microscopic conference for Cytopathology fellows and faculty
3. Daily cytopathology consensus conference
4. Monthly cytopathology journal club
5. Monthly cytopathology research conference

B. OTHER

1. Monthly cytopathology conference sessions with the cytotechnologists

III. Research Activities

A. SPONSORED SUPPORT – None

B. PROJECTS UNDER STUDY

1. Cytological evaluation of false positive cases of papillary thyroid carcinoma on fine needle aspiration.
2. Benign conditions in Body Fluid Cytopathology sponsored by PSC.
3. Fine needle aspiration of Porocarcinoma.
4. Combined Fine Needle Aspiration and Brushing Cytology Has Improved Yields in Diagnosing Pancreatic Tumor.
5. The current status of biomarkers detected in FNA samples for the diagnosis of malignant thyroid neoplasm.

IV. Administrative Activities – None

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. The clinical and diagnostic impact of using standard criteria of adequacy assessment and diagnostic terminology for FNA diagnosis of thyroid nodules.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. United States and Canadian Academy of Pathology
2. College of American Pathologists
3. Papanicolaou Society of Cytopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Jing X** , Michael CM, Pu RT. The clinical and diagnostic impact of using standard criteria of adequacy assessment and diagnostic terminology for FNA diagnosis of thyroid nodules. *Diagn Cytopathol.* 2008; 36:161-6.
2. **Jing, X** , Pu, RT. Fine needle aspiration cytological features of Cherubism. Diagnostic Cytopathology. *Diagn Cytopathol.* 2008; 36:188-9.
3. **Jing, X** , McHugh JB, Pu, RT. Fine-needle aspiration cytology of Rosai-Dorfman disease of bone. *Diagn Cytopathol.* 2008; 36:516-8.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **Jing X,** Pang Y, Michael CW, Pu RT. Cytological Evaluation of False Positive (FP) Cases of Papillary Thyroid Carcinoma (PTC) on Fine Needle Aspiration (FNA). USCAP Annual Meeting Abstract. 2008. Accepted.
2. Li H, **Jing X**, Pu RT. Combined Fine Needle Aspiration and Brushing Cytology Has Improved Yields in Diagnosing Pancreatic Tumor. ASC's 56th Annual Scientific Meeting. 2008. Accepted.

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Kent J. Johnson, M.D.

Professor of Pathology

I. Clinical Activities

A. Renal Pathology

B. Director, Morphology Core

C. Autopsy coverage

II. Teaching Activities

A. MEDICAL STUDENTS

1. Laboratory Instructor-Second year Pathology Course

B. LECTURES

1. Lecturer Genitourinary Pathology - Second Year Pathology Course
2. Lectures on Renal Pathology - Nephrology Fellows
3. Lectures on Renal and Skin Immunopathology - Pathology Residents
4. Lectures on Genitourinary Pathology - Dental Pathology Course
5. Pathophysiology of Renal Disease-Schering Plough Biopharma
6. Pathology of Renal Disease-Roche Bioscience

C. OTHER

1. Transplant Renal Pathology Conference - quarterly
2. Transplant Surgeons and Nephrologists

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, PI, Core C, "Inflammatory Cells and Lung Injury", 02/1/2005 - 01/31/2010, $299,985 annual.
2. Pfizer, Inc., PI "Studies on Biomarkers of Animal and Human Vasculitis", 7/01/2003 - 12/31/2006, $160,149 annual.

3. Pfizer, Inc., PI "Development of Human and Mouse Microarrays", 1/15/2006 - 1/15/2008, $534,040.
4. Pfizer, Inc., PI "Application of Protein Expression Technologies to Identify Biomarkers of Disease", 1/15/2006 - 1/15/2008, $592,500.
5. DNAX, Inc., PI "Biological Samples from Patients with Cancer or Inflammatory Diseases", 1/25/2006 -12/31/2009, $133,267.
6. NIH, Kruetzler, PI, Co-Investigator, "Genetic Analysis of Glomerulonephritis".
7. NIH, Wiggins, PI, Co-Investigator, "George R. O'Brien Renal Center".

B. PENDING PROJECTS
1. NIH, Co-Investigator, "Mechanisms of MMP Involvement in Acute Lung Injury".

C. PROJECTS UNDER STUDY
1. Proteomic studies in biofluids of patients with inflammatory diseases.
2. Oxidant and protease interaction in inflammation.
3. Pathogenesis of vasculitis.
4. Pathogenesis of viral pneumonitis.
5. Pathogenesis of pancreatitis and pancreatitis induced ARDS.
6. Adhesion molecules and cytokines in inflammation.
7. Cyclosporin-induced nephrotoxicity.
8. Role of heme oxygenase in renal injury.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Immunopathology Fellowship Program
2. Director, Morphology Core
3. Renal Pathology Conference - Biweekly
4. Space Utilization Committee
5. Stobbe Funds Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Associate Editor - *Laboratory Investigation*
2. Reviewer for the following journals
   a. *American Journal of Pathology*
   b. *American Review of Respiratory Diseases*
   c. *American Journal of Respiratory Cell and Molecular Biology*
3. Consultant/Grant reviewer for the Veteran's Administration
4. NIH NHLBI Ad Hoc Study Section

B. INVITED LECTURES/SEMINARS
   1. Invited Speaker, “Biomarkers of Vasculitis”, Pfizer Research and Development, Groton, CT, July 2007.
   2. Invited Speaker, “Antibody Arrays for Biomarker Analysis”, Schering Plough Biopharma, Palo Alto, CA, October 2007.
   3. Invited Speaker, “Pathogenesis of Glomerulonephritis”, Roche Bioscience, Palo Alto, CA, February 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. College of American Pathology
   2. American Society for Investigative Pathology
   3. American Association of Immunologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Williams, AR, Wiggins RC, Wharram BL, Goyal M, Dou C, **Johnson KJ,** Miller DL: Nephron injury induced by diagnostic ultrasound imaging at high mechanical index with gas body contrast agent. *Ultrasound Med Biol*. 2007:33(8):1836-44.
   2. Olle, EW, Deogracias, MP, Messamore, JE, McClintock, SD, Barron, AG, Anderson, TD, **Johnson, KJ**: Screening of serum samples from Wegener's granulomatosis patients using antibody microarrays. *Proteomics*, 2007: 1:1212-20.
   3. Warner, RL., Bhagavathula, N., Nerusu, K., Hanosh, A., McClintock, SD., Naik, MK., **Johnson, KJ.**, Varani, J.: MDI 301 a non-irritating retinoid improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen*. 2008:16:117-24.
   4. Sawalha, AH., Jeffries, M., Webb, R., Lu, Q., Gorelik, G., Ray, D., Osban, J., Knowlton, N., **Johnson, KJ.**, Richardson, B.: Defective T-cell ERK signaling induces interferon-regulated gene expression and overexpression of methylation sensitive genes similar to lupus patients. *Genes and Immunity*. 2008; 9:368-78.
   5. Williams, JA., Andersson, T., Andersson, TB., Blanchard, R., Behm, MO., Cohen, N., Edeki, Tlk Franc, M., Hillgren, KM., **Johnson, KJ.**, Kata, DA, Milton, Mn., Jurray, BP., Polli, JW., Ricci, D., Shipley, LA., Vangala, S., Wrighton, SA: PhRMA white paper on ADME pharmacogenomics. *J. Clin Pharmacol*. 2008: June 4th.
   6. Paola, B, Tredici, S, Seetharamaiah, R, Brant, DO, Hewell, LA, **Johnson, KJ**, Bull, JL, Costantino, ML, Hirschl, RB: Effect of repeated induced airway collapse during total liquid ventilation. *ASAIO Journal* Accepted.
   7. Warner, RL, Bhagavathula, N, Nerusu, K, Hanosh, A, McClintock, SD, Naik, MK, **Johnson, KJ**, Varani, J: MDI 301, a non-irritating retinoid, improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen* Accepted.
   8. Hard, GC, **Johnson, KJ**, Cohen, SM. A comparison of rat chronic progressive nephropathy (CPN) with human renal disease. Implications for human risk

assessment. *Critical Reviews in Toxicology*. Accepted.

B. BOOKS/CHAPTERS IN BOOKS

1. Ward, PA., **Johnson, KJ.**: Integrating academic laboratories into pharmaceutical development. In: *Biomarkers in Drug Development. A Handbook of Practice, Application and Strategy*. Rahbari, R., Jurima-Romet, M., Carini, C., Bleavins, M. (eds.). John Wiley and Sons, 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Amr, H., Sawalha, MD., **Johnson, KJ.**: Defective T-cell ERK signaling induces interferon-regulated gene expression and overexpression of methylation sensitive genes similar to lupus patients. *Clinical Immunology Conference*. 2008.
2. Cibrik, DM., Warner, RL., Bickel, D., **Johnson, KJ.**: Antibody microarray of renal transplant patients. *American Transplant Congress*. 2008.
3. Bickel, D., Warner, RL., Johnson, KJ.: Antibody microarray longevity study: How long-terms storage affects the dynamic range of printed slides. *Faseb J.* 2008:22:898.8.
4. Warner, RL., Bhagavathula, N., Hanosh, A., McClintock, SD., Naik, MK., **Johnson, KJ.**, Varani, J.: MDI 301, a non-irritating retinoid improves abrasion wound healing in both aged and diabetic skin. *Faseb J.* 2008:22:1121.3.
5. McClintock, SD., Barron, A., Warner, RL., **Johnson, KJ**: Murine model of occupational injury induced by chronic exposure to oak dust. *Faseb J.* 2008.22:710.10.
6. Barron, A., Warner, RL., Bhagavathula, N., **Johnson, KJ**., Varani, J.: Determination of rodent tropoelastin in the skin by competitive ELISA. *Faseb J.* 2008:22:1121.4.

Walter John Judd, FIBMS, MIBIOL

Professor Emeritus of Pathology

I. Clinical Activities

A. Director, Blood Bank Reference Laboratory (July-August, 2007)
B. On retirement furlough (September 2007-June 2008)

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Introduction to the Transfusion Service - Monthly lectures to M4 students (July-August, 2007).

B. HOUSE OFFICERS AND FELLOWS
   1. Program Director: Management Lecture Series for Pathology Residents.
   2. Coordinator, Core-Lecture Series in Transfusion Medicine for 1st-year Pathology House Officers (July-August, 2007).

III. Research Activities – None

IV. Administrative Activities – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Member, Editorial Board, Transfusion
   2. Member, Editorial Board, Immunohematology

B. INVITED LECTURES/SEMINARS
   1. The top 10 ways to mess up an antibody identification. Michigan Association of Blood Banks, Livonia, September 2007.
   2. American Society of Clinical Pathology, One-Day Blood Bank Workshop: Efficient Blood Bank Testing, Phoenix, AZ. October, 2007.
   3. Blood Bank Day: Half-Day Workshop on Blood Group Serology, Toronto, November 2007.

4. Why we do what we do: serologic testing. 7th International Congress of the Saudi Arabian Society of Hematology, Riyadh, Kingdom of Saudi Arabia, May 2008.
5. I've got clumps: now what? 7th International Congress of the Saudi Arabian Society of Hematology, Riyadh, Kingdom of Saudi Arabia, May 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Michigan Association of Blood Banks
2. American Association of Blood Banks

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Denomme GA, Dake LR, Vilensky D, Ramyar L, **Judd WJ**. Rh discrepancies caused by variable reactivity of partial and weak D types with different serologic techniques. *Transfusion* 2008;48:473-8.

B. BOOKS/CHAPTERS IN BOOKS
1. **Judd WJ**, Johnson S, Storry JR. *Judd's Methods in Immunohematology*, ed 3. AABB: In press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Dake LR, Howard JK, Cooling L. **Judd WJ**. Validation of the human erythrocyte antigen (HEA) Beadchip after implementation of the Web-based (WHEA v1.1 beta) kit. *Transfusion* 2007; 47(S):171.
2. Cooling LW, Sitwala K, Dake LR, **Judd WJ**, Davenport R. ABO typing discrepancies in children requiring long-term nutritional support: it is the gut after all! *Transfusion* 2007; 47(S):10.
3. Cooling LW, Thomas R, Mullis N, Shayman JA, **Judd WJ**. A LKE-negative phenotype due to a weak P phenotype. *Transfusion* 2007;47(S):146.
4. Downs T, Dake LR, Butch S, Kreiner E, Bensette M, **Judd WJ**. Validation results with reformulated Ortho 0.8% Selectogen reagent red blood cells for gel column use. *Transfusion* 2007; 47(S):175.

Paul D. Killen, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. Chief Renal Consultant

B. Director, Electron Microscopy Service

C. Diagnostic Renal Biopsy Service - 227 days on service

D. Immunopathology Service - 21 days on service

E. Endomyocardial Biopsy Service - 31 days on service

F. Autopsy Service - 15 days on call

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 Renal Sequence Co-coordinator - 60 non-contact hours
2. M2 Renal Sequence Lecturer - 10 contact hours/10 non-contact hours
3. M2 Renal Sequence Lab - 12 contact hours/6 non-contact hours

B. HOUSE OFFICERS AND FELLOWS

1. Autopsy Supervision and sign-out - 30 hours
2. Case Review - Autopsy Service and GU Service, 8 hours
3. Medical Renal Pathology Resident Rotation - 120 hours
4. Nephrology Board Review - 8 hours
5. Case Review with Nephrology Fellows - 8 hours

C. OTHER

1. Nephrology Basic/Clinical Conference - 16 hours

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH, P50-DK39225, Core Director, Morphology Core (5% effort), “Biology of the Glomerular Podocyte”, 07/01/2003 - 06/30/2008, $129,949 annual.

B. PROJECTS UNDER STUDY
   1. Glomerular podocyte reaction to injury.
   2. Predictors of renal progression.
   3. Transcriptome analysis in archival renal biopsy specimens.
   4. PPAR-α agonists in murine models of systemic lupus erythematosus.

IV. Administrative Activities

A. DEPARTMENTAL
   1. AP-Operations Committee

B. INSTITUTIONAL
   1. IRBMED A1 Committee
   2. Component II Curriculum Development, M2 Urinary System

V. Other Relevant Activities – None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Monrad SU, **Killen PD**, Anderson M, Bradke A, Kaplan MJ. Role of Aldosterone Blockade in Murine Lupus Nephritis. *Arthritis Research and Therapy,* in press, 2008.

Celina G. Kleer, M.D.

Harold A. Oberman Collegiate Professor of Pathology
Associate Professor of Pathology

I. Clinical Activities

A. Sign out sessions - 8 weeks
   1. This session involves signing out in-house and transfer cases from other institutions and teaching residents and fellows.

B. Breast pathology consult cases, approximately 5-6 hours per week

C. Review of in-house and transfer breast cancer cases to be presented in the weekly Breast Care Multidisciplinary Conference -16 weeks/year

D. Surgical Pathology call - 2 weeks

II. Teaching Activities

A. GRADUATE STUDENTS
   1. Anchi Lo, Graduate Student at School of Public Health, University of Michigan
   2. Sharon Hensley-Alford, Graduate Student at School of Public Health, University of Michigan
   3. Heather Krueger, Cellular and Molecular Biology (CMB) program student, University of Michigan

B. HOUSE OFFICERS AND FELLOWS
   1. Maria Braman, M.D., Breast Pathology Fellow
   2. Breast pathology diagnostic room instruction for house officers and Surgical Pathology fellows 8 weeks.
   3. Slide seminar on interesting cases in breast pathology 1 contact hour
   4. One didactic lecture on breast pathology 1 contact hour
   5. Wei Huang, M.D., Ph.D, Post-Doctoral Fellow
   6. Anupama Pal, Ph.D., Post-Doctoral Fellow

C. OTHER

1. Matthew DuPrie, Undergraduate Research Opportunity Student, University of Michigan

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NCI, K08CA090876-01A2, Kleer, "Role of LIBC (WISP3) in the Development of the Inflammatory Breast Cancer Phenotype", 9/30/2003 - 1/31/2008.
   The objective of this study is to investigate the role of WISP3 in the angiogenic switch, growth and invasion of inflammatory breast cancer.
2. NIH/NCI, RO1 CA107469, Kleer, "Role of EZH2 in Breast Cancer Progression", 2/01/2005 -1/31/2010.
   The objective of this study is to investigate the role of EZH2 in the development and progression of breast cancer.
3. Avon Foundation, N008211, Dontu; Kleer, Co-Investigator, “Changes Induced by Parity in the Stem/Progenitor Cell Population of the Normal Human Breast”, 11/01/2006 -10/31/2008.
   The objective of this study is to compare the size and functionality of the stem cell populations isolated from the breast mammary epithelium of nulliparous and parous women in order to assess possible correlations with different risks of breast cancer development.
4. Avon Foundation, N009672, Kleer, "Enhancer of Zeste 2 as a Biomarker of Preneoplastic Progression in the breast", 01/01/2008 - 12/31/2010.
   The objective of this study is to determine the clinical utility of EZH2 in the detection of precancerous epithelial changes in the breast which may improve risk assessment and lead to novel preventative strategies.
5. NIH/NCI, R01CA125577, Kleer, "Role of CCN6 (WISP3) in the Progression and Metastasis of Breast Cancer", 09/01/2008 - 07/31/2013.
   The objective of this study is to investigate the role of CCN6 in the process of epithelial to mesenchymal transition in breast cancer, study its effect on breast cancer metastasis, and its utility as a biomarker of breast cancer progression.
6. Cancer Biology Training Program, University of Michigan Post-doctoral fellowship grant to Anupama Pal, Kleer, mentor, "Understanding CCN6 (WISP3)'s function as a determinant of breast cancer metastasis", 07/01/2008 -12/31/2009. The objective of this study is to study the role of CCN6 in invasion and metastasis of breast cancer using three dimensional culture models and by developing a conditional CCN6 knock out mouse model.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Breast Pathology Program and Fellowship

B. INSTITUTIONAL

1. Member, Breast Care Center Task Force
2. Member and Director of the Breast Tissue Bank, Breast Oncology Program
3. Member, Medical School Admissions Committee
4. Member, Cancer Research Committee, Comprehensive Cancer Center
5. Member, Cellular and Molecular Pathology Graduate Program
6. Member, Cellular and Molecular Biology (CMB) Graduate Program

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member of the Michigan Cancer Consortium Breast Cancer Advisory Committee, Michigan
2. Member of the Breast Cancer Panel on the CAP (College of American Pathologists) Cancer Committee
3. Member of the Education Committee of the USCAP (United States and Canadian Academy of Pathology)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board, *Human Pathology*
2. Reviewer
   a) *Breast Cancer Research*
   b) *Breast Cancer Research and Treatment*
   c) *Cancer Research*
   d) *Modern Pathology*
   e) *Neoplasia*
   f) *Experimental Cell Research*
3. Grant Reviewer, Department of Defense Breast Cancer Research Program, Cell Biology Study Section
4. Ad hoc reviewer
   a) NIH, National Institute of General Medical Sciences, Minority Biomedical Research Excellence Program (MBRS)
   b) NCI/NIH, Tumor Progression and Metastasis (TPM) Study Section
   c) NIH Tumor Cell Biology Study Section (TCB)
   d) NIH Cancer Diagnostics and Treatments SBIR/STTR, Council ZRG1 Onc-L
   e) NIH Molecular Pathways in Cancer, ZRG1ONC-X (03) M
5. Permanent member, NIH Tumor Progression and Metastasis Study Section (TMP)
6. Abstract Reviewer, Society for Molecular Imaging and United States and Canadian Academy of Pathology (IAP-USCAP).
7. Moderator, Breast Pathology Session, United States and Canadian Academy of Pathology Annual Meeting.

B. INVITED LECTURES/SEMINARS

1. "The Pathology and Biology of Metaplastic Carcinomas of the Breast" Frontiers in Surgical Pathology, University of Michigan, Ann Arbor, September 2007.
2. "A novel role for CCN6 (WISP3) in Breast Cancer" Pathology Research Seminar Series, Department of Pathology, University of Michigan, Ann Arbor, December 2007.
3. "EZH2 as a Breast Cancer Biomarker and a Cell Cycle Regulator" Breast Oncology Program retreat, University of Michigan, Ann Arbor, April 11, 2008.
4. "Inflammatory Breast Cancer: Genetic alterations and Novel Tissue Biomarkers" CCNE Distinguished Lectureship at the "Frontiers of Cancer Nanotechnology Seminar Series" at Emory University and the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech University, May 2nd, 2008.
5. "WISP3 and RhoC as Determinants of Inflammatory Breast Cancer and as a Novel Tissue Biomarkers", Invited speaker at the Department of Cell & Developmental Biology Seminar Series, Biomedical Sciences Research Building, University of Michigan, May 28, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology
2. American Association of Clinical Pathologists
3. American Medical Association
4. College of American Pathologists
5. A. James French Society of Pathologists
6. American Association for Cancer Research
7. CCN Proteins Society
8. Southwest Oncology Group (SWOG)
9. American Society for Investigative Pathology
10. American Society for Clinical Oncology

D. HONORS AND AWARDS
1. Harold Oberman Collegiate Professor of Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Kunju L, and **Kleer CG.** Significance of Flat Epithelial Atypia on Mammotome Core Needle Biopsy: Should it be Excised? *Hum Pathol*. 38(1):35-41, 2007.
2. Maturen, K.E., Paramagul, C.P., Roubidoux, M.A., **Kleer, C.G.**, Weadock W.J., Abate, S.A. Interactive Computer Teaching Module for Radiologic-Pathologic Correlations in Breast Imaging. *MedEdPORTAL*, In press.
3. Ostrander J.H., Daniel A.R., Lofgren K, **Kleer CG** and Lange CA. Breast Tumor Kinase (Brk/PTK6) Regulates Heregulin-Induced Activation of Erk5 and p38 MAP Kinases in Breast Cancer Cells. *Cancer Research* 67(9):4199-209, 2007.

4. Newman EA, Sabel MS, Nees AV, Schott A, Diehl KM, Cimmino VM, Chang AE, **Kleer CG**, Hayes DF, Newman LA. Sentinel lymph node biopsy performed after neoadjuvant chemotherapy is accurate in patients with documented node-positive breast cancer at presentation. *Ann Surg Oncol.* 14 (10): 2946-52, 2007.
5. **Kleer CG**, Zhang Y, Merajver SD. CCN6 (WISP3) as a New Regulator of the Epithelial Phenotype in Breast Cancer. *Cells Tissues Organs*. 185:95 - 99, 2007.
6. Privette LM, Gonzalez ME, Ding L, **Kleer CG** and Petty EM. Altered Expression of the Early Mitotic Checkpoint Gene, CHFR, in Breast Cancers: Implications for Tumor Suppression. *Cancer Research*, 67: 6064-74, 2007.
7. McHugh JB, Fullen DR, Ma L, **Kleer CG**, Su LD. Expression of polycomb group protein EZH2 in nevi and melanoma. *Journal of Cutaneous Pathology* 34(8):597-600, 2007.
8. Glaros S, Cirrincione GM, Muchardt C, **Kleer CG**, Michael CW, Reisman D. The reversible epigenetic silencing of BRM: implications for clinical targeted therapy. *Oncogene* 26(49): 7058-66, 2007.
9. Zakaria S, Degnim AC, **Kleer CG**, Diehl KA, Cimmino VM, Chang AE, Newman LA, Sabel MS. Sentinel lymph node biopsy for breast cancer: How many nodes are enough? *J Surg Oncol*, 96(7): 554-9, 2007.
10. Miao Z, Luker KE, Summers BC, Berahovich R, Bhojani MS, Rehemtulla A, **Kleer CG**, Essner JJ, Nasevicius A., Luker GD, Howard MC, Schall TJ. CXCR7 (RDC1) promotes breast and lung tumor growth in vivo and is expressed on tumor-associated vasculature. *Proc Natl Acad Sci U S A* 104(40):15735-40, 2007.
11. Ginestier C, Hur MH, Charafe-Jauffret E., Monville F, Dutcher J, Brown M, Jacquemier J, Viens P, **Kleer CG**, Liu S, Schott A, Hayes DF, Birnbaum D, Wicha MS, Dontu G. ALDH1 Is a Marker of Normal and Malignant Human Mammary Stem Cells and a Predictor of Poor Clinical Outcome. *Cell Stem Cell* 1: 555-567, 2007.
12. **Kleer CG** *, Lo AC*, Banerjee M, Omar S, Khaled H., Eissa S, Hablas A, Douglas JA, Alford SH, Merajver SD, Soliman AS. Molecular epidemiologic features of inflammatory breast cancer: a comparison between Egyptian and US patients. *Breast Cancer Res Treat*. In press.
13. Liu S., Ginestier C, Charafe-Jauffret E, Foco H, **Kleer CG**, Merajver SD, Dontu G, Wicha MS. BRCA1 regulates human mammary stem/progenitor cell fate. *Proc Natl Acad Sci U S A* 105(5): 1680-5, 2008.
14. Huang W, Zhang Y, Varambally S, Chinnaiyan AM, Banerjee M, Merajver SD, and **Kleer CG**. Inhibition of CCN6 (WISP3) down-regulates E-cadherin in the breast epithelium through induction of Snail and ZEB1. *American Journal of Pathology* 172:893-904, 2008.
15. Hayes, MJ*, Thomas, D*, Emmons A, Giordano TJ, and **Kleer, CG**. Genetic Changes of Wnt Pathway Genes are Common Events in Metaplastic Carcinomas of the Breast. *Clinical Cancer Research*, 14: 4038-44, 2008.
16. **Kleer CG** *, Bloushtain-Qimron N*, Chen Y-H, Carrasco D, Hu M, Yao J, Kraeft S, Collins LC, Sabel MS, Argani P, Gelman R, Schnitt SJ, Krop IE, Polyak K. Epithelial

and stromal cathepsin K and CXCL14 expression in breast tumor progression. *Clinical Cancer Research*, In press.

17. Kunju LP, Ding Y, and **Kleer CG**. Tubular carcinoma and grade 1 (well-differentiated) invasive ductal carcinoma: Comparison of flat epithelial atypia and other intra-epithelial lesions. *Pathology International*, In press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Kleer, C.G.** Polycomb Group Proteins. *Encyclopedia of Cancer*, Second Edition 2007. Editor: Manfred Schwab. Springer-Verlag, Germany.

Chandan Kumar, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities – None

III. Research Activities – None

IV. Administrative Activities – None

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. Attendee, Advances in Genome Biology and Technology (AGBT), Marco Island, FL, Feb 5-10, 2008.
2. Field Trip to Helicos Biosciences, Boston, March12-14, 2008.
3. Field Trip to Illumina (Solexa), Hayward, and Applied Biosciences (AB-SOLiD), Foster City, CA, April 20-24, 2008.
4. Field Trip to Roche 454, Branford, CT, May 18-21, 2008.
5. Lecture on "Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets" at Roche 454, Branford, CT, May 19, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Han B, Mehra R, Dhanasekaran SM, Yu J, Menon A, Lonigro RJ, Wang X, Gong Y, Wang L, Shanker S, Laxman B, Shah RB, Varambally S, Palanisamy N, Tomlins SA, **Kumar-Sinha C**# and Chinnaiyan AM#. A FISH screen for ETS aberrations: Identification of DDX5-ETV4 fusion protein in prostate cancer. *Cancer Res* 2008, accepted for publication

2. **Kumar-Sinha C** , Tomlins SA, Chinnaiyan AM. Recurrent gene fusions in prostate cancer. *Nat Rev Cancer* 2008 Jul;8(7):497-511. Epub 2008 Jun 19.
3. Travasso CM, Anand M, Samarth M, Deshpande A, **Kumar-Sinha C*.** Human papillomavirus genotyping by multiplex pyrosequencing in cervical cancer patients from India. *J Biosci.* 2008 Mar;33(1):73-80.
4. Kim JH, Dhanasekaran SM, Mehra R, Tomlins SA, Gu W, Yu J, **Kumar-Sinha C**, Cao X, Dash A, Wang L, Ghosh D, Shedden K, Montie JE, Rubin MA, Pienta KJ, Shah RB, Chinnaiyan AM. Integrative analysis of genomic aberrations associated with prostate cancer progression. *Cancer Res.* 2007 Sep 1;67(17):8229-39.

#: Shared Senior Author
*: Corresponding Author

Lakshmi P. Kunju, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. General Surgical pathology (Room 1) - 4weeks

B. Genito-Urinary Pathology (GU room)
1. Diagnostic Service - 14 weeks
2. Consultation Service - 14 weeks
3. Review of Urology cases to be presented at Multidisciplinary Tumor Conference, (every other conference, biweekly)

C. Breast Pathology Diagnostic Service (BE room) - 4 weeks

D. Intra-operative consultation (on-call) - 4 weeks

E. E. CVC Frozen section Consultation - 3-5 days/month (Nov- June)

II. Teaching Activities

A. MEDICAL STUDENTS
1. M1 Histopathology Sequence, Laboratory Instructor - 22 contact hours
2. M-2 GU Pathology Lab Sequence, Laboratory Instructor, - 4 contact hours
3. Senior Elective in Pathology: Supervising during diagnostic sign-out.

B. DENTAL STUDENTS
1. Didactic full class lecture "Pathology of Male Reproductive System" (328), IMS III, School of Dentistry -1 contact hour

C. HOUSE OFFICERS AND FELLOWS
1. General Surgical, Breast and GU Pathology Diagnostic Room Instruction for HO & Fellows - 22 weeks
2. GU Path Slide (Consult) Conferences: Two conferences - 1 hour each

3. GU Path Fellow: TS and Consult cases Teaching - 14 weeks
4. Didactic Lecture on Relevant Immunohistochemistry in Genito-urinary Pathology: One lectures - 1 hour

D. OTHER
1. Multidisciplinary Urology Tumor Conference - 1 hour, weekly

III. Research Activities

A. PROJECTS UNDER STUDY
1. Relationship between prostate weight and minute prostate cancer on extended needle biopsy.
2. Study of new markers for urothelial carcinoma using progression and outcome based tissue microarrays: cdc25 and actinin.
3. Analysis of PGDH in urothelial carcinomas.
4. Analysis of triple negative breast carcinoma.
5. Breast carcinoma with neoadjuvant chemotherapy- Can Wnt pathway get activated in residual cells?

IV. Administrative Activities

A. DEPARTMENTAL
1. Faculty Candidate Interviews
2. Surgical Pathology Fellow Candidate Interviews
3. GU Path Fellow candidate interviews
4. Pathology Residency Program Candidate Interviews
5. Histology Committee, member
6. Review of Frozen Section Concordance, Quality Assurance for Histology Committee Weekly Dashboard
7. Lean Accession Re-design Committee(LARC)

B. INSTITUTIONAL
1. Medical School Admission Committee Member

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc manuscript reviewer, *Human Pathology*

B. INVITED LECTURES/SEMINARS
1. Beta- Catenin is Activated in Residual Breast Carcinoma after Neo-adjuvant Chemotherapy. **LP Kunju**, M Banerjee, M Hayes and CG Kleer. Podium presentation at 97th USCAP Meeting, Denver, CO 2008
2. Experience with OncotypeDX at a Single Institution: Correlation with Histologic Tumor Features. **LP Kunju**, CL Cookingham, M Banerjee, CG Kleer and DW

Visscher. Poster presentation at 97th United States and Canadian Academy of Pathology Meeting, Denver, CO, Mar 2008.

3. Should Multiple Cores with Prostate Cancer Submitted in the Same Container Be Assigned Individual Gleason Scores? **LP Kunju**, S Daignault, JT Wei and RB Shah. Poster presentation at 97th United States and Canadian Academy of Pathology Meeting, Denver, CO, Mar 2008.
4. Papillary Renal Cell Carcinoma, **LP Kunju,** New Frontiers in Diagnostic Pathology (French Soc Meeting). 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Urologic Association (AUA)
2. United States and Canadian Academy of Pathology (USCAP)
3. American Society of Clinical Pathology (ASCP)
4. American Medical Association (AMA)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. M Wasco, T Braun, **LP Kunju**, C Lee and RB Shah. Urothelial Carcinoma with Divergent Histological Differentiation (Mixed Histology) Predicts the Presence of Locally Advanced Bladder Cancer when Detected at Transurethral Resection. *Urology*, July 2007; 70(1):69-74.
2. N Bakshi , **LP Kunju**, T Giordano and RB Shah. Expression of Renal Cell Carcinoma Antigen (RCC) in Renal Epithelial and Nonrenal Tumors: Diagnostic Implications. Appl Immunohistochemistry *Mol Morph,* Sep 2007,15:310-315.
3. **LP Kunju**, K Wojno, S Wolf, L Cheng and RB Shah. Papillary Renal Cell Carcinoma with Oncocytic Cells and Non-Overlapping Low Grade Nuclei: Expanding the Morphologic Spectrum with Emphasis on Clinicopathologic, Immunohistochemical and Molecular Features. Hum Pathology*,* Jan 2008: 39(1): 96-101.
4. C Przybycin, **LP Kunju**, A Wu and RB Shah. Partial Atrophy in Prostate Needle Biopsies: A Detailed Analysis of its Morphology, Immunophenotype and Cellular Kinetics. *Am J Surg Pathol*, Jan 2008: 32(1):58-64.
5. **LP Kunju,** L You, Y Zhang, S Daignault, JE Montie and CT Lee. A Comparison of Lymphovascular Invasion in Urothelial Cancer in Matched TURBT and Radical Cystectomy Specimens. *J Urol* Accepted May 2008.
6. **LP Kunju**, Y Ding and CG Kleer. Tubular Carcinoma and Grade 1 (Well Differentiated) Invasive Ductal Carcinoma: Comparison of Associated Flat Epithelial Atypia and Other Intra-Epithelial Lesions. *Pathology International*, Accepted May 2008.
7. **LP Kunju,** S Daignault, JT Wei and RB Shah. Multiple Cores with Prostate Cancer with Different Gleason Grades Submitted in the Same Specimen Container: Should

Each Core be Assigned an Individual Gleason Score? *Hum Pathology,* Accepted May 2008.

8. A Wu, **LP. Kunju**, L Cheng, RB Shah. Renal Cell Carcinoma in Children and Young Adults: Analysis of Clinicopathologic, Immunohistochemical and Molecular Characteristics with an Emphasis on the Spectrum of Xp11.2 Translocation Associated and Unusual Clear Cell Subtypes. *Histopathology* Accepted May 2008.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **LP Kunju**, M Banerjee, M Hayes and CG Kleer.Beta- Catenin is Activated in Residual Breast Carcinoma after Neo-adjuvant Chemotherapy. *Mod Pathol* 2008:21(1): 42A (180).
2. **LP Kunju**, CL Cookingham, M Banerjee, CG Kleer and DW Visscher. Experience with OncotypeDX at a Single Institution: Correlation with Histologic Tumor Features. *Mod Pathol* 2008:21(1): 42A (181).
3. **LP Kunju**, S Daignault, JT Wei and RB Shah. Should Multiple Cores with Prostate Cancer Submitted in the Same Container Be Assigned Individual Gleason Scores? *Mod Pathol* 2008:21(1): 164A (746).
4. A Wu, S Daignault, M Wasco, **LP Kunju**, JT Wei, DP Wood and RB Shah. Correlation of Biopsy and Radical Prostatectomy Gleason Score in Contemporary Extended >12 Cores Biopsies Practice: improved Correlation with Biopsy worst Gleason Score. *Mod Pathol* 2008:21(1): 190A (869).

Steven L. Kunkel, Ph.D.

Endowed Professor of Pathology Research
Co-Director of Sponsored Research
Senior Associate Dean for Research

I. Clinical Activities – None

II. Teaching Activities

A. MEDICAL STUDENTS
1. MSTP Program (interviewing)

B. GRADUATE STUDENTS
1. Haitao Wen
2. Thesis Committees
   a. Ben Murdock (Immunology)
   b. Haitao Wen (Pathology)
   c. Aasia Obaid (Dentistry)
   d. Andrea Waite (CMDB)
   e. Matt Hyman (CMB)
   f. Susan Faust (Immunology)
   g. Penghui Shou (Immunology)

C. HOUSE OFFICERS AND FELLOWS
1. Tracy Raymond
2. Matt Schaller
3. Ana Lucia Coelho
4. Amrita Joshi
5. Toshihiro Ito
6. Makoto Ishii
7. Karen Cavassani De Souza
8. Grand rounds: Pediatrics

D. UNDERGRADUATE STUDENTS
1. Shelby Lincoln
2. Pavel Godfrey
3. Ellen Walsh

4. Ally Knight
5. Dan Fong
6. Hannah Logue
7. Alec Dean

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, HL-31963, PI Program Project, “Inflammatory Cells and Lung Injury”, 12/1/2008 -11/30/2013, $250,000.
2. NIH, R33 HL092845, PI, “A Multi-scale and Multi-system Approach to Understand Granuloma Formation in TB”.
3. NIH, RO1 HL089216, PI, “Cytokine Phenotypes Alter the Host's Response During Chronic Lung Inflammation”.
4. NIH, T32 A1007413, PI, “Research Training in Experimental Immunology Training Grant”.

B. PENDING PROJECTS

1. NIH, HL-RO1-31237; PI, “Monokine Gene Expression/Regulation in Lung Injury”.
2. NIH, HL-RO1-35276; PI, “Macrophage/Monocyte Signals in Lung Granuloma Formation”, MERIT Grant (re-submitted).

C. PROJECTS UNDER STUDY

1. Role of cytokines in acute and chronic inflammation.
2. Regulation of chemokine gene expression.
3. Macrophage-lymphocyte interactions in the initiation, maintenance, and resolution of chronic inflammation.
4. Epigenetic regulation of cytokine gene expression.

IV. Administrative Activities

A. DEPARTMENTAL

1. Co-Director Division of Sponsored Research
2. Operating Committee Pathology Graduate Program
3. Interview candidates for Graduate Program
4. Member, Department of Pathology ACAPT committee
5. Medical School Selection Tuition Selection Committee
6. Director, Research Training in Experimental Immunology Training Program
7. Member, Lung Immunopathology Post-doctoral Training Program
8. Member, Hematology Training Grant

B. INSTITUTIONAL

1. Associate Dean for Interdisciplinary Programs, Rackham Graduate School
2. Director, Immunology Program (BSRB)

3. Member, Committee on Medical Student Research
4. Medical Scientist Training Program interviewer
5. Member, Research Council of the Office of the Vice President for Research
6. Member, Michigan Cancer Center
7. Grant reviewer, Biomedical Research Council
8. Member, Advisory Committee Cancer Center Animal Core
9. CMB Advisory Committee
10. Member, Medical School Space Committee
11. Member, Provost Promotion Committee
12. Senior Associate Dean for Research
13. Medical School Academic Advisor
14. Immunology Graduate Program
15. Operating Committee Graduate Program in Immunology
16. Member, Pulmonary Cellular and Molecular Biology Training Program
17. Member, Pediatric Training Grant "Cellular and Molecular Biology in Pediatrics"
18. Member, Systems and Integrative Biology Training Program (Physiology)
19. Member, Multidisciplinary Training Program in Lung Disease
20. Member MMP Microbiology Molecular mechanisms in Microbial Pathogenesis Training Program
21. Member, Graduate Teaching Award Review Committee

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Grant Reviewer, The Arthritis Society
2. Grant Reviewer, Veterans Administration
3. National Institutes of Health Study Section, ad hoc Program Project Review
4. Chair, Board of Scientific Counselors, NIAID, NIH
5. Scientific Advisory Board Committee 9th World Congress on Inflammation
6. INBRE; NIH Advisory Board

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Associate Editor, *Experimental and Molecular Pathology*
2. Associate Editor, *Shock*
3. Editorial Board, *Mediators of Inflammation*
4. Reviewer for the following journals
   a. *American Journal of Pathology*
   b. *American Review of Respiratory Disease*
   c. *Circulation, Infection and Immunity*
   d. *Laboratory Investigation*
   e. *Science*
   f. *Journal of Immunology*
   g. *American Journal of Respiratory Cell and Molecular Biology*

5. Review panel Genoma Espana

B. INVITED LECTURES/SEMINARS
   1. Invited Speaker, European Respiratory Society, Stockholm, Sweden, September 2007.
   2. Chair/Speaker, Association of University Pathologists, Cabo San Lucas, Mexico, March 2008.
   3. Session Chair, American Association of Immunology, San Diego, CA, April 2008.
   4. Invited Speaker, Inflammation and the host response to injury, Chicago, IL, June 2008.
   5. Invited Speaker, Toll-like receptors and Notch ligand in inflammation, Barcelona, Spain, June 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. President, Association of University Pathologists-Pluto Club; 2007-2008

D. HONORS AND AWARDS
   1. Senior Fellow, Michigan society of Fellows

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Wen, H, Hogaboam, CM, Lukacs, NW, Cook, DN, Lira, SA, **Kunkel, SL**. The chemokine receptor CCR6 is an important component of the innate immune response. *Eur J Immunol* 2007; 37:2487-2498.
   2. Raymond T, Schaller M, Hogaboam C, Lukacs NW, Rochford R, **Kunkel SL**. Toll Like Receptors, Notch ligands and Cytokines Drive the Chronicity of Lung Inflammation. *Proc Amer Thoracic Soc* 2007; 4:635-641.
   3. Coelho AL, Schaller MA, Benjamin CF, Hogaboam CM, Steven L. **Kunkel SL** The chemokine CCL6 promotes innate and adaptive immunity via immune cell activation and recruitment. *J Immunol* 2007; 179:5474-5482.
   4. Ito T, Schaller M. Standiford TJ, Hogaboam CM, Chensue SW, **Kunkel SL**. Toll-like receptor 9 participation in experimental Th type 1 Mycobacterium pulmonary granuloma formation. *Eur J Immuno*l 2007; 37:2847-2855.
   5. Henke PK, Varma MR, Moaveni DK, Dewyer NA, Moore AJ, Luch EM, Longo C, Deatrick CB, **Kunkel SL**, Upchurch GR, Wakefield TW. Fibrotic injury after experimental deep vein thrombosis is determined by the mechanism of thrombogenesis. *Thrombosis and Haemostasis*. 2007; 98:1045-1055.
   6. Schaller, MA, Neupane, R, Rudd, BD, **Kunkel SL**, Kallal, LE, Lincoln P, Lowe, JB, Man Y, Lukacs, NW. Notch ligand Delta-like 4 regulates disease pathogenesis during respiratory viral infections by modulating Th2 cytokines. *J Exp Med* 2007; 204:2925-2934.

7. Wen H, Schaller M, Dou Y, Hogaboam, CM, **Kunkel SL**. Dendritic cells at the interface of innate and acquired immunity: the role of epigenetic changes. *J Leuk Biol* 2008; 83:439-446.
8. Martin AP, Grisotto MG, Canasto-Chibuque C, **Kunkel SL**, Bromberg JS, Furtado GC, Lira SA. Islet expression of M3 uncovers a key role for chemokines in the development and recruitment of diabetogenic cells in NOD mice. *Diabetes.* 2008; 57:387-394.
9. Joshi AD, Raymond T, Coelho AL, **Kunkel SL,** Hogaboam CM. A systemic granulomatous response to Schistosoma mansoni eggs alters responsiveness of bone marrow-derived macrophages to toll-like receptor agonists. *J Leukoc Bio* 2008; 83:314-324.
10. Wen, H. Dou Y, Hogaboam CM, **Kunkel SL**. Epigenetic regulation of dendritic cell-derived interleukin-12 facilitates immunosuppression following a severe innate immune response. *Blood.* 2008; 111:1797-1804.
11. Trujillo, G, O'Connor, EC, **Kunkel, SL**, Hogaboam, C. A novel mechanism for CCR4 in the regulation of macrophage activation in bleomycin-induced fibrosis. *Am J Pathol* 2008; 172: 1209-1221.
12. Ishii M, Hogaboam CM, Joshi A, Ito T, Fong DJ, **Kunkel SL**. CC chemokine receptor 4 modulates Toll-like receptor 9-mediated innate immunity and signaling. *Eur J Immunol* (in press).

Andrew P. Lieberman, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Diagnostic surgical neuropathology, 10 weeks

B. Autopsy evaluation of brains submitted to the Michigan Alzheimer's Disease Research Center

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lecturer (2) and laboratory instructor, M2 Pathology, Neuroscience Sequence
2. Instructor, Pathology/Radiology elective for M4 students

B. GRADUATE STUDENTS
1. Full-time laboratory trainees
   a. Zhigang Yu, M.D. (postdoctoral fellow)
   b. Christopher Pacheco (thesis student)
   c. Adrienne Wang (thesis student)
   d. Matthew Elrick (thesis student)
   e. Ting Yu (thesis student)
2. Rotating graduate student
   a. Ting Yu, PIBS
   b. Matthew Elrick, Neuroscience Graduate Program
3. Post-baccalaureate student
   a. Meredith Sorenson
4. Postdoctoral fellow advisory committee
   a. Stacey Sakowski, Department of Neurology
5. Thesis committee member
   a. Mary Heng, Neuroscience Graduate Program
   b. Yunfang Man, Pathology Graduate Program
   c. Scott Tomlins, Pathology Graduate Program
   d. Brendan Crawford, Neuroscience Graduate Program

6. Preliminary examination committee member
   a. Lawrence Own, Neuroscience Graduate Program
   b. Elizabeth Gibbs, Neuroscience Graduate Program
7. Teaching in Graduate School courses
   a. Lecturer and laboratory instructor, "Neuropathology", Pathology 581
   b. Faculty evaluator of student presentations, CMB 850
8. Membership in graduate programs
   a. Molecular and Cellular Pathology
   b. Neuroscience
   c. Cellular and Molecular Biology

C. HOUSE OFFICERS AND FELLOWS
1. Slide conferences (2) on neurodegenerative disease, pathology house officers
2. Course director and instructor, Introduction to Neuropathology, Pathology 858

III. Research Activities

A. SPONSORED SUPPORT
1. NIH and American Federation for Aging Research, Paul Beeson Career Development Award in Aging Research, K08 AG024758, PI (75% effort), "Modifiers of polyglutamine toxicity", 8/1/2004 - 5/31/2007, no cost extension until 8/31/2007, $200,000/yr ($600,000/3 yrs).
2. NIH, R01 NS055746, PI (30% effort), "Mechanisms of motor neuron toxicity in Kennedy disease", 3/1/2007 - 1/31/2012, $196,875/yr ($1,071,875/5 yrs).
3. NIH, R03 NS057150, PI (5% effort), "A conditional null mutant of the mouse Npc1 gene", 5/1/2007 - 4/30/2009, $50,000/yr ($100,000/2 yrs).
4. NIH, Michigan Alzheimer's Disease Research Center, P50 AG08671, Core PI (10% effort), "Neuropathology Core", 6/1/1999 - 5/31/2010, $47,034 annual.
5. McKnight Foundation Neuroscience of Brain Disorders Award, PI (0% effort), "Treatment of a polyglutamine neurodegenerative disease with synthetic bifunctional compounds that target misfolded proteins", 2/1/2007 - 1/31/2010, $90,000/yr ($270,000/3 yrs).
6. NIH, F31 NS51143, Christopher Pacheco, PI; Lieberman, Sponsor/Mentor (0% effort), "Understanding Niemann-Pick C with cell and mouse models", $35,248/yrs ($140,992/4 yrs).

B. PENDING PROJECTS
1. NIH, R01, PI (30% effort) "Unraveling mechanisms of Niemann-Pick C neuropathology with mouse models", ($1,250,000/5 yrs requested).

C. PROJECTS UNDER STUDY
1. Mechanisms of neurodegeneration in Kennedy disease.

2. Mechanisms of neurodegeneration in Niemann-Pick type C disease.

IV. Administrative Activities

A. DEPARTMENTAL

1. Chair, Pathology Graduate Program Admissions Committee
2. Member, Pathology Graduate Program Advisory Committee
3. Member, Anatomic Pathology Project Review and Funding Committee
4. Pathology residency training program and faculty candidate interviews

B. INSTITUTIONAL

1. Director, Neuropathology Core, Michigan Alzheimer's Disease Research Center
2. Member, Neuroscience Graduate Program Executive Committee
3. Member, Medical Scientist Training Program Advisory Committee
4. Member, Awards Committee, Cellular and Molecular Biology graduate program symposium
5. PIBS and MSTP student interviews

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, Scientific Review Board, Kennedy's Disease Association
2. Member, American Federation for Aging Research Scientific Advisory Council
3. Faculty evaluation for promotion, Department of Pathology, Case Western Reserve University School of Medicine

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board member
   a. *Journal of Alzheimer's Disease*
   b. *Journal of Neuro-Ophthalmology*
   c. *Journal of Neuropathology and Experimental Neurology*
2. Manuscript review (ad-hoc)
   a. *Autophagy*
   b. *EMBO Reports*
   c. *Experimental Cell Research*
   d. *Hormones & Behavior*
   e. *Journal of Cellular Physiology*
   f. *Molecular and Cellular Biology*
   g. *Stem Cells*
3. Grant review
   a. Alzheimer's Association
   b. American Federation for Aging Research

c. Network of European Funding for Neuroscience Research, Review Board member

B. INVITED LECTURES/SEMINARS
1. Invited discussant, Kennedy's Disease Association sponsored on-line chat, June 2008.
2. "Modeling neurodegenerative disease in mice", invited presentation, CMB new faculty seminar series, December 2007.
3. “Androgen receptor toxicity in Kennedy disease", invited presentation, Department of Pathology research seminar, February 2008.
4. "Molecular Mechanisms of androgen receptor toxicity in Kennedy disease", invited presentation, Department of Urology research seminar, May 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Neuropathology
2. American Society of Human Genetics
3. College of American Pathologists
4. Society for Neuroscience

D. HONORS AND AWARDS
1. McKnight Foundation Neuroscience of Brain Disorders Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Hughes ED, Qu YY, Genik SJ, Lyons RH, Pacheco CD, **Lieberman AP**, Samuelson LC, Nasonkin IO, Camper SA, Van Keuren ML, Saunders TL. Gene targeting in C57B6 ES Cell Lines: Genetic variation and genetic instability. *Mamm Genome*, 18:549-558, 2007.
2. Pacheco CD, **Lieberman AP**. Lipid trafficking defects increase Beclin-1 and activate autophagy in Niemann-Pick C disease. *Autophagy*, 3:487-489, 2007.
3. Pan S, Shi M, Jin J, Albin RL, **Lieberman A**, Gearing M, Lin B, Pan C, Yan X, Kashima DT, Zhang J. Proteomics identification of proteins in human cortex using multi-dimensional separations and MALDI tandem mass spectrometer. Mol Cell *Proteomics*, 6:8989-8998, 2007.
4. Monks DA, Johansen JA, Mo K, Rao P, Eagleson B, Yu Z, **Lieberman AP**, Breedlove SM, Jordan CJ. Over-expression of wildtype androgen receptor in muscle recapitulates polyglutamine disease. *Proc Natl Acad Sci USA*, 104:18259-18264, 2007.
5. **Lieberman AP**, Robins DM. The androgen receptor's CAG/glutamine tract in mouse models of neurological disease and cancer. *J Alzheimer's Dis*, 14:247-255, 2008.

6. Klionsky DJ, Agostinis P, Agarwal DK, Babmer BA, Bassham DC, **Lieberman A**, et al. Guidelines for the use and interpretation of assays for monitoring autophagy in higher eukaryotes. *Autophagy,* 4:151-175, 2008.
7. Pacheco CD, **Lieberman AP**. The pathogenesis of Niemann-Pick type C disease: a role for autophagy? *Expert Reviews in Molecular Medicine,* in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Johansen JA, Yu Z, Monks DA, **Lieberman AP**, Breedlove SM, Jordan CL. Androgen dependent changes in muscle mRNA in SBMA mice that over-express wildtype androgen receptors in muscle fibers. Society for Neuroscience meeting, San Diego, CA, November 2007.
2. Sadeghi N, Foster N, Wang A, Minoshima S, **Lieberman A**, Tasdizen T. Automatic classification of Alzheimer's disease vs. frontotemporal dementia: a spatial decision tree approach with FDG-PET. Fifth IEE International Symposium on Biomedical Imaging, Paris, France, May 2008.
3. Elrick M, Pacheco CD, **Lieberman AP** Deletion of endogenous tau exacerbates the phenotype of Niemann-Pick C disease mice. 2008 Scientific Conference on Niemann-Pick type C Disease, Tucson, Arizona, June 2008.
4. Yu Z, Wang AM, Robins DM, **Lieberman AP**. RNA missplicing is a component of skeletal muscle pathology in Kennedy disease knock-in mice. Society of Neuroscience meeting, Washington, D.C., November 2008.

1. Kemp MQ, Johansen JA, Breedlove SM, **Lieberman AP**, Jordan CL. Deficits in retrograde transport in male knock-in and myogenic mouse models of spinal and bulbar muscular atrophy. Society of Neuroscience meeting, Washington, D.C., November 2008

Richard W. Lieberman, M.D.

Assistant Professor of Pathology and Ob/Gyn.

I. Clinical Activities

A. Gynecologic Pathology Consultation - twelve months

B. Gynecologic Oncology Semimonthly Tumor Planning Conference - twelve months

C. Autopsy service twelve months (14 weeks, 6 weekends)

D. Gynecologic Oncology Colposcopy Clinic, one half day/week, twelve months

E. Placental Pathology twelve months

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2, Obstetrics & Gynecology Sequence: Five hours Gynecologic Pathology lectures; preparation of lectures and examination questions
2. M2, Obstetrics & Gynecology Sequence: Laboratory preparation and instruction
3. M2 resource web page in Gyn Pathology (Web access to Gyn Pathology laboratory, lecture slides, and other resources)
4. M3 Teaching during weekly Colposcopy Clinic

B. DENTAL STUDENTS

1. D2, Reproductive Sequence two hours

C. HOUSE OFFICERS AND FELLOWS

1. Ob/Gyn Residents and Gynecologic Oncology Fellow
   a. Semimonthly Tumor Planning Conference twelve months
   b. Colposcopy clinic staff one-half day per week (twelve months)
   c. Operating Room Instruction one-half day per week
   d. Lectures in Gynecologic Pathology to Gyn Oncology Service two/year
   e. Gyn Pathology Rotation for 3rd year Gyn Oncology Fellow one month
   f. Placental Pathology Lectures two hours

g. Core lectures in Ob/Gyn- 2 hours
h. Core lecture-LEEP lab in Ob/Gyn- 1 hour

2. Residents
   a. Sign-out - Gynecologic Pathology, Placentas, and Autopsy cases
   b. Review cases and supervise presentation of semimonthly Gynecologic Oncology Tumor Planning Conference twelve months
   c. Instruction in the Gross Examination, frozen section diagnosis, and processing of Gynecologic Surgical specimens and Placentas, July-November 2006
   d. Instruction and supervision in the performance, presentation and sign-out of autopsy cases
   e. Teaching Conferences- lecture in Gyn Pathology, October 2006
   f. Consult Case Conference - two/year
   g. Resident resource web page in Gyn Pathology Web access to Gyn Pathology Grossing Manual, lecture slides, Blue Book Online guide to Gynecologic Oncology, and other resources at Ob/Gyn Departmental Website
   h. Morbidity and Mortality Conferences Internal Medicine, General Surgery, and Obstetrics & Gynecology

D. LECTURES
   1. M2, Obstetrics & Gynecology Sequence: Five hours Gynecologic Pathology lectures; preparation of lectures and examination questions
   2. M2, Obstetrics & Gynecology Sequence: Laboratory preparation and instruction
   3. M2 resource web page in Gyn Pathology (Web access to Gyn Pathology laboratory, lecture slides, and other resources)
   4. M3 Teaching during weekly Colposcopy Clinic

III. Research Activities

A. SPONSORED SUPPORT
   1. Lieberman, Thomas, Newton, “Identification of Viral Pathogens in the Evaluation of Placental Chronic Villitis”, approved for funding $9910.

B. NON-SPONSORED SUPPORT
   1. Aronoff, Lieberman (for pathology support), “Infectious Disease mouse model for clostridium toxin”.
   2. “Correlation of colposcopic stereoscopic photography (colpography) and Hyperspectral Diagnostic Imaging (HSDI, developed by STI -Medical: Science and Technology International) with the underlying cervical LEEP histopathology”, 2007 - 2009.

C. SOFTWARE DEVELOPMENT
   1. Placental Imaging Project Imaging and Bar Code Schema for Image Capture.

2. Placental Pathology Requisition and registry Development of On-Line Form.

D. PATENT PENDING
1. Macrotome-Device for precise sectioning of pathology specimens

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Pathology Bioinformatics, Department of Pathology

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Medical Informatics Committee, Gynecologic Oncology Group
2. Member, Pathology Committee, Gynecologic Oncology Group
3. Member, Tissue Utilization Committee, Gynecologic Oncology Group
4. Member, National Comprehensive Cancer Network (NCCN) Cervical/Endometrial Cancer Screening Panel

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Reviewer, *Obstetrics and Gynecology*

B. INVITED LECTURES/SEMINARS
1. Digital Image Reconstruction Applied to Histopathology Correlated with Cervical Colposcopy Ritz Carlton, Palo Alto, California, December 1, 2007.
2. New ASCCP Guidelines Lecture and Workshop 16th Annual Primary Health Care of Woman Program Towsley Center , University of Michigan December 7, 2007.
3. Update in Women's Health Care, Medical-Legal Implications of Placental Pathology Towsley Center, University of Michigan, February 22, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Brahma PK, **Lieberman R**, Przybycin C, Liu JR. Placenta percreta following first trimester miscarriages. *Inter Jour of Gyn/Ob* 2007; 99(2):140-1.
2. Akers A, Jarzembowski J, Johnson C, **Lieberman R**, Dalton V. Examining the relationship between positive mid-gestational fetal fibronectin assays and histological evidence of acute placental inflammation. *Jour Perinatal Med* 2007; 35(1):36-42.
3. Partidge E, Abu-Rustum N, Campos S, Fahey P, Greer B, Lele S, **Lieberman R**, Lipscomb G, Morgan M, Nava M, Reynolds R, Singh D, Smith-McCune K, Teng N, Trimble C, Valea F, Wilczynski S. Cervical cancer screening. J*our National Comp Cancer Network* 2008; 6(1):58-82.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Vulva: Benign and Inflammatory Conditions. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://www.asccp.org/edu/practice/vulva.shtml.
2. Vulva: HPV and VIN. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://gynonc.path.med.umich.edu/ASCCP/HPV_VIN/default.htm.
3. Vulva: HPV and VIN. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://gynonc.path.med.umich.edu/ASCCP/HPV_VIN/default.htm.

1. On-line Gynecologic Pathology Manual. GOG Pathology Committee: Benda J (Chair), **Lieberman R** (Web Editor) http://www.gog.org.

Megan Lim, M.D.

Associate Professor of Pathology
Director of Hematopathology

I. Clinical Activities

A. Director, Hematopathology Service

B. Sign-out of hematopathology cases- 14 weeks, 12 weekend call

C. Coordinator of Hematopathology Service Schedule

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Lectures to Pathology House Officers in Anatomic and Clinical Pathology
   2. Lectures to Hematopathology Fellows
   3. Sign-out teaching of Pathology House Officers and Hematopathology Fellows
   4. Postdoctoral fellow, Rodney Miles, M.D., Ph.D.
   5. Hematopathology Educational Conferences
   6. Ph.D. Student Committee
      a. Kangwon LeeG. Ph.D.
      b. Huy Vuong

B. UNDERGRADUATE STUDENTS
   1. Michael Lee, U of M, UROP
   2. Connie Chung, U of M

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH/NCI, R33 CA112061, Elenitoba-Johnson, PI; Lim, Co-Investigator (1.2 cal mos.), "Proteomic studies of follicular lymphoma transformation", 07/01/2006-03/30/2009, $192,801 annual direct costs.
      The objective of this study is to develop and optimize technologies to enable the high-throughput large-scale identification of proteins using mass spectrometry-based

proteomic strategies to study primary transformed follicular lymphoma samples.

B. PENDING PROJECTS

1. NIH/NCI R21, Lim, PI (1.2 cal mos.), “Phosphoproteomics of formalin-fixed paraffin-embedded tissues”, $137,500 annual direct costs.
   The objective of this study is to develop a robust protocol for enrichment of phosphopeptides from formalin-fixed paraffin-embedded tissues. The extraction of phosphopeptides will be used to determine the feasibility of tandem mass spectrometry-based identification of phosphopeptides from formalin-fixed paraffin-bedded tissues.
2. NIH R01 Elenitoba-Johnson, PI; Lim, Co-Investigator (1.2 cal. mos.), “Mass spectrometry-driven systems biologic analysis of salivary MALT lymphoma”, 07/01/2008 - 06/31/2012, $250,000 annual direct costs.
   The objective of this study is to identify the deregulated proteomic pathways involved in salivary MALT lymphoma pathogenesis.
3. NIH R01, Elenitoba-Johnson, PI; Lim, Co-Investigator (1.2 cal. mos.), “Proteomic analysis of api2/MALT1 positive gastric MALT lymphoma”, 09/01/2008 -08/31/2012, $250,000 annual direct costs.
   The objective of this study is to identify proteomic biomarkers associated with api2/MALT1-positive gastric MALT lymphoma.
4. NIH R21, Elenitoba-Johnson, Kojo, PI; Lim, Co-Investigator (1.2 cal. mos.), “Large-scale proteomic identification of SCF-E3 ubiquitin ligase substrates”, 04/01/2009 - 03/31/2011, $120,000 annual direct costs.
   The objective of this study is to develop a robust strategy for the identification of the targets of Cullin-ring based E3 ligases.

C. PROJECTS UNDER STUDY

1. Functional characterization of IL-2R overexpression in biology of anaplastic large cell lymphoma.
2. Gene expression profiling and proteomic analysis of TPM3/ALK expressing cancers.
3. Minimal residual disease detection of NPM/ALK in pediatric anaplastic large cell lymphoma patients receiving SGN-30 therapy.
4. Identification of ALK interacting proteins using synthetic phosphopeptides and mass spectrometry.
5. Proteomic studies of follicular lymphoma transformation (collaboration with Kojo Elenitoba-Johnson, M.D.).

IV. Administrative Activities

A. DEPARTMENTAL

1. Director Hematopathology Service
2. Director Hematopathology Fellowship Training Program

3. Interviewer - Candidates for faculty, fellows, house officer, postdoctoral, and graduate student positions
4. Coordinator of call schedule, both weekend and weekday
5. Member, Department of Pathology Peer Review Committee
6. Evening Case Conference combined HP & AP Committee

B. INSTITUTIONAL
1. Member, Program in Biomedical Sciences (PIBS)
2. Member, Program in Cell and Molecular Biology
3. Member, Michigan Comprehensive Cancer Center
4. Member, Center for Computational Medicine and Biology (CCMB)
5. Member, Seminar Committee, CCMB

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Abstract review committee for USCAP 2008 - 2010
2. United States and Canadian Academy of Pathology (USCAP) Member of Education Committee, Society of Hematopathology 2008 - 2010
3. Publication Committee, America Society of Clinical Pathology (ASCP) 2008 - 2011
4. Vice-Chair, Young Investigator Committee, Children's Oncology Group 2008 - 2011
5. Training & Education Committee Member, Association for Molecular Pathology 2008 - 2010.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board Member
   a. *Laboratory Investigations*
   b. *Open Proteomic Journal*
   c. *Journal of Hematopathology*
2. Journal Reviewer/Referee
   a. *American Journal of Pathology*
   b. *Clinical and Investigative Medicine*
   c. *Journal of the National Cancer Institute*
   d. *American Journal of Hematology*
   e. *Molecular Pharmacology*
   f. *Journal of Molecular Diagnostics*
   g. *Radiation Research*
   h. *Leukemia*
   i. *Genomics*
   j. *Gene Therapy*
   k. *Blood*
   l. *Cancer*
   m. *Proteomics*

n. *Pathology Research and Practice*
o. *Expert Reviews in Proteomics*
p. *Biotechniques*
q. *Leukemia and Lymphoma*
r. *Journal of Surgical Oncology*
s. *Experimental Hematology*
t. *Archives of Pathology and Laboratory Medicine*
u. *Fertility and Sterility, Referee*
v. *Expert Reviews in Molecular Medicine*
w. *Journal of Cellular and Molecular Medicine*
x. *Translational Research*
y. *Journal of Hematopathology*

B. INVITED LECTURES/SEMINARS

1. “Management of Non-Hodgkin’s Lymphoma”, Lymphoma Forum of Excellence (LyFE), Toronto, Canada, June 19-20, 2007.
2. "New Frontiers in Diagnostic Pathology", A.J. French Society Meeting, Ann Arbor, MI, September 7, 2007.
3. “Molecular Pathology of Malignant Lymphoma”, ASCP Educational Course, New Orleans, Louisiana, October 18-21, 2007.
4. “Update on Anaplastic Large Cell Lymphoma”, Children's Oncology Group Spring Meeting, April 2, 2007.
5. Department of Histopathology, University of Calgary, Visiting Speaker, Calgary, Alberta, July 3, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Schumacher JA, Crockett DK, Elenitoba-Johnson KS, **Lim MS**. Proteome-wide changes induced by the Hsp90 inhibitor, geldanamycin in anaplastic large cell lymphoma cells. *Proteomics*. 2007 Aug; 7(15):2603-16.
2. Sjostrom C, Seiler C, Crockett DK, Tripp SR, Elenitoba Johnson KS, **Lim MS**. Global proteome profiling of NPM/ALK-positive anaplastic large cell lymphoma. *Exp Hematol.* 2007 Aug; 35(8):1240-8.
3. Leventaki V, Drakos E, Medeiros LJ, **Lim MS**, Elenitoba-Johnson KSJ, Claret FX, Rassidakis GZ. (2007) NPM-ALK oncogenic kinase promotes cell cycle progression through activation of JNK/cJun signaling in anaplastic large cell lymphoma. *Blood.* 2007 Sep 1; 110(5):1621-30.
4. Alsop A, Sanger WG, Elenitoba-Johnson KSJ, **Lim MS.** (2007) Chronic myeloid leukemia as a secondary malignancy after ALK-positive anaplastic large cell lymphoma. *Human Pathol*. 2007 Oct; 38(10):1576-80.

5. Wallentine JC, Vaughn CP, Crockett DK, Elenitoba-Johnson KSJ, **Lim, MS.** Comprehensive identification of proteins expressed by Hodgkin lymphoma-derived Reed-Sternberg cells by LC-MS/MS. *Lab Invest.* 2007 Nov; 87(11):1113-24.
6. Schumacher JA, Crockett DK, Elenitoba-Johnson KSJ, **Lim MS**. Evaluation of enrichment techniques for mass spectrometry: identification of tyrosine phosphoproteins in cancer cells. (2007) *J Mol Diag*; 9:169-197.
7. Aggarwal A, Aggarwal N, Glenn M, **Lim MS**. (2007) Plastic transformation of low grade follicular lymphoma. *J Clin Oncol* 25:2326-2328.
8. Schumacher JA, Holden J, Elenitoba-Johnson KSJ, **Lim MS**. (2007) Detection of the c-kit D816V mutation in systemic mastocytosis by allele-specific PCR. *J. Clin Pathol.* May 25, 2007.
9. Mathivanan S, Ahmed M, Ahn NG, et al. Human Proteinpedia enables sharing of human protein data. *Nat Biotechnol.* 2008 Feb; 26(2):164-7.
10. Bohling S, Jenson S, Schumacher JA, Elenitoba-Johnson, KSJ, **Lim MS**. Analysis of gene expression profile of TPM3-ALK positive anaplastic large cell lymphoma reveals overlapping and unique patterns with that of NPM-ALK positive anaplastic large cell lymphoma. *Leuk Res*. 2008 Mar; 32(3):383-93.
11. Sjostrom C, Seiler C, Crockett DK, Tripp SR, Elenitoba-Johnson KSJ, **Lim, MS**. Global proteome profiling of NPM/ALK-positive anaplastic large cell lymphoma. *Exp Hematol* 35:1240-1248.
12. Wada, D, Agarwal, N, **Lim, MS**. Recurrent squamous cell carcinoma and follicular lymphoma arising in the scalp after treatment for lymphoma. *Pathology International.* 2008 Apr; 40(3):316-20.
13. Joseph NM, Mosher JT, Buchstaller J, Snider P, McKeever PE, **Lim M**, Conway SJ, Parada LF, Zhu Y, Morrison SJ. The loss of Nf1 transiently promotes self-renewal but not tumorigenesis by neural crest stem cells. *Cancer Cell* 2008: Feb 5; 13(2):129-140.

Lori Lowe, M.D.

Professor of Pathology and Dermatology
Director of Dermatopathology

I. Clinical Activities

A. Dermatopathology Service - 12 months

B. Dermatopathology Consultation Service - 12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lecturer, MS II Dermatology Sequence
2. Dermatopathology laboratory director and instructor, MS II Dermatology Sequence
3. Dermatopathology, Pathology Clerkship, MS I and MS IV students
4. Dermatopathology, Dermatology Clerkship, MS IV students

B. DENTAL STUDENTS
1. Lecturer, Skin Integument Model, "Introduction to Clinical Dermatology with Histopathologic Correlates", Parts I and II (2 Hours)

C. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology sign-out (Pathology and Dermatology Residents)
2. Review of dermatopathology consultation material
3. Dermatopathology teaching conference, Department of Dermatology

D. LECTURES
1. University of Michigan, Department of Dermatology, Dermatopathology resident teaching conference (1-2/month).
2. University of Michigan, Department of Dermatology, Diagnostic Conference, (1-2/month)
3. University of Michigan, Department of Dermatology, Director of Diagnostic Conference (1/month)

4. University of Michigan, Department of Internal Medicine, Division of Rheumatology, Rackham Arthritis Research Unit lecture series, "Cutaneous Manifestations of Rheumatologic Disease" (1 lecture)
5. "Introduction to Dermatopathology", University of Michigan, Department of Dermatology, 1 lecture
6. "Dermatopathology Review", University of Michigan, Department of Dermatology, 3 lectures

E. OTHER
1. Multidisciplinary Melanoma Tumor Board.
2. Multidisciplinary Merkel Cell Carcinoma Tumor Board

III. Research Activities

A. SPONSORED SUPPORT
1. NIH RO1, Soengas, PI; Lowe, Co-Investigator (0% effort), “The Unfolded Protein Response in Melanoma Progression and Chemoresistance”, 7/1/2007 -11/30/2012, $1,832,610.
2. NIH KO7, CA11653-01A2, Lao, PI; Lowe, Co-Investigator (0% effort), “Development of a Melanoma Chemoprevention Model”, 1/1/2008 - 8/30/2011, $688,500.

B. PROJECTS UNDER STUDY
1. University of Michigan UMCC 2007-136, HUM00017617, Lao, PI; Lowe, Co-Investigator, “Feasibility of a human melanoma chemoprevention model using dysplasia nevi”, 2008-ongoing.
2. University of Michigan, HUM000015861, Helfrich, PI; Lowe, Co-Investigator, “Comparison of clinical, histologic and immunohistochemical findings in rosacea and photoaged skin”, 2007-ongoing.
3. University of Michigan UMCC 2005-130, Sable, PI; Lowe, Co-Investigator, “Multicenter Selective Lymphadenectomy Trial II (MSLT-II)”, 2007-ongoing.
4. University of Michigan UMMC 2000-0713, Johnson, PI; Lowe, Co-Investigator, “Molecular, biochemical, and cellular basis of melanoma and other melanocytic lesions: Tissue Bank”, 2001-ongoing.
5. University of Michigan UMCC 2-15, Sabel, PI, “A phase III randomized double-blind pivotal trial of immunotherapy with BCG plus a polyvalent melanoma vaccine, CancerVax^{TM} vaccine versus BCG plus a placebo as a post-surgical treatment for Stage III melanoma”, 2003-ongoing.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Dermatopathology Service, Department of Pathology, University of Michigan

2. Member, Advisory Committee on Appointments, Promotions, and Tenure (ACAPT), Department of Pathology, University of Michigan
3. Member, Residency Review Committee, Department of Dermatology, University of Michigan
4. Interviewer, Pathology House Officer Candidates
5. Interviewer, Dermatology House Office Candidates

B. INSTITUTIONAL
1. Member, Melanoma Tissue Core Distribution Committee (IRBMED #2004-0618)
2. Member, Multidisciplinary Melanoma Program, University of Michigan Comprehensive Cancer Center.
3. Member, Multidisciplinary Merkel Cell Carcinoma Program, University of Michigan Comprehensive Cancer Center

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board, Skin Cancer Section Editor, *Cancer*
2. Editorial Board, *Journal of the American Academy of Dermatology.*
3. Ad hoc manuscript reviewer.
   a. Journal of Cutaneous Pathology
   b. Dermatologic Surgery
   c. *Human Pathology*
   d. *Archives of Dermatology*

B. INVITED LECTURES/SEMINARS
1. "Dermatopathology", American Society of Clinical Pathology, 2008 Resident Review Course, Chicago, IL, Faculty, April, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Academy of Dermatology.
2. American Society of Dermatopathology.
3. North American Melanoma Pathology Study Group.
4. American Medical Women's Association Mentorship Program.
5. American Academy of Dermatology's Minority Medical Student Mentor Program.
6. Women's Dermatologic Society.
7. Michigan Dermatologic Society.

D. HONORS AND AWARDS
1. Listed in Best Doctors in America 2007-2008
2. Listed in America's Top Doctors for Cancer, 3rd edition by Castle Connolly Medical Ltd., 2007

3. Listed in IBC Leading Health Professionals of the World, 2007, sponsored by International Biographical Centre, Cambridge, England

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Jejurikar SS, Borschel GH, Johnson TM, **Lowe L**, Brown DL. Immediate, optimal reconstruction of facial lentigo maligna and melanoma following total peripheral margin control. *Plastic and Reconstructive Surg* 120:1249-1255, 2007.
2. Carvalho J, Fullen D, **Lowe L**, Su L, Ma L. The expression of CD 23 in cutaneous nonlymphoid neoplasms. *J Cutan Pathol* 34:693-698, 2007.
3. Barnhill RL, Argenyi Z, Berwick M, Duray P, Erickson L, Guitart J, Horenstein MG, **Lowe L**, Messina J, Paine S, Piepkorn MW, Prieto V, Rabkin MS, Schmidt B, Selim A, Shea CR, Trotter MJ. Atypical cellular blue nevi (cellular blue nevi with atypical features): Lack of consensus for diagnosis and distinction from cellular blue nevi and malignant melanoma ("malignant blue nevus"). *Am J Surg Pathol* 32:36-44, 2008.
4. Zheng H, Chang L, Patel N, **Lowe L**, Burns DK, Parada LF, Giovannini M, Zhu Y. Induction of abnormal proliferation of non-myelinating Schwann cells triggers neurofibroma formation. *Cancer Cell* 13:117-128, 2008.
5. Do TT, Gielczyk R, Wang T, Olsen S, **Lowe L**, Gudjonsson JE. Multi-nodular lesions of the earlobes. Arch Dermatol 144:547-542, 2008.
6. Kaul DR, **Lowe L**, Visvesvara, Farmen S, Khaled YA, Yanik GA. Acanthamoeba infection in patient with chronic graft versus host occurring during treatment with voriconazole. *Transpl Infect Dis* 2008 (in press).
7. Frankel TL, Griffith KA, **Lowe L**, Johnson TM, Wong SL, Chang AE, Cimmino VM, Bradford CR, Rees RS, Sabel MS. Do size and location of metastatic deposits within sentinel nodes predict non-sentinel lymph node involvement in melanoma? *J Surg Oncol 2008* (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Frankel TL, Griffith KA, **Lowe L**, Johnson TM, Wong SL, Chang AE, Cimmino VM, Bradford CR, Rees RS, Sabel MS. Do size and location of metastatic deposits within sentinel nodes predict non-sentinel lymph node involvement in melanoma? Society of Surgical Oncology Annual Meeting, Chicago, IL, March 2008.

David R. Lucas, M.D.

Associate Professor of Pathology

I. Clinical Activities

A. Surgical pathology - 21 weeks

B. Bone and soft tissue consultation - 50 weeks

C. Sarcoma tumor board - 50 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. Pathology mentorship, 9 PGY4 students - 1 month

B. DENTAL STUDENTS

1. Pathophysiology 540, 100 PGY2 students-3 lecture hours

C. HOUSE OFFICERS AND FELLOWS

1. Surgical pathology sign-out - 21 weeks
2. Bone and soft tissue pathology elective, 4 house officers, 1 month each
3. Lectures in bone and soft tissue pathology - 4 hours
4. Consultant conferences - 4 hours

III. Research Activities

A. SPONSORED SUPPORT

1. UM AP Funding Committee, “Are hemangiosarcoma and lymphangiosarcoma distinct entities”, $2,600.

B. PENDING PROJECTS

1. SARC 009: UMCC 206.127, “A phase II trial of dasatinib in advanced sarcoma”.
2. Preoperative gemcitabine and radiation therapy for retroperitoneal of deep truncal soft tissue sarcoma.

3. Evaluation of CD13 and CD14 in normal skin and histiocytic/fibrohistiocytic infiltrates of the skin.

C. PROJECTS UNDER STUDY
1. RTOG 0630, “A phase II trial of image guided preoperative radiotherapy for primary soft tissue sarcomas of the extremity”.
2. Osteoma with osteoblastoma-like features.
3. Myxoid liposarcoma: beyond the round cell paradigm.
4. Cluster analysis of diagnostic immunohistochemical markers in leiomyosarcoma.
5. Can lymphangiosarcoma be resurrected? A clinicopathological and immunohistochemical study of 51 cases.
6. Ultrasound of fat necrosis involving the extremity and torso with MRI and histologic correlation.

IV. Administrative Activities

A. DEPARTMENTAL
1. Anatomic pathology funding committee
2. Residency, fellowship, and faculty candidate interviews

B. INSTITUTIONAL
1. Medical director, immunohistochemistry laboratory
2. Anatomic pathology operations committee
3. Blockbusters lean team

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Radiation Therapy Oncology Group, sarcoma committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript reviewer
   a. *Journal of Surgical Oncology*
   b. *Archives of Pathology and Laboratory Medicine*
   c. *Cancer*
   d. *Cancer Journal of Neurosurgery*
   e. *Pathology Research Practices*
   f. *Oncologist*

B. INVITED LECTURES/SEMINARS
1. Giant Cell Tumor of Bone. New Frontiers in Pathology. Ann Arbor, MI, Sept. 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathologists

2. Michigan Society of Pathology
3. Connective Tissue Oncology Society
4. Southwest Oncology Group
5. Radiation Therapy Oncology Group
6. A. James French Society of Pathologists
7. Arthur Purdy Stout Society of Surgical Pathologists

D. HONORS AND AWARDS

1. Certificate of Merit (American Roentgen Ray Society): Walsh M, Jacobson JA, Kim SM, **Lucas D**, Brandon C, Fessell D. Ultrasound of fat necrosis with MRI and histologic correlation (scientific exhibit), April 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Chugh R, Tawbi H, **Lucas DR**, Biermann JS, Schuetze SM, Baker LH. Chordoma: the non-sarcoma primary bone tumor. *Oncologist* 2007 Nov; 12(11):1344-50.
2. Tawbi H, Thomas DG, **Lucas DR**, Biermann JS, Schuetze SM, Hart AL, Chugh R, Baker LH. Epidermal growth factor receptor (EGFR) expression and mutational analysis in synovial sarcomas and malignant peripheral nerve sheath tumors. *Oncologist* 13 (4):459-66, 2008.
3. **Lucas DR**, Kshirsagar MP, Biermann SJ, Hamre MR, Thomas DG, Schuetze SM, Baker LH. Histologic alterations from neoadjuvant chemotherapy in high-grade extremity soft tissue sarcoma: Clinicopathological correlation. *Oncologist* 13(4):451-8, 2008.
4. Wu, AJ, Jarzembowski J, Morag Y, **Lucas D R**. Wagner-Meissner neurilemmoma of the right cheek. *Annals Diag Pathol* 12(3): 204-207, 2008.
5. Badarov S, Michael C, **Lucas D**, Pang Y, Pu R. Fine needle aspiration biopsy of metastatic melanoma resembling a malignant peripheral nerve sheath tumor. *Diag Cytopathol* (In Press).
6. Murphy JD, **Lucas DR,** Somnay YR, Hamstra DA, Ray ME. Gemcitabine-mediated radiosensitization of human soft tissue sarcoma. *Transl Oncol.* 2008 Mar 1(1):50-6.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Kraybill W, **Lucas D**, et al. Updated Analysis of a Phase II Study of Neoadjuvant Chemotherapy and Radiation Therapy in the Management of High-Risk, High-Grade, Soft Tissue Sarcomas of the Extremities and Body Wall: Radiation Therapy Oncology Group Trial 9514. ORAL PRESENTATION at SSO's 61st Annual Cancer Symposium, March 13-16, 2008, Chicago, IL.

2. Walsh M, Jacobson J, Kim S, **Lucas D,** Brandon C, Fessell D. Ultrasound of Fat Necrosis with MRI and Histologic Correlation. The American Roentgen Ray Society 108th Annual Meeting Washington, D.C., April 2008.
3. McHugh JB, Yousef MM, Saab B, **Lucas DR.** Clinicopathologic Series of 44 Surgically Treated Sino-Orbital Osteomas with Emphasis on Cases with Osteoblastoma-Like Features. *Mod Pathol* 21(suppl 1):1093A, 2008.
4. Carvalho JC, Thomas DG, **Lucas DR**. Cluster Analysis of Diagnostic Immunohistochemical Markers in Leiomyosarcoma Delineates Specific Clinicopathological Subtypes. *Mod Pathol* 21(suppl 1):34A, 2008.
5. Mankey CC, McHugh JB, Thomas DG and **Lucas DR**. Can Lymphangiosarcoma Be Resurrected? A Clinicopathologic and Immunohistochemical Study of 51 Cases. *Mod Pathol* 21 (suppl 1):53A, 2008.
6. Kane JM, Harris J, Kraybill WG, Harmon DC, Ettinger DS, **Lucas DR**, DeLaney TF, Wang D, Curran WJ, Eisenberg BL. Initial Results of RTOG 0330: A Pilot Phase II Study of Pre-operative Radiation Therapy/Thalidomide for Low Grade Primary Soft Tissue Sarcoma or Pre-operative MAID/Thalidomide/Radiation Therapy for High/Intermediate Grade Primary Soft Tissue Sarcoma of the Extremity or Body Wall (ASCO 2008 Meeting).
7. Huan H, Chugh R, Griffith K, Thomas D, Schuetze S, **Lucas D**, Biermann J, Zalupski M. Phase II trial of cetuximab in patients with metastatic and/or locally advanced soft tissue and bony sarcomas (ASCO 2008 Meeting).

Peter C. Lucas, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Diagnostic surgical pathology (room BE); 9 weeks
2. Diagnostic surgical pathology (extramural consultations); ad hoc

B. INTERDISCIPLINARY BREAST CARE CLINIC (BCC)
1. Pathology Representative, weekly BCC Tumor Board; 16 weeks

C. AUTOPSY PATHOLOGY
1. Staff pathologist for microscopic sign out only; ad hoc

II. Teaching Activities

A. MEDICAL STUDENTS
1. M4 Pathology Course Mentor (6 students); 1 month rotation
2. M1 Pathology Laboratory Instructor; 2 labs

B. DENTAL STUDENTS
1. Integrated Medical Sciences-III Course Instructor; 1 lecture (1 hour)

C. GRADUATE STUDENTS
1. Thesis committee member
   a. Chiron Graves (Cellular & Molecular Biology)
   b. Aasia Rehman (Cellular & Molecular Biology)
   c. Tyler Prestwich (Cellular & Molecular Biology)
2. Mentor and thesis committee chair
   a. Phillip Delekta (Cellular & Molecular Biology)
   b. Matthew Van Beek (Molecular and Cellular Pathology)

D. HOUSE OFFICERS AND FELLOWS
1. Mentoring of breast pathology fellow; 9+ weeks
2. Room BE sign-out of breast pathology, with resident instruction; 9 weeks

3. Autopsy microscopic sign-out with resident instruction; ad hoc
4. AP consult conference (unknown slide conference); 1 hour

E. LECTURES
1. U of M New Frontiers in Diagnostic Pathology CME course; Fall 2007, Case report
2. U of M New Frontiers in Diagnostic Pathology CME course; Fall 2007, Break-out session on breast pathology

F. OTHER
1. Faculty advisor for 4 students in Mechanical Engineering (course ME450); Fall 2007

III. Research Activities

A. SPONSORED SUPPORT
1. NIH R01, HL082914 (NHLBI), PI (30% effort), "Angiotensin II Signaling Through a Novel NF-kB Pathway", 2/01/2008 - 1/31/2013, $250,000 direct costs/yr, ($1,250,000/5 yrs).
2. UM Cancer Research Fund, PI, "The Angiotensin II Receptor as a Novel Oncogene in Breast Cancer", 6/01/2008 - 5/31/2009, $50,000.
3. Department of Pathology AP Research Projects Fund, PI, "Bcl10 as a mediator of Angiotensin-dependent atherosclerosis", $20,000.

B. PENDING PROJECTS
1. NIH R01, DK079973 (NIDDK), PI (25% effort), "A Novel Signaling Pathway Mediating Hypertension and Obesity-dependent Insulin Resistance", 2/01/2009 - 1/31/2014, $250,000 direct costs/yr requested ($1,250,000/5 yrs).
2. Howard Hughes Medical Institute (HHMI) Early Career Scientist Competition, PI, $1,500,000 direct costs, plus salary/6 yrs.
3. NIH/NCI R01, CA124540, McAllister-Lucas, PI; Lucas, Co-Investigator (10% effort), "Multiple Roles of the API2 Moiety in API2-MALT1-mediated Lymphomagenesis", $250,000 direct costs/yr requested, 2/01/2009 - 1/31/2014, $1,250,000/5 yrs.
4. NIH R01, DK082440 (NIDDK), Teitelbaum, PI; Lucas, Co-Investigator (2.5% effort), "Blockade of Angiotensin II Signaling for the Treatment of Inflammatory Bowel Disease", 12/01/2008 - 11/30/2013, $250,000 direct costs/yr requested ($1,250,000/5 yrs).
5. UM Pilot and Collaborative Grant program for Translational and Clinical Research, PI, (5% effort), "Integrated Modular System for Pathological Samples to Improve Patient Safety", 8/2008 - 7/2009, $35,000 requested.

C. PROJECTS UNDER STUDY
1. Characterization of signaling pathways involved in Angiotensin II dependent vascular inflammation.

2. Characterization of signaling pathways mediating obesity and hypertension related insulin resistance.
3. Molecular mechanisms responsible for MALT lymphoma tumorigenesis.
4. Biochemical properties of the API2-MALT1 fusion protein, the product of a t (11;18) translocation in MALT lymphoma.
5. Molecular mechanisms underlying AGTR1-dependent breast cancer tumorigenesis.
6. ACOSOG Z-1031 Breast Cancer Clinical Trial (co-investigator).
7. UMCC 2006.010 Breast Cancer Neoadjuvant Chemotherapy Trial (co-investigator).
8. Development of pathology slide and block management/storage solutions.

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Pathology Graduate Program preliminary exam committee
2. Quality assurance for the breast pathology service
3. Pathology residency training program candidate interviews
4. Surgical pathology fellow candidate interviews

B. INSTITUTIONAL

1. Member; Cancer Center Research Committee (Internal grant review committee)
2. Career Advisory Panel, Medical Scientist Training Program
3. Member; PIBS Graduate Program Admissions Committee
4. Member; Cellular and Molecular Biology (CMB) Graduate Program
5. Member; Michigan Comprehensive Cancer Center

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member; Michigan Cancer Consortium (MCC), Breast Cancer Advisory Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript peer review
   a. *Nature Immunology*
   b. *Oncogene*
   c. *Cancer Research*
2. NIH Diabetes Research and Training Center (DRTC) Pilot/Feasibility Grant Reviewer

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Lucas, P.C**., Kuffa, P., Gu, S., Kohrt, D., Kim, D.S.L., Siu, K., Jin, X., Swenson, J., and McAllister-Lucas, L.M. (2007) A dual role for the API2 moiety in API2-MALT1 dependent NF-kB activation; heterotypic oligomerization and TRAF2 recruitment. *Oncogene*, 26:5643-5654.

2. Bradley, S.V., Smith, M.R., Hyun, T.S., **Lucas, P.C.**, Li, L., Antonuk, D., Joshi, I., Jin, F., and Ross, T.S. (2007). Aberrant Huntingtin Interacting Protein 1 in lymphoid malignancies. *Cancer Res*., 67:8923-8931.
3. Hasegawa, M., Fujimoto, Y., **Lucas, P.C.**, Nakano, H., Fukase, K., Nuñez, G., and Inohara, N. (2008). A critical role of RICK/RIP2 polyubiquitination in Nod-induced NFkB activation. *EMBO J.,* 27:373-383.
4. McAllister-Lucas, L.M., and **Lucas, P.C**. (2008) Finally, MALT1 is a caspase! *Nature Immunol.*, 9:231-233.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Jin, X, Gu, S., Siu, K., Kohrt, D., McAllister-Lucas, L.M., and **Lucas, P.C.** (2007) A novel signaling pathway mediating G protein-coupled receptor (GPCR)- dependent NF-kB activation. Cellular & Molecular Biology Fall Symposium, University of Michigan.
2. Madden, L., Kohrt, D., Kim, D.S., Gu, S., Kuffa, P., Jin, X., Siu, K., McAllister-Lucas, L.M., and **Lucas, P.C.** (2007) A dual role for the API2 moiety in API2-MALT1-mediated lymphomagenesis: heterotypic oligomerization and TRAF2 recruitment. Cellular & Molecular Biology Fall Symposium, University of Michigan.
1. Madden, L., Kohrt, D., Gu, S., Jin, X., Kuffa, P., Kim, D.S.L., **Lucas, P.C.**, and McAllister-Lucas, L.M. (2008) The role of the API2 moiety in API2-MALT1-dependent MALT lymphomagenesis. Keystone Symposium on Lymphocyte Activation and Signaling, Snowbird, UT.

Nicholas W. Lukacs, Ph.D.

Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. DENTAL STUDENTS

1. 1rst year students- Lectures on Inflammation, cytokines and Chemokines -3 hrs

B. GRADUATE STUDENTS

1. Pathology 643, Course Director, Immune mechanisms of Disease, Fall, 2007
2. Pathology 581, Inflammation and Immune responses, Winter, 2008

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, R01 PI (20% effort), "SCF and mast cells in allergic airway inflammation", 5/1/1999 - 4/29/2008, $295,000/yr.
2. NIH, PPG Project IV, Kunkel, Program Director; Lukacs, PI (20% effort), "Cockroach allergen-induced airway inflammation", 3/1/1999 - 2/28/2010, $325,000/yr.
3. NIH, R01, PI (15% effort), "Role of C-C chemokines in eosinophil airway inflammation", 8/1/1996 - 11/30/2012, $372,000/yr.
4. NIH, R01, PI (15% effort), "TLR and Notch ligand in RSV-induced Disease", $372,000/yr, 12/1/2007 - 11/30/2012.
5. NIH, T32, PI (5% effort), "Immunopathology pulmonary Training Grant", 10/1/2007 - 9/30/2012, $324,000/yr.
6. NIH, R01, Standiford, PI; Lukacs, Co-Investigator (5% effort), "Role of TLR9 in bacterial pneumonia", 6/1/2007 - 5/31/2012, $350,000/yr.
7. NIH Special Centers of Research (SCOR) grant, Kunkel; Standiford, SCOR Director Project 2; Lukacs, Co-Investigator (5% effort), "Acute Lung Injury", 12/01/1998 - 11/30/2008, $305,400/yr.
8. NIH, R01 GM067827, Duckett, PI; Lukacs, Co-Investigator (5% effort), "Control of Apoptosis and Signaling by XIAP", 4/2005 - 3/2010, $242,000/yr.

9. NIH, RO1, Hershenson, PI; Lukacs, Co-Investigator (5% effort), "Rhinovirus and airway epithelial cell responses", 4/1/2006 - 3/31/2010, $372,000/yr.
10. Woods, PI; Lukacs, Co-Investigator, "Development of Esterases for the treatment of Cocaine overdose and abuse", 4/1/2006 - 3/31/2011, $582,268/yr.
11. NIH R21, Hershenson, PI; Lukacs, Co-Investigator (5% effort), "Quercetin Treatment of Airway Inflammation", 9/2005 - 8/2008.
12. Actimis, "Role of CRTH2 in the development of cockroach allergen-induced disease", 4/1/2005 - 3/30/2008, $35,000 total budget.
13. GNF, "c-kit tyrosine kinase inhibitors in chronic allergic disease", 11/1/2006 - 10/30/2007, $45,000 total budget.
14. OSI Pharma, "Targeting c-kit during allergic asthma", 8/1/2007 - 12/1/2008, $25,000.
15. Argenta Pharm, "CRTH2 antagonists in asthma", 12/1/2007 - 11/31/2008, $19,886.

B. PROJECTS UNDER STUDY
1. Role of chemokines and their receptors in pulmonary T cell immune responses (allergic and viral).
2. Viral activation of TLRs in determining the pulmonary immune environment and pathophysiology.
3. The role of stem cell factor (SCF) and c-kit in the development of chronic pulmonary disease.
4. The signal transduction of chemokine and toll-like receptors on immune and non-immune cell populations.
5. Role of Notch ligands in activation of the mucosal immune system.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director of Molecular and Cellular Pathology Graduate Program
2. Departmental representative- Curriculum Committee for PIBS
3. Steering Committee- Immunology Graduate Program in PIBS
4. Curriculum Committee for Pathology Graduate Program

B. INSTITUTIONAL
1. Immunology Training Grant T-32 (NIAID) Steering Committee
2. Institutional Biosafety Committee (IBC)
3. Associate Chairs of Research Committee for the Medical School-Pathology Representative

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant Review committees
   a. NIAID Asthma Center Grant Reviews
   b. NIAID special emphasis Review committee

c. NHLBI special emphasis Review committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Duties
   a. Section Editor, *Journal of Interferon & Cytokine Research*
   b. Editorial Board, *Laboratory Investigation*
   c. Editorial Board, *American Journal of Pathology*
2. Reviewer
   a. *Journal of Immunology*
   b. *American Journal of Pathology*
   c. *American Journal of Respiratory Cell and Molecular Biology*
   d. *Journal of Experimental Medicine*
   e. *Journal of Leukocyte Biology*
   f. *Journal of Clinical Investigation*
   g. *Journal of Allergy and Clinical Immunology*
   h. *Nature Journals*
   i. *Immunity*
   j. *Journal of Leukocyte Biology*
3. Books edited
   a. *The Receptors: The Chemokine Receptors*. Humana Press Inc, Totowa, NJ. Edited by: J.K. Harrison and **N.W. Lukacs.**

B. INVITED LECTURES/SEMINARS

1. Innate immune responses shape the anti-viral response in the lung. University of Iowa. Iowa City, Iowa. 9/19/2007.
2. RSV-induced innate immunity dictates the severity of pulmonary disease. Trudeau Institute. Saranac Lake, NY, 10/12/2007.
3. Innate Immunity to RSV determines pathogenesis during infection. RSV 2007. Marco Island, FL. 10/27/2007.
4. The role of chemokine receptors and leukocyte accumulation in chronic pulmonary disease. Keystone symposia- Chemotactic Cytokines. Keystone, Colorado. 1/18/2008.
5. The role of innate immunity in pulmonary disease and pathogenesis. NIAID Workshop on Mucosal Immunity. Gaithersburg, MD. 1/30/2008.
6. The role of DC, TLRs and Notch activation during viral responses. Case Western University. Department of Pathology. 2/15/2008.
7. Activation of Acquired immunity in the lung. Neuroimmunology Seminar program. University of Michigan. 2/22/2008.
8. TLR and Notch regulate pulmonary viral immune responses. Pluto Society, Cabo San Lucas, MX. 3/9/2008.

9. Innate and Acquired Immune responses during pulmonary disease. Meakins-Christi Respiratory Research Institute at McGill University. Montreal, Quebec, Canada. 6/2/2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Immunologists
2. American Society of Investigative Pathologists
3. Society for Leukocyte Biology
4. Society for Interferon and Cytokine Research
5. Society for Mucosal Immunology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Rudd, BD, MA Schaller, JJ Smit, SL Kunkel, R. Neupane, L. Kelley, AA Berlin, and **NW Lukacs**. MyD88-Mediated Instructive Signals in Dendritic Cells Regulate Pulmonary Immune Responses during Respiratory Virus Infection. *J Immunol*. 2007, 178(9):5820-7.
2. Levy, BD, **Lukacs NW**, Berlin, AA, Schidt, B, Guilford, WJ, Serhan, CN, and Parkinson, JF. Lipoxin A4 stable analogs reduce allergic airway responses via mechanisms distinct from CysLT1 receptor antagonism. *FASEB J*.2007 Jul 11.
3. Wen, H, Hogaboam, CM, **Lukacs, NW**, Cook, DN, Lira, SA, and Kunkel, SL. The chemokine receptor CCR6 is an important component of the innate immune response. 2007. *Eur. J. Immunol.* 37:2487.
4. Bhan, U., **Lukacs, NW**, Osterholzer, JJ, Newstead, Mw, Zeng, X., Moore, TA, McMillan, TR, Krieg, AM, Akira, S. and Standiford, TJ. TLR9 is required for protective innate immunity in gram-negative bacterial pneumonia: role of dendritic cells. *J. Immunol.* 179:3937, 2007.
5. Matthew A. Schaller, Rupak Neupane, Brian D. Rudd, Steven L. Kunkel, Lara E. Kallal, Pamela Lincoln, John B. Lowe, Yunfang Man, and **Nicholas W. Lukacs**. Notch Ligand Delta-like 4 regulates diseases pathogenesis during respiratory viral infections by modulating Th2 cytokines. *J. Exp. Med.* 204(12):2925-34, 2007.
6. Joost J Smit, Louis Boon, and **Nicholas W Lukacs**. Respiratory virus-induced regulation of asthma-like responses in mice depends upon CD8 T cells and IFN-g production. *Am. J. Pathol.* 171(6):1944-51, 2007.
7. Vladislav Dolgachev, Aaron A. Berlin, and **Nicholas W. Lukacs.** Eosinophil activation of fibroblasts from chronic allergen-induced disease utilizes SCF for phenotypic changes. *Am. J. Pathol.* 172:68-76.
8. Rudd BD, Luker GD, Luker KE, Peebles RS, and **Lukacs NW.** Type I interferon regulates virus infected dendritic cell maturation and cytokine production. *Viral Immunology* 20:531-540, 2007.

9. Schaller MA, Kallal LE, **Lukacs NW**. A Key Role for CC Chemokine Receptor 1 in T-Cell-Mediated Respiratory Inflammation. *Am J Pathol.* 2008 Jan 17.
10. Hutchens M, Luker KE, Sottile P, Sonstein J, **Lukacs NW**, Nez G, Curtis JL, Luker GD. TLR3 Increases Disease Morbidity and Mortality from Vaccinia Infection. *J Immunol.* 2008, 180(1):483-91.
11. Narala VR, Ranga R, Smith MR, Berlin AA, Standiford TJ, **Lukacs NW**, Reddy RC. Pioglitazone is as effective as dexamethasone in a cockroach allergen-induced murine model of asthma. *Respir Res.* 2007 Dec 4; 8(1):90.
12. Raymond T, Schaller M, Hogaboam CM, **Lukacs NW**, Rochford R, Kunkel SL. Toll-like Receptors, Notch Ligands, and Cytokines Drive the Chronicity of Lung Inflammation. *Proc Am Thorac Soc*. 2007 Dec; 4(8):635-41.
13. Smit, JJ, Lindell, DM, Boon, L, Kool, M, Lambrecht, BN, and **Lukacs, NW**. The balance between plasmacytoid DC versus conventional DC determines pulmonary immunity to virus infections. *PLoS One*, 2008. 3:e1720.
14. **Nicholas W. Lukacs**, Joost J. Smit, Matthew A. Schaller, and Dennis M. Lindell. Regulation of immunity to RSV by DCs, TLRs, and Notch. *Viral Immunology.* 2008, April 17th.
15. Newcomb DC, Sajjan US, Nagarkar DR, Wang Q, Nanua S, Zhou Y, McHenry CL, Hennrick KT, Tsai WC, Bentley JK, **Lukacs NW**, Johnston SL, Hershenson MB. Human Rhinovirus 1B Exposure Induces PI 3-kinase-dependent Airway Inflammation in Mice. *Am J Respir Crit Care Med*. 15:177:1111-21. 2008.

B. BOOKS/CHAPTERS IN BOOKS

1. **Nicholas W. Lukacs** and Matthew Schaller. Lymphocyte trafficking and chemokine receptors during pulmonary disease. Lymphocyte trafficking in health and disease. Ed. R. Badolato and S. Sozzani. *Progress in Inflammation Research*. Birkhauser Verlag AG. (In Press).
2. **Nicholas W. Lukacs** and Peter A. Ward. Leukocyte accumulation in pulmonary disease. *Fishman's Pulmonary Diseases and Disorders*, 4th Edition. Ed. AP Fishman, JA Elias, JA Fishman, MA Grippi, LR Kaiser, and RM Senior. McGraw-Hill. (In Press).
3. **Nicholas W. Lukacs** and Jeffery K. Harrison. The Birth and Maturation of Chemokines and Their Receptors. IN: *The Receptors: The Chemokine Receptors*. Humana Press Inc. (In Press).
4. Dennis M. Lindell and **Nicholas W. Lukacs**. Chemokine Receptors in Allergic Lung Disease. *The Receptors: The Chemokine Receptors*. Humana Press Inc. (In Press).
5. Lara Kallal and **Nicholas W. Lukacs**. The role of chemokines in virus associated exacerbations of asthma. *Current Allergy and Asthma Reports*.

Linglei Ma, M.D.

Assistant Professor of Pathology and Dermatology

I. Clinical Activities

A. Diagnostic Dermatopathology (University Hospital cases, transfer cases, M-Labs consultation service) --- 12 months (2-3 days "off service" per month)

B. Dermatology Grand Rounds --- once per month

C. Cutaneous lymphoma conference --- once per month

II. Teaching Activities

A. MEDICAL STUDENTS

1. Medical students on their elective rotation --- dermatopathology
2. Instructor in medical student laboratories --- M2 Pathology, dermatopathology

B. HOUSE OFFICERS AND FELLOWS

1. Rotating dermatology and pathology residents (dermatopathology daily sign-out and interesting case reviews)
2. Dermatology residents --- Dermatopathology Teaching conference (once per month)
3. Pathology residents --- Dermatopathology Teaching conference (4 per year)
4. Dermatopathology fellow --- dermatopathology daily sign-out and consultation cases reviews
5. Annual Michigan Dermatological Society Case Presentations-(3 per year)

C. LECTURES

1. Dermatology residents --- Dermatology Core Conference (1 per year)
2. Pathology residents --- Anatomic Pathology Core Conference (1 per year)

III. Research Activities

A. SPONSORED SUPPORT

1. University of Michigan (UMMC 2000-0713) Tissue Bank, Johnson, Wang, Schwartz, Voorhees, Dlugosz, Lowe, Su, Fullen, Ma, Bradford, Cimmino, “Molecular, biochemical, and cellular basis of melanoma and other melanocytic lesions”.
2. Secondary preceptor, NIH T32 training grant.
3. PI, Department of Pathology, University of Michigan (AP project funding).
   a. DNA damage response and melanoma progression, $9,700, 7/2006-7/2007 (completed, manuscript in press in Hum Path)
   b. CD13, CD14 and CD163 expression in cutaneous fibrohistiocytic lesions, $9,300, 7/2007-7/2008
   c. Expression of Cripto-1 and Nodal in cutaneous melanocytic lesions, $5,200, 2/2008-2/2009
   d. The involvement of mTOR pathway protein in cutaneous lymphomas, $5,300, 3/2008-3/2009

B. PROJECTS UNDER STUDY
1. PI, "Expression of KOC in melanomas and nevi".
2. PI, "Expression of CD163, CD13, and CD14 in Leukemia Cutis".
3. PI, "CD33 expression in cutaneous leukemia".
4. PI, "mTOR pathway molecules in cutaneous lymphoma".
5. Co-investigator, "Expression of Cripto-1 and Nodal in cutaneous melanocytic lesions".
6. Co-investigator, "The prevalence of gastrointestinal tumors in patients with sebaceous neoplasm".

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology residency training program and Dermatopathology fellowship program candidate interviews
2. Dermatology faculty candidate interviews

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Review: *Experimental Dermatology*

B. INVITED LECTURES/SEMINARS
1. Speaker, "Cutaneous B-cell lymphomas", New Frontier in pathology (French Society), University of Michigan, Department of Pathology, MI, September, 2007.
2. Invited speaker, "Evening slides symposium", 44th Annual Meeting of the American Society of Dermatopathology, October, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Clinical Pathology

2. American Society of Dermatopathology
3. United States and Canadian Academy of Pathology
4. American Association of Dermatology
5. International Society of Dermatopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. McHugh JB, Fullen DR, **Ma L**, Kleer CG, Su LD. (2007) Expression of polycomb group protein EZH2 in nevi and melanoma. *J of Cutaneous Path.* 34(8): 597-600.
2. Carvalho J, Lowe L, Fullen DR, Su LD, **Ma L.** (2007) The expression of CD23 in cutaneous non-lymphoid neoplasms. *J of Cutaneous Path.* 34(9):693-8.
3. Hutchin M, Chenoweth C, **Ma L,** McClean K. (2007) Auricular Erythema with Nodules and Scale. *Arch Derm.* 143(11): 1441-6.
4. Wasco MJ, Fullen DR, Su LD, **Ma L.** (2008) Expression of MUM1 in cutaneous T-cell lymphoproliferative disorders. *Hum Pathol*. 39(4):57-63.
5. Carvalho J, Lowe L, Fullen DR, Su LD, **Ma L.** The utility of CD23 in differentiating Merkel cell carcinoma from small cell carcinoma. (2008) Accepted by *J Cutaneous Path*.
6. Olsen SH, **Ma L**, Schnitzer B, Fullen DR**.** The expression of clusterin in cutaneous T-cell lymphomas. (2008) Accepted by *J of Cutaneous Path*.
7. Wasco M, Su LD, Pu R, **Ma L.** Expression of gamma-H2AX in melanocytic lesions. (2008) Accepted by *Hum Pathol*.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Wasco M, Su LD, Pu R, **Ma L.** Expression of gamma-H2AX in melanocytic lesions. 44th Annual Meeting of the American Society of Dermatopathology, Baltimore, MD, October, 2007.
2. Yu L, Wasco M, Xu H, **Ma L.** Evaluation of K homology domain containing protein(KOC) in melanocytic lesions . 44th Annual Meeting of the American Society of Dermatopathology, Baltimore, MD, October, 2007.
3. Yu L, Su LD, **Ma L.** Cutaneous manifestation of Richter Syndrome: a report of three cases. 44th Annual Meeting of the American Society of Dermatopathology, Baltimore, MD, October, 2007.
4. Pouryazdanparast P, Yu L, Cutlan J, Fullen DR, **Ma L.** Diagnostic value of CD163 in cutaneous spindle cell lesions. Annual Meeting of the USCAP, Denver, CO, March, 2008.

Steven H. Mandell, M.D.

Assistant Professor of Pathology
Director of MLabs Program
Director of Reference Laboratory Sendouts and Central Distribution

I. Clinical Activities

A. Medical Director, MLabs Division (35%)

B. Medical Director, Central Distribution/Specimen Processing (35%)

C. Medical Director, Send outs (Reference Laboratory Testing) (5%)

D. Medical Director coverage for Dr. Rasche at Forest Health Medical Center and University Health Service Laboratories

E. UMHS Surgical Pathology Placental Service, 4 weeks (2.5%)

F. MLabs Surgical Pathology and Consultations, MLabs, 36 weeks (5%)

G. UMHS Electron Microscopy Sign-out, Immotile Cilia Syndrome Evaluations (2.5%)

H. Autopsy Service, 1 week

I. Lean Implementation, Lead (15%)

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Resident Orientation, "MLabs and MLabs Connect"
2. Resident Orientation, "Lean Six Sigma"
3. Placental Pathology, AP Service Sign-out
4. Autopsy Service, macroscopic and microscopic sign out

B. LECTURES
1. "Lean Six Sigma Overview" University of Michigan Department of Pathology Medical Technology Students, May 2008.
2. "Implementation of Lean Concepts in Pathology" Clinical Pathology Grand Rounds, August 3, 2008, Ann Arbor, MI.

C. OTHER
1. "Lean for Healthcare," Michigan Quality System Internal Course, Ann Arbor, MI, May 2008.
2. Course OMS 490 - Projects in Healthcare. Mentor and site coordinator for 4 Bachelor of Business Administration Students from Ross School of Business, January-April 2008.
3. "GI/GU Marketing Strategies for MLabs for OMS 490 Course." Ann Arbor, MI, January 10, 2008.

III. Research Activities

A. SPONSORED SUPPORT
1. Fostering Innovation Grant from the University of Michigan for the Development of a Novel, Unit-Based, Laboratory Specimen Drop Box Using Lean Design Techniques, 03/2008, $26,000.

IV. Administrative Activities

A. DEPARTMENTAL
1. Departmental Division Directors' Meeting
2. Laboratory Personnel, Operations and Improvements Meetings, MLabs, Send outs, Specimen Processing
3. Laboratory Quality Assurance Committee
4. MLabs Connect (Atlas LabWorks) Web Portal Implementation, Lead
5. Departmental Lean Initiatives, Team Leader, Mentor; Special Project (5 months) Implementation Coordinator
6. GI/GU Strategic Workgroup, Special Project with Dr. Myers and Marketing Section Lead
7. Henry Ford Hospital, Lean Laboratory Site Visit
8. Mayo Medical Laboratories, Reference Lab Liaison
9. Strategic and Tactical Approach to Send outs Committee
10. Clinical Pathology Faculty Meetings
11. Anatomic Pathology Faculty Meetings
12. Department Combined Faculty Meetings
13. Anatomic Pathology Operations Committee
14. Anatomic Pathology Gemba Walks

15. Lost Specimens Initiative for the Core Laboratory, Lead

B. INSTITUTIONAL
   1. Clinical Computing Advisory Committee, Member
   2. Joint Venture Hospital Laboratories, UMHS Delegate
   3. Emerging Leaders Project, "The Human Factors," Developing a Corporate "Wiki" for UMHS
   4. Lean in the Laboratory, hosted visit of Jeffrey Liker, author of "The Toyota Way" and other books
   5. Lean in the Laboratory, hosted department visit of the Michigan Quality System Sponsor's Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Michigan Department of Community Health's Michigan Cancer Consortium, Lexicon Project
   2. Michigan Society of Pathologists, Representative to the Michigan Department of Community Health's Michigan Cancer Consortium
   3. MLabs Liaison/Consultant to Client Hospitals and Pathology Departments for Lab Issues and Process Improvement Initiatives

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
   1. "Lean Six Sigma Strategies and Practical Applications in Anatomic Pathology." Michigan Society of Histotechnologists Annual Meeting, Port Huron, Michigan May 17, 2008.
   2. "Implementing Lean Six Sigma Practices in Pathology." Michigan Society of Pathologists Spring Meeting, Plymouth, MI, May 3, 2008.
   3. "Leading with Lean: Critical Success Factors." Association for Process Excellence Healthcare Forum, Philadelphia, PA, April 16, 2008.
   4. "Lean in the Lab at the University of Michigan Medical Center." Association for Process Excellence Healthcare Forum, Philadelphia, PA, April 16, 2008.
   5. "Laboratory Automation in a Lean World." First World Congress on Pathology Informatics, Brisbane, AUS, August 17, 2008.
   6. "Implementing Lean Philosophy, Design and Practices." Beaumont Hospital, Troy, MI, December 13, 2007.
   7. "Lean Automation System Integration." Beaumont Hospital, Troy, MI, December 13, 2007.
   8. "Lean Design." Beaumont Hospital, Troy, MI, December 13, 2007.
   9. "MLabs Connect." Hillsdale Medical Center In-Service, Hillsdale, MI, November 8, 2007.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. College of American Pathologists
   2. American Society of Clinical Pathologists
   3. US and Canadian Academy of Pathologists
   4. American Medical Association
   5. Washtenaw County Medical Society
   6. Michigan State Medical Society
   7. Michigan Society of Pathologists

VI. Publications

A. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. "Guidelines for Investigation of Protein S Deficiency." MLabs Spectrum, Vol. 21, No. 3, October 2007.

Jonathan McHugh, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. General surgical pathology (Room I) - 8 weeks

B. Genitourinary surgical pathology (GU Room) - 7 weeks

C. Gastrointestinal surgical pathology (GA Room) - 6 weeks

D. Surgical pathology frozen section call - 4 weeks

E. Cardiovascular Center frozen section call

F. Head and neck pathology consultations, 146 cases

G. Weekly Head and Neck tumor board conference

II. Teaching Activities

A. MEDICAL STUDENTS

1. M1 Histopathology Sequence Lab Instructor (24 contact hours)
2. Senior Elective in Pathology: Supervising during diagnostic sign-out

B. HOUSE OFFICERS AND FELLOWS

1. Surgical pathology diagnostic room (general, genitourinary and gastrointestinal) instruction for pathology house officers and fellows (21 weeks)
2. Pathology house officer Consult (Head and Neck pathology) Conference (2 contact hours)
3. Otorhinolaryngology house officer and fellow pathology board review (4 contact hours)

III. Research Activities

A. PENDING PROJECTS

1. University of Michigan Collaborative Grant Type I, Carey, PI; McHugh, Co-Investigator (1% effort), "Selecting Appropriate Treatment for Oropharyngeal Cancer Using Pre-Treatment Biomarkers", 7/1/2008 - 6/30/2009, $75,000.
2. NIH, NIDCR RO1, Carey, PI; McHugh, Co-Investigator (5% effort), "Biomarkers to Guide Treatment and Improve Survival in Oral/Oropharyngeal Cancer", 4/1/2009 - 3/30/2014, $250,000.

B. PROJECTS UNDER STUDY

1. The clinical significance of focally enhanced gastritis in the pediatric population.
2. Calcium sensing receptor immunohistochemistry in the assessment of parathyroid gland functional status: an alternative to Oil Red O.
3. Clinicopathologic series of 45 surgically treated sino-orbital osteomas emphasizing cases with osteoblastoma-like features.
4. Imaging of perineural spread in head and neck cancer.
5. Perivascular epithelioid cell neoplasms (PEComas) of the head and neck.
6. Squamous cell carcinoma of the parotid gland: a clinical, pathologic and radiologic correlation.

IV. Administrative Activities

A. DEPARTMENTAL

1. Surgical Pathology Fellow candidate interviews
2. Pathology Resident candidate interviews

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Committee Member American Society of Clinical Pathology: Resident In-Service Examination (RISE) Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad-hoc reviewer
   a. *Archives of Pathology and Laboratory Medicine - Head and Neck Pathology*
   b. *Archives of Otolaryngology - Head and Neck Surgery, Head and Neck Pathology*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Clinical Pathology RISE Committee Member
2. College of American Pathologists
3. Michigan Society of Pathologists
4. North American Society for Head and Neck Pathology
5. Rodger C. Haggitt Gastrointestinal Pathology Society

6. United States and Canadian Academy of Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **McHugh JB**, Hoschar AP, Dvorakova M, Parwani AV, Barnes EL and Seethala RR. p63 immunohistochemistry differentiates salivary gland oncocytoma and oncocytic carcinoma from metastatic renal cell carcinoma. *Head and Neck Pathology.* 1(2)123-131; 2008.
2. Schiro BJ, Escott EJ, **McHugh JB**, and Carrau RL. Bone invasion by an esthesioneuroblastoma mimicking fibrous dysplasia. *European Journal of Radiology Extra*. 65(3):69-72, 2008.
3. Jing X, **McHugh JB**, Pu RT. Fine needle aspiration cytology of Rosai-Dorfman disease of bone. *Diagnostic Cytopathology*. 36(7):516-518, 2008.
4. Filho BCA, Carrau RL, **McHugh JB**, Kassam A and Heron D. Yolk sac tumor in the nasal cavity. *American Journal of Otolaryngology-Head and Neck Medicine and Surgery.* 29:250-254, 2008.
5. Encabo R, Carrau RL, **McHugh JB**, Kassam A and Heron D. Follicular dendritic cell sarcoma of the nasopharynx. *American Journal of Otolaryngology-Head and Neck Medicine and Surgery.* 29:262-264, 2008.
6. Thomas JG, Lahoud OB, Ward PD, **McHugh JB** and Pynnonen MA. Pathology quiz case: Nasal hamartoma, fibroglandular subtype. *Archives of Otolaryngology-Head & Neck Surgery.* (In Press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Mankey CC, **McHugh JB**, Thomas DG, Lucas DR. Can lymphangiosarcoma be resurrected? A clinicopathologic and immunohistochemical study of 51 cases. 97th Annual Meeting of the USCAP, Denver, CO, March 2008. Platform presentation.
2. **McHugh JB**, Yousef MM, Sabb, Lucas DR. Clinicopathologic series of 44 surgically treated sino-orbital osteomas with emphasis on cases with osteoblastoma-like features. 97th Annual Meeting of the USCAP, Denver, CO, March 2008. Poster presentation.

Paul E. McKeever, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. Daily weekday and weekend 24 hour surgical neuropathology call
   1. Individual case follow up, immunohistochemical and special stains, and electron microscopic neuropathology; weekly
   2. Brain Tumor Board, review of neurosurgical, neuroradiologic, neuropathologic and clinical-pathologic correlation, 23 weeks
   3. Surgical neuropathology case load is over four times the national average

B. Diagnostic neuropathology consultant, Veterans Administration Hospital

C. Examination of all abnormal and much normal University Hospital autopsy neuropathologic material brain cutting, sampling, microscopic examination, and special stains as needed. Fifty-three brains were examined formally at Brain Cutting Conference and others ad hoc.

D. General autopsies, 26 days

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Neuroscience Sequence, Neuropathology for Second Year Medical Students
      a. Prepared two laboratories on brain tumors; toxic, metabolic, demyelinating and infectious diseases
      b. Taught four laboratories, i.e., two in duplicate, 8 hours total
   2. Senior Medical Student Neuropathology electives
      a. Anton Khouri
      b. Anne Hiniker
      c. M4 mentoring
      d. Review laboratory techniques with UMMC Histologists
   3. Clinical Mentor, Medical Scientist Training Program

B. DENTAL STUDENTS
   1. Three lectures per year to Dental Students on Neuropathology

C. HOUSE OFFICERS AND FELLOWS
   1. Brain cutting, sampling, microscopic examination and special stain instruction of pathology and clinical House Officers
   2. Individual instruction of Pathology, Neurology, and clinical House Officers on neurosurgical biopsy material, 28 weeks
   3. Review neurosurgically removed material in the hospital in CME -approved Thursday Specialty Conferences rotated with other faculty, monthly conference
   4. Invited presentations of neuropathologic observations at various clinical conferences and CPC conferences
   5. Pathology Residents Tuesday 5:00 PM Conference rotated with other faculty
   6. Three months House Officer Electives with Drs. Christopher Przybycin and Jason Carvalho
   7. Autopsy call and Pathology Gross Conference
   8. Prepared and initiated new neuropathology half to one month rotations for senior residents including Drs. Lindsay Schmidt, Dionne Stanchina, Julie Jorns, Ebe Chinweze and He Wang
   9. Johanna Buchstaller, Ph.D. from laboratory of Sean Morrison, Ph.D.
   10. Nancy Joseph, M.D., Ph.D. student, from laboratory of Sean Morrison, Ph.D.
   11. Surgical Pathology Fellows neurosurgical biopsies

D. LECTURES
   1. Neuroscience Sequence, Neuropathology for Second Year Medical Students. Prepared two laboratories and two lectures on brain tumors; toxic, metabolic, demyelinating and infectious diseases. Taught four laboratories.

E. OTHER
   1. Faculty
      a. Brain Tumor Board, CPC, and other conferences

III. Research Activities

A. SPONSORED SUPPORT
   1. Isolation and characterization of neural cancer stem cells with Dr. Sean Morrison, (5% effort)
   2. Tumor proliferation and apoptosis in transgenic mice with Drs. Brian D. Ross and Thomas Chenevert, (11% effort)
   3. Brain Tumor Therapeutic Efficacy by Quantitative MRI with Dr. Ross
   4. Mechanisms of glioma and medulloblastoma formation in p53 genetically altered mice with Dr. Yuan Zhu

5. Correlation of MIB-1 and tumor progression of resected meningiomas with Dr. Byron Greg Thompson

IV. Administrative Activities

A. DEPARTMENTAL
1. Chief, Section of Neuropathology
2. Director, Neuropathology Residency Training
3. M-Labs Neuropathology Services

B. INSTITUTIONAL
1. Organization and scheduling of Pathology, Neurology, Neuroradiology and Neurosurgery House Officer Neuropathology teaching conferences, individual instruction and consultation review
2. Organization of call logistics, specimen handling, and schedules for coverage of diagnostic neuropathology by staff
3. Interaction with Chiefs and Staff of other clinical services, particularly Neurosurgery, Neurology, Nuclear Medicine, Radiation Oncology, Neuro-oncology and Neuroradiology
4. Quality control of microscopic, ultrastructural and immunodiagnostic neuropathology. This included numerous ad hoc reviews requested by faculty and staff

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Brain Tumor/EMF Study Scientific Advisory Panel, National Cancer Institute, Jonathan Samet, Chairman

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. Journal of Neuropathology and Experimental Neurology
2. Reviewer
   a. Journal of Neuropathology and Experimental Neurology
   b. Journal of Histochemistry and Cytochemistry
   c. American Journal of Pathology
   d. Archives of Pathology and Laboratory Medicine
3. Grant Review
   a. Children's Cancer Study Group CCG 9897

B. INVITED LECTURES/SEMINARS
1. New Methods of Brain Tumor Analysis: AFIP Kenneth M. Earle Memorial Neuropathology Reviews, Armed Forces Institutes of Pathology, Denver, Colorado, February 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Faculty of Graduate Program of Department of Pathology
2. Member, U.S. & Canadian Academy of Pathology
3. Member, Alpha Omega Alpha, Eta Chapter
4. Member, American Association of Neuropathologists
5. Member, Constitution Committee
   a. Committee Chair, 2004 - 2007
6. Member, Society of Neuroscience
7. Member, Children's Cancer Study Group
   a. Pathology Committee, 1989 - present
8. Member, Histochemical Society
   a. Constitution Advisor 1996
   b. Councilor, 1994 - 1998
   c. Publications Committee
9. Lieutenant Colonel, U.S. Army Reserve Medical Corps
   a. Duty station AFIP, 1997 - 2005
   b. Duty station Pathology Dept., Walter Reed Army Medical Center, 2005 - 2007
   c. Honorable discharge at retirement age

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Chong DY, Hirunwiwatkul P, **McKeever PE**, Trobe JD. Papilledema in obstructive hydrocephalus caused by giant cell astrocytoma of tuberous sclerosis. *J Neuroophthalmol* 27(1): 50-4, 2007.
2. Jarzembowski J, Lloyd R, **McKeever P.** Type IV collagen immunostaining is a simple, reliable diagnostic tool for distinguishing between adenomatous and normal pituitary glands. *Arch Pathol Lab Med* 131(6):931-5, 2007.
3. Joseph NM, Mosher JT, Buchstaller J, Snider P, **McKeever PE**, Lim M, Conway SJ, Parada LF, Zhu Y, Morrison SJ. The loss of Nf1 transiently promotes self-renewal but not tumorigenesis by neural crest stem cells. *Cancer Cell* 13(2):129-40, 2008.

B. BOOKS/CHAPTERS IN BOOKS
1. **McKeever PE**: Immunohistochemistry of the nervous system. *Diagnostic Immunohistochemistry,* 3rd edition. Dabbs DJ (Ed). Churchill Livingstone, Philadelphia, PA (in press).
2. **McKeever PE**: New Methods of Brain Tumor Analysis. *American Registry of Pathology Syllabus,* Washington, DC 2007, pp. 1-51 & illus. pp. 1-29.
3. **McKeever PE** Glial cell pathology. *Encyclopedia of Neuroscience*, Elsevier Science, 3rd edition. Smith BH and Adelman A, eds., (in press).
4. **McKeever PE**: The brain, spinal cord and meninges. *Sternberg's Diagnostic Surgical Pathology,* 5th edition. Mills SE et al (Ed). Lippincott William & Wilkins (in press).

5. Jarzembowski J, **McKeever P**. The Pathologic Perspective on the Pituitary Adenomas present with a variety of clinical and pathologic manifestations, which may cause difficulty in identification and management. *Review of Endocrinology*, March 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Sundgren P, Tsien C, Ten Haken R, **McKeever P**, Gomez Hassan D, Junck L, Rogers L. Correlation of MRI morphologic abnormalities and radiation treatment dose-volumes in histologically proven cerebral radiation necrosis. Abstracts of European Society of Neuroradiology (ESNR) Annual Meeting (in press).

Barbara J. McKenna, M.D.

Associate Professor of Pathology

I. Clinical Activities

A. General surgical pathology--2 weeks

B. Gastrointestinal and hepatic pathology services--3 months

C. Gastrointestinal and liver consultation services--4 months

D. General anatomic pathology on call--4 weeks

E. GI and hepatic pathology on call--12 weekends

II. Teaching Activities

A. MEDICAL STUDENTS

1. Pathology 600 - laboratory 2-4 hours per 6 weeks
2. Senior Elective in Pathology: supervising during diagnostic sign-out

B. HOUSE OFFICERS AND FELLOWS

1. Surgical pathology diagnosing rooms and consult service instruction for assigned house officer/fellow - 8 months
2. Lectures in gastrointestinal and liver pathology - 4 hours
3. Consult conferences - 4-5 hours
4. House officer orientation lecture -1 hour
5. Hepatology fellows conference - 3 hours
6. Gastroenterology fellows conference - 3 hours
7. Morgue rounds and cytology fellows conference - 1 per week each

C. LECTURES

1. Lectures in GI and liver pathology - 4 hours
2. Cytology conferences - 3 hours
3. House officer orientation lecture - 1 hour

III. Research Activities

A. SPONSORED SUPPORT

1. Gastroenterology titled "Fenofibrate for the Treatment of Patients", (2.5% effort).
2. R21, Hussain, PI, (5% effort), "MRI Quantification and Display of Hepatic Fat in Hepatitis C and Non-Alcoholic Liver Disease (NAFLD) patients".

B. PROJECTS UNDER STUDY

1. Findings in biopsies performed to investigate for possible GVHD, with Matt Wasco.
2. Validation study of select biomarkers for the diagnosis of pancreatic cancer, with M Anderson and other members of Division of Gastroenterology.
3. Magnetization transference MRI as a noninvasive method of assessing fibrotic intestinal strictures in Crohn's disease: and in vivo study of human imaging, with E Zimmermann and other.
4. "Fenofibrate for the Treatment of Patients" with Hari Conjeevaram.
5. "MRI Quantification and Display of Hepatic Fat in Hepatitis C and Non-Alcoholic Liver Disease (NAFLD) patients" with Hero Hussain.
6. Nonalcoholic steatohepatitis: is leptin deficiency an etiologic factor: with E Oral and others from Endocrinology, Gastroenterology and Radiology.
7. Radiology/pathology correlation of small bowel mural fat in patients with Crohn's disease, with Adler, Al-Hawry, Dillman, Kurlander, Platt, Sonda, and Zimmermann.
8. Non-invasive predictor of steatohepatitis and fibrosis in non-alcoholic fatty liver disease, with Kang, Lok.
9. Histologic features of relapsing ulcerative colitis complicated by Clostridium difficile infection, with Zimmermann, Katakuri, Bihlmeyer.
10. Prevalence and diagnostic features of autoimmune gastritis, with Appelman, Purdy.
11. Chronic mycophenolate colitis, with Coffing, Bihlmeyer.
12. A randomized, double-blind, placebo-controlled study of PPAR-alpha agonist Pioglitazone given in combination with peginterferon in genotype-1 chronic hepatitis C, with Conjeevaram, Buirant, Harsh Kang, White, Lok.
13. Liver histology in HBV patients with normal or minimally elevated ALT, with Lok, Degertekin.
14. Mathematical modeling of reflectance and intrinsic fluorescence for early cancer detection in human pancreatic tissue, with Wilson, Chandra, Scheiman, Simeone, Purdy, Mycek.
15. Chemical duodenopathy, clinical and endoscopic correlates, with Polydorides.

IV. Administrative Activities

A. DEPARTMENTAL

1. Program Director, Surgical Pathology Fellowship.
2. Residency Program Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
   1. ASCP
      a. President Elect
      b. Member, Board of Directors
      c. Resident In-service Examination Committee
      d. Maintenance of Certification Committee
      e. Commission on Public Policy
      f. Chair, ASCP Task Force on Communication
   2. Vice President, the Rodger C. Haggitt Gastrointestinal Pathology Society
   3. Ambassador, USCAP

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board, *Human Pathology*
   2. Editorial Board, *Modern Pathology*

B. INVITED LECTURES/SEMINARS
   1. Visiting Professor Lecture on non-IBD colitis and Slide Seminar for residents, University of Texas at San Antonio Department of Pathology, March 28, 2008.
   2. "It's not all IBDthe non-IBD colitides" at Albany Medical College Department of Pathology, Albany, NY, April 18, 2008.
   3. "The Most Common GI Consult Cases: An Audience-directed Discussion", with Elizabeth Montgomery, MD, USCAP Annual Meeting, March 2008.
   4. Case discussion: "Well differentiated hepatocellular carcinoma in a patient with familial adenomatous polyposis" at University of Michigan New Frontiers in Diagnostic Pathology, Ann Arbor, MI, Sep.27, 2007.
   5. ASCP Annual Meeting Anatomic Slide Seminar: Surgical Pathology of the GI Tract: A Gastrointestinal Miscellany: New Issues, New Twists, and Golden Oldies, with Henry D. Appelman, American Society for Clinical Pathology Annual Meeting, New Orleans, LA, Oct., 2007.
   6. "The small bowel and appendiceal cases that drive us crazy" and "The colon polyps and colidities that drive us crazier". 29th Annual Seminar Pathology Review: GI and Breast Pathology, Snowmass, CO, February 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Society for Clinical Pathology
      a. President-elect, member Board of Directors
   2. United States and Canadian Academy of Pathology
      a. Ambassador
   3. Gastrointestinal Pathology Society
      a. Vice President
   4. A. James French Society of Pathologists

5. College of American Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Rufener SL, Koujok K, **McKenna BJ**, Walsh M. Best cases from the AFIP: Small bowel intussusception secondary to Peutz-Jeghers polyp. *Radiographics* 2008, 28:284-288.
2. M. Chandra, J. Scheiman, D. Heidt, D. Simeone, **B. McKenna**, M.-A. Mycek: Probing pancreatic disease using tissue optical spectroscopy. *J Biomed Opt.* 2007 Nov-Dec; 12(6):060501.
3. Purdy JK, Appelman HD, Golembeski CP, **McKenna, BJ**. Lymphocytic esophagitis: a chronic or recurring pattern of esophagitis resembling allergic contact dermatitis. In print, *AJCP*.
4. Polydorides AD, M.D., Mukherjee B, Gruber SB, **McKenna BJ,** Appelman HD, Greenson JK. Adenoma-Infiltrating Lymphocytes (AILs) Are a Potential Marker of Hereditary Non-Polyposis Colorectal Cancer. In print, *AJSP.*

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Chandra M, Heidt D, Simeone D, **McKenna BJ**, Scheiman J, Mycek M-A. Pancreatic tissue assessment using fluorescence and reflectance spectroscopy, European Conference on Biomedical Optics, Munich, Germany, 2007.
2. Polydorides AD, Gruber SB, **McKenna BJ**, Appelman HD, Greenson JK. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. *Mod Pathol* 2008; 21:132A.
3. Purdy JK, Appelman HD, **McKenna BJ**. Sloughing esophagitis: a type of contact esophageal injury in debilitated patients? *Mod Pathol* 2008; 21:133A.
4. Wasco MJ, **McKenna BJ**. Diagnostic yield for GVDH and alternate diagnoses in biopsies from 1209 endoscopies in bone marrow transplant patient. *Mod Pathol* 2008; 21:140A.
5. Adler J, Punglia DR, Dillman JR, Polydondes A, Al-Hawary AM, Platt JF, **McKenna BJ**, Zimmermann EM. CT enterography findings correlate with tissue inflammation but not fibrosis in resected small bowel Crohn's disease. *Gastroenterol* 2008; 13494 Supple 1: A-195.
6. Adler J, Swanson S, Polydorides AD, **McKenna B**, Hussain HK, Higgins PD, Golembeski CP, Zimmermann EM. Magnetization Transfer MRI quantitatively detects intestinal fibrosis in ex vivo human intestinal tissue in Crohn's disease. *Gastroenterol* 2008; 134 (4) Suppl 1: A-21.
7. Adler J, Swanson SD, Schmiedlin-Ren P, Higgins PD, Polydorides AD, **McKenna BJ**, Zimmermann EM. Magnetization Transfer MRI detects intestinal fibrosis, not inflammation in an animal model of Crohn's disease. *Gastroenterol* 2008; 134(4) Suppl 1:A-194.

Claire W. Michael, M.D.

Associate Professor
Director of Cytopathology

I. Clinical Activities

A. Cytopathology - Fifteen weeks

B. Thoracic Multidiscipline Conference - Six months

C. Breast Cancer Clinic, Cytopathology - Twelve months

D. Cytopathology Consultation Service, Department of Pathology - Twelve months

E. Necropsy Service - Five weekends

II. Teaching Activities

A. MEDICAL STUDENTS

1. Mentor for medical students' senior clerkship - 6 weeks

B. HOUSE OFFICERS AND FELLOWS

1. Sign out; Gynecologic and Non-Gynecologic Cytology cases -15 weeks
2. Instruction in the performance and interpretation of fine needle aspirates - 8 weeks
3. Cytopathology Resident Conference - 4/year
4. Weekly Cytopathology Fellowship Conference - 12 months
5. Consult Case Conference - 4/year
6. Anatomic Pathology Conference - 4/year-Review of Cytopathology
7. Cytopathology positive case review/consensus conference – daily, 12 months
8. Cytopathology Journal Club - 12/year
9. Cytopathology Research conference - 12/year

C. LECTURES

1. Cytopathology Resident Conference - 4/year
2. Weekly Cytopathology Fellowship Conference - 12 months
3. Consult Case Conference - 4/year

4. Anatomic Pathology Conference - 4/year-Review of Cytopathology

D. OTHER
1. Developing slide and written test for competency evaluation of residents and fellows
2. Cytotechnologists - Cytopathology Slide Conferences - 2/year

III. Research Activities

A. PROJECTS UNDER STUDY
1. Jing; Michael, Review of thyroid fine needle aspirations: the University of Michigan experience over the last 10 years.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Cytopathology Laboratory
2. Director, Cytopathology Fellowship
3. Member, Residency Review Board
4. Member, AP Operations Group

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Secretary, Papanicolaou Society of Cytopathology
2. Chairperson, Educator of the Year Award Task Force, Papanicolaou Society of Cytopathology
3. Member, American Society of Cytopathology, Progressive Evaluation of Competency Task Force

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Member, Editorial Board, *Diagnostic Cytopathology*
2. Reviewer
   a. *Diagnostic Cytopathology*
   b. *Cancer Cytopathology*
   c. *European Journal of Oncology.*
   d. *Journal of Surgical Oncology*
   e. *International Journal of Obstetrics and Gynecology*
   f. *Medical Science Monitor.*
   g. *Archives of Laboratory Medicine*
   h. *Cytopathology*

B. INVITED LECTURES/SEMINARS
1. Pleural Cytopathology. Invited Presentation, New Frontiers in Diagnostic Pathology. University of Michigan. September 27, 2007.

2. Follow-up of non-diagnostic aspirates: Recommendations of the "Post FNA follow-up Committee". Invited Presentation, NCI Thyroid Fine Needle Aspiration State of the Science Conference. Bethesda, Maryland. October 23, 2007.
3. Neuroendocrine tumors: A spectrum in search of criteria. ASC national meeting. Vidiomicroscopy Tutorial. November 2, 2007. Given with Farnaz Hasteh, M.D. American Society of Cytopathology National Meeting. November 2, 2007
4. Error management in cytopathology laboratory: Learning from our mistakes. Luncheon seminar, American Society of Cytopathology National Meeting. November 3, 2007. Given with Kalyani Naik, MS, CT (ASCP).
5. Liquid based cytopathology for thyroid aspirates. Invited Presentation, Society of Clinical Cytology. November 17, 2007. Brussels, Belgium.
6. Quality control issues in thyroid aspirates prepared by liquid based preparations. Invited Presentation, Society of Clinical Cytology. November 17, 2007. Brussels, Belgium.
7. Unknown slide seminar in thyroid and salivary gland lesions. Society of Clinical Cytology. Invited Presentation, November 17, 2007. Brussels, Belgium.
8. Pitfalls in pulmonary cytology. Teleconference, Teleconference Network of Texas. November 27, 2007.
9. Neuroendocrine tumors of the lung: Visiting Professor, Bhagwan Mahaveer Cancer Hospital and Research Center, Jaipur, India. February 6, 2008.
10. Pitfalls in pulmonary cytology: A pattern recognition approach and unknown case presentation. Visiting Professor, Bhagwan Mahaveer Cancer Hospital and Research Center, Jaipur, India. February 6, 2008.
11. Malignant mesothelioma: Diagnostic work-up and differential diagnosis. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
12. Look-alikes in effusion cytology: Review of diagnostic challenges. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
13. You ask and we answer: How to manage laboratory errors? Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
14. Pitfalls in pulmonary cytology: A pattern recognition approach and unknown case presentation. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
15. Pulmonary neuroendocrine tumors. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
16. Diagnostic dilemmas: A potpourri of cytology lumps and bumps. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 8, 2008.
17. Pregnancy related changes on Pap smears. Visiting Professor, Tata Memorial Hospital, Mumbai India. February 9, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Member, Editorial Board, *Diagnostic Cytopathology*
2. Secretary, Papanicolaou Society of Cytopathology

3. Chairperson, Educator of the Year Award Task Force, Papanicolaou Society of Cytopathology
4. Member, American Society of Cytopathology, Progressive Evaluation of Competency Task Force

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Pu RT, Sheng ZM, **Michael CW**, Rhode MG, Clark D, O'Leary TJ. Methylation Profiling of Mesothelioma Using Real-Time Methylation-Specific PCR. Diagn. *Cytopathol.* 2007; 35(8):498-502.
2. Glaros S, Cirrincione GM, Muchardt C, Kleer CG, **Michael CW**, Reisman D. The reversible epigenetic silencing of BRM: implications for clinical target therapy. *Oncogene* 2007; 26:7058-7066.
3. Hasteh F, Pang Y, Pu RT, Michael CW * Do we need more than one ThinPrep to obtain adequate cellularity in fine needle aspirates? Letter to the Editor. *Diagn.Cytopathol.* 2007:35(11); 740-743.
4. Jing X, **Michael CW**, Pu RT. The clinical and diagnostic impact of using standard criteria of adequacy assessment and diagnostic terminology on thyroid nodule fine needle aspiration*. Diagn. Cytopathol,* In press.
5. Siddiqui M, **Michael CW**, Griffith K, Pu RT. Nodule heterogeneity as shown by size difference between the targeted nodule and the tumor at thyroidectomy specimen: A cause for false negative diagnosis of papillary carcinoma on fine needle aspiration. *Cancer Cytopathology*, in press.
6. Longatto A, Baltazar F, Bedrossian C, **Michael C**, Schmitt FC. Immunohistochemical expression and distribution of VEGFR-3 in malignant mesothelioma. *Diagn. Cytopathol*. 2007; 35:786-791.
7. **Michael CW**, Pang Y, Pu RT, Hasteh F, Griffith KA. Cellular Adequacy for thyroid aspirates prepared by ThinPrep: How many cells are needed? Diagn. *Cytopathol*.2007; 35:792-797.
8. Pu RT, Pang Y, **Michael CW** **. Utility of WT-1, p63, Mesothelin, and Cytokeratin (K903 and CK5/6) immunostains in differentiating adenocarcinoma, squamous cell carcinoma, and malignant mesothelioma in effusion. *Diagn. Cytopathol.*2008; 36:20-25.
9. Wilson R, Glaros S, Brown RK, **Michael C**, Reisman. Complete radiographic response of primary pulmonary angiosarcomas following gemcitabine and taxotere. *Lung Cancer*, in press.
10. Layfield LJ, Abrams J, Cochand-Priollet B, Evans D, Charib H, Greenspan F, Henry M, LiVolsi V, Merino M, **Michael CW**, Wang H, Wells S. NCI state of the science conference: Post thyroid FNA testing and treatment options. *Diagnostic Cytopathol*, In press.

11. Bardarov S, **Michael CW**, Lucas D, Pang Y, Pu R. Fine needle aspiration biopsy of metastatic malignant melanoma resembling a malignant peripheral nerve sheath tumor. *Diagn. Cytopathol*, in press.
12. Pang Y, Smola B, Pu R, **Michael CW****. Restoring unsatisfactory ThinPrep Pap Test specimens with too few squamous cells and containing microscopic red blood cells. *Diagn. Cytopathol*, in press.
13. Pu R, Giordano T, **Michael CW****. Utility of cytology Microarray from effusion cell blocks for immunomarker validation. *Cancer Cytopathology*, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Michael CW**. "Fine needle aspiration of thyroid prepared by ThinPrep." *Thyroid Cytopathology: An Atlas and Text*, Kini S (ed.). Philadelphia J.B. Lippincott Company, 2008.
2. **Michael CW**. "Exfoliative Respiratory Cytology." *Differential Diagnosis in Cytopathology,* Guttuso, Reddy and Massood, eds. New York, NY Cambridge University Press,n press.
3. Yousef M, **Michael CW**. "Body Fluids." *Differential Diagnosis in Cytopathology*, Guttuso, Reddy and Massood, eds. New York, NY Cambridge University Press, n press.
4. **Michael CW**, Bedrossian CWM, and Chhieng D. "Effusion Cytology". *Papanicolaou Society of Cytopathology Monograph Series*, **Michael CW** (ed.). New York, NY: Cambridge University Press. (In progress).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Jing X, Pang Y, **Michael CW**, Pu RT. Cytological evaluation of false positive cases of papillary thyroid carcinoma on fine needle aspiration. *Modern Pathology*; 2008 (21):76 (338) A.
2. Bardarov S, **Michael C**, Pu RT, Pang Y. Digital analysis of congo red stained fat pad aspirate specimen: A capable tool in the diagnosis of systemic amyloidosis. *Modern Pathology*; 2008: 362 (1650A).

Richard A. Miller, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Adam Salmon (thesis student, Cellular and Molecular Biology)
2. Scott Leiser (thesis student, Cellular and Molecular Biology)
3. Mike Steinbaugh (thesis student, Cellular and Molecular Biology)
4. Liou Sun (postdoctoral fellow)
5. Bill Swindell (postdoctoral fellow)
6. Ayesha Rahman (postdoctoral fellow)
7. Amir A. Sadighi-Akha (postdoctoral fellow; now Research Investigator)
8. James Harper (Research Investigator, Pathology)
9. Gonzalo Garcia (Research Investigator, Pathology)

B. UNDERGRADUATE AND MEDICAL STUDENTS

1. Katie Koelzer, LSA-4
2. Brad Krasnik, LSA-2
3. Brandon Rosen, LSA-1
4. Thesis committee member
   a. Lynn Kamen, Immunology Program
   b. Phil Lapinski, Immunology Program
   c. Grace Yu, Immunology Program

C. LECTURES

1. Lecturer, Pathology 581, Cellular and Molecular Basis of Disease

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NIA U01-AG022303-05, PI, "Laboratory for Anti-Geric Testing, Evaluation and Research", 7/2003 - 6/2008, $515,430 direct costs/year, $1,996,000/5 yr.

2. NIH/NIA T32 AG000114-24, PI, “Biomedical Research Training in the Biology of Aging”, 5/2005 - 4/2010, $378,495 direct costs/year ($1,892,075/5 yr).
3. NIH/R01-AG019619-06, PI, "Activation Defects in T Cells of Aged Mice", 9/1/2007 - 8/31/2012, $205,000 direct costs/year ($1,025,000/5 year).
4. NIH/NIA R01-AG11687-14, PI, "Genetics of Longevity and Age-Sensitive Traits in Mice", 9/1/2004 - 8/30/2009, $308,986 direct costs/year ($1,575,757/5 yr).
5. NIH/NIA U19-AG023122-04, Cummings, Program PI; Miller, Project Director, “A Consortium to Study the Genetics of Longevity”, 0/1/2004 - 6/30/2009, $162,556 direct costs/year ($1,000,000/5 yr).
6. NIH, P01-AG025164-03, Schacht, PI; Miller, Project Director, “Genetic Analysis of Hearing Loss, Stress, and Age-Sensitive Traits in Mice”, 7/01/2005 -7/31/2010, $163,309 direct costs/year ($900,000/5 yr).
7. NIH R01-AG19899-07, Bartke, PI; Miller, Project Director, “Gene Expression and Biomarkers in Dwarf Mice, SIU Subcontract 02-17”, 9/1/2006 - 8/31/2011, $44,000 direct costs/year ($220,000/5 yr).
8. NIH, R01-AG022891-05, Buffenstein, PI; Miller, Project Director, "Mechanisms of Aging in the Long-Lived Naked Mole Rat", 9/30/2003 - 8/31/2008, $25,237 direct costs/year ($125,000/5 yr).
9. NIH, P30-AG024824-04, Claude D. Pepper Older Americans Independence Center, Halter, Program PI; Miller, Core Facility for Aged Rodents Director, 9/1/2004 - 7/31/2009, $979,318 direct costs/year. Miller serves as Director, Core Facility for Aged Rodents, direct costs/year $55,245.
10. NIH, P30-AG024824-04, Halter, PI; Miller, Project Director, "Yale Supplement: Claude D. Pepper Older Americans Independence Centers", 9/1/2007 - 7/31/2008, $19,452 direct costs/year.
11. Keck Foundation, NAKFI HS10, Project Director, "Comparative Biogerontology Initiative", 5/1/2008 - 4/31/2010, $62,500 direct costs/year ($125,000/2 year).
12. NIH/NIA, R21 AG030828-01, Garcia, PI; Miller, Co-Investigator, "ERM and Rho Signal Pathways in T Cell Immune Senescence", 9/1/2007 - 8/31/2009, $102,500 direct costs/year ($205,000 direct costs/2 yr).

B. PENDING PROJECTS

1. NIH/NIA, P01-AG031736-01A1, Bartke, Program Director; Miller, Project Director, "Somatotrophic Axis and Healthy Aging: A Search for Mechanisms", 4/1/2009 - 3/31/2014. Requested first year direct costs: $235,629.
2. NIH/NIA, U01-AG022303-06, PI, "Laboratory for Anti-Geric Testing, Evaluation and Research", 7/01/2008 - 6/30/2013, requested first year direct costs: $499,656.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Biomedical Research Training in Aging Program

B. INSTITUTIONAL
1. Director, Core Facility for Aging Rodents
2. Member, Cancer Biology Training Program
3. Member, Cell and Molecular Biology Training Program
4. Member, Rheumatology Training Program
5. Associate Director for Research, Geriatrics Center
6. Associate Director, Nathan Shock Center for the Biology of Aging

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Board of Directors, American Federation for Aging Research
2. Board of Directors, American Aging Association (AGE)
3. Board of Advisors, Vaccine and Gene Therapy Institute (Portland , OR)
4. Scientific Advisory Board, Buck Center for Research in Aging

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. *Aging Cell*
   b. *Aging: Clinical and Experimental Research*
   c. *Mechanisms of Ageing and Development*
   d. *Experimental Gerontology*
   e. *Journal of Gerontology: Biological Sciences*
2. Manuscript reviews
   a. *Science*
   b. *Journal of Immunology*
   c. *PLoS Genetics*
   d. *Journals of Gerontology: Biological Science*
   e. *Nature*
   f. *EMBO Reports*
3. Grant reviews
   a. Austrian Science Fund

B. INVITED LECTURES/SEMINARS
1. "T Cells in Aging Mice: What Goes Wrong and How To Fix It." FASEB Summer Conference on Nutritional Immunology, Tucson, AZ. July 31, 2007.
2. "Cells, Stress, Cancer and Aging - Lessons from IGF-I Mutant Dwarf Mice", Woods Hole Course in Molecular Biology of Aging, Woods Hole, MA. August 13, 2007.
3. "Cell stress resistance and the aging rate." Biology of Aging Symposium, Saltsjobaden, Sweden, September 17, 2007.
4. "How long will my mouse live? Predictors and biomarkers of aging." Seeking Biomarkers of Aging and Diseases of Aging, New York, NY. October 2. 2007.

5. "Calorie Restriction: Introduction and Overview." Buck Institute Symposium on Nutrient Signals and Aging, Novato, CA, November 13, 2007.
6. (1) "NIA Intervention Testing Program: Initial Results." (2) "Extending Lifespan: Scientific Prospects and Political Obstacles." (3) Irving Wright Award Lecture: "Live Short and Prosper: Aging Secrets of the Snell Dwarf Mouse" Gerontological Society of America Annual Meeting, San Francisco, CA. November 17, 18, 2007.
7. "Genetics of Stress Resistance and Aging in Mice." Longevity Consortium Meeting, Bethesda, MD. December 3, 2007.
8. “Use of Mutant Mice for Aging Research”, Biogerontology Research Symposium, Ann Arbor, MI, March 3, 2008.
9. "NIA Interventions Testing Program: Current Status and Future Plans”, Keystone Meeting on Metabolic Pathways of Longevity, Copper Mountain, CO. April 2, 2008.
10. "Aging Secrets of the Snell Dwarf Mouse", Jackson Laboratory, Bar Harbor, ME, May 8, 2008.

C. HONORS AND AWARDS
1. Irving S. Wright Award of Distinction (2007)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Flurkey, K., Y. Brandvain, S. E. Klebanov, S. N. Austad, **R. A. Miller**, R. Yuan, and D. E. Harrison. 2007. PohnB6F1: a cross of wild and domestic mice that is a new model of extended female reproductive life span. *J. Gerontol. Biol. Sci.* 62A:1187-1198. [PMC: 18000137]
2. Garcia, G. G., A. A. Sadighi Akha, and **R. A. Miller**. 2007 Age-related defects in moesin/ezrin cytoskeletal signals in mouse CD4 T cells. *J. Immunol*. 179: 6403-6409.
3. **Miller, R. A**. 2007. Of aging mice and men. *Science* 318: 390.
4. **Miller, R. A**., D. E. Harrison, C. M. Astle, R. A. Floyd, K. Flurkey, K. L. Hensley, M. A. Javors, C. Leeuwenburgh, J. F. Nelson, E. Ongini, N. L. Nadon, H. R. Warner, R. Strong. 2007. An aging interventions testing program: study design and interim report. *Aging Cell* 6: 565 - 575. PMC: 17578509]
5. Olshansky, S. J., D. Perry, **R. A. Miller**, and R. N. Butler. 2007. Pursuing the longevity dividend: scientific goals for an aging world. *Annals NY Acad. Sci.* 1114:11-13.
6. Varani, J., N. Bhagavathula, K. Fay, R. L. Warner, M. N. Aslam, A. Hanosh, A. G. Barron, and **R. A. Miller**. 2008. Inhibition of retinoic acid induced skin irritation in calorie-restricted mice. *Arch. Derm. Research* 300:27 - 35. [PMC: 17968574]
7. Salmon, A. B., M. Ljungman, and **R. A. Miller**. 2008. Cells from long-lived mutant mice exhibit enhanced repair of ultraviolet lesions. *J. Gerontol. Biol. Sci*. 63: 219 - 231. [PMC: 18375871]

8. Salmon, A. B., A. A. Sadighi Akha, R. Buffenstein and **R. A. Miller.** 2008. Fibroblasts from naked mole-rats are resistant to multiple forms of cell injury, but sensitive to peroxide, ultraviolet light, and endoplasmic reticulum stress. *J. Gerontol. Biol. Sci.* 63: 232 - 241. [PMC: 18375872]
9. Nadon, N. L., R. Strong, **R. A. Miller**, J. Nelson, M. Javors, Z. D. Sharp, J. M. Peralba, and D. E. Harrison. 2008. Design of aging intervention studies: the NIA Interventions Testing Program. *AGE online* - http://dx.doi.org/10.1007/s11357-008-9048-1.
10. Swindell, W. R., J. M. Harper and **R. A. Miller**. How long will my mouse live? Machine learning approaches for prediction of mouse lifespan. *J. Gerontol. Biol. Sci.*, in press.
11. Butler, R. N., **R. A. Miller**, D. Perry, B. A. Carnes, T. F. Williams, C. Cassel, J. Brody, M. A. Bernard, L. Partridge, T. Kirkwood, G. M. Martin, S. J. Olshansky. New model of health promotion and disease prevention for the 21st century. *British Medical Journal,* in press.
12. Strong, R. **R. A. Miller**, C. M. Astle, R. A. Floyd, K. Flurkey, K. L. Hensley, M. A. Javors, C. Leeuwenburgh, J. F. Nelson, Ennio Ongini, N. L. Nadon, H. R. Warner, D. E. Harrison. Nordihydroguaiaretic acid and aspirin increase lifespan of genetically heterogeneous male mice. *Aging Cell*, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. Lithgow, G. J. and **R. A. Miller**. 2008. The determination of aging rate by coordinated resistance to multiple forms of stress. *The Molecular Biology of Aging,* L. Guarente, L. Partridge, and D. Wallace, eds. Cold Spring Harbor Press, NY.
2. **Miller, R. A**. Biology of aging and longevity. Chapter 1 in: *Principles of Geriatric Medicine and Gerontology*, 6th Edition, J. B. Halter et al., eds., McGraw-Hill, Inc., NY, in press.

Hedwig S. Murphy, M.D., Ph.D.

Assistant Professor of Pathology

I. CLINICAL ACTIVITIES

A. Surgical Pathology and Frozen Section Diagnosis - 17 weeks/year

B. Frozen section diagnosis - 17 weeks/year

C. Autopsy Service, rotational basis, on call - 13 weeks/year

D. Clinical Electron Microscopy - 52 weeks/year

E. Case presentations at Urologic Pathology Conferences – weekly

II. TEACHING ACTIVITIES

A. MEDICAL STUDENTS

1. Laboratory Instructor, pathology 600 (M2 pathology course, 4 sessions, 10 contact hrs)

B. GRADUATE STUDENTS

1. Member, Curriculum Committee, Molecular and Cellular Pathology Graduate Program
2. Course Director: Pathology 581
3. Tissue, Cellular and Molecular Basis of Disease - 4 credits
4. Lecturer. Pathology 581
5. Tissue, Cellular and Molecular Basis of Disease 4 credits - 43 contact hrs

C. PATHOLOGY HOUSE OFFICERS

1. Autopsy supervision and instruction - 13 weeks /year
2. Instruction in gross examination, processing and frozen section processing and diagnosis - 17 weeks/ year
3. Surgical Pathology supervision and instruction -17 weeks/year

D. UROLOGY HOUSE OFFICERS
   1. Urologic Pathology Conferences: case presentation and discussion, weekly, 177 cases reviewed
   2. Urologic Pathology Lectures for Urology residents - ~8/year

E. CONTINUING MEDICAL EDUCATION
   1. Web-Based Teaching
   2. Pathology 581, UM ctools.
   3. Urologic Pathology Online Review: a web-based board review course for Urology residents

III. RESEARCH ACTIVITIES

A. SPONSORED SUPPORT
   1. Department of Veterans Affairs Research Enhancement Award Program (REAP), Curtis, PI; Co-Investigator, “Pulmonary Innate Immunity in the Pathogenesis of Tobacco-induced Lung Diseases”, renewal years 2005-2010, $1,125,000 total direct costs.

B. PROJECTS UNDER STUDY
   1. Role of pulmonary microvascular endothelial cells in smoking induced COPD.
   2. Gender-specific effects of hormones in autoimmunity: Hormone regulation of cytokine expression by microvascular endothelial cells.
   3. Hormones regulation of dendritic cell activation and T cell function.
   4. The role of endothelial cell derived oxidants in signaling and cell injury.
   5. Repertoire of endothelial cell derived cytokines: role in inflammation.

IV. ADMINISTRATIVE ACTIVITIES

A. DEPARTMENTAL
   1. Member, Curriculum Committee, The Molecular and Cellular Pathology Graduate Program

B. MEDICAL SCHOOL/HOSPITAL
   1. Chief, Anatomic Pathology, Pathology and Laboratory Medicine, VAAHS
   2. Chief, Clinical Electron Microscopy, Pathology and Laboratory Medicine, VAAHS
   3. Member, Peer Review Committee, VAAHS

C. REGIONAL AND NATIONAL
   1. Membership in National organizations
   2. American Society for Investigative Pathology
   3. American Society of Clinical Pathologists
   4. American Association of University Women
   5. The A. James French Society of Pathologists

6. Society for Experimental Biology and Medicine
7. American Heart Association
8. College of American Pathologists
9. Michigan Society of Pathologists

V. OTHER RELEVANT ACTIVITIES

A. Case presentations at Tumor Board
B. Case presentations at Morbidity and Mortality Conferences
C. Case presentations at Urologic Pathology Conferences
D. Tissue evaluation for clinical researchers

VI. PUBLICATIONS

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Mendez M, Morris SB, Wicoxen S, Du M, Monroy Y, Remmer H, **Murphy HS**, Christensen PJ, Paine, R. Disparate Mechanisms of sICAM-1 Production in the Peripheral Lung: Contrast between Alveolar Epithelial Cells and Pulmonary Vascular Endothelial Cells. *American Journal of Physiology-Lung, Cellular and Molecular Physiology*.2008 doi:10.1152/ajplung.00398. 2007.

B. BOOKS AND CHAPTERS IN BOOKS

1. **Murphy, HS**. "Inflammation" Pathology: Clinicopathologic Foundations of Medicine R. Rubin and D. Strayer, ed. Lippincott Williams & Wilkins, 2007
2. **Murphy, H. S.**, J. Varani and P. A. Ward. "Biology of Endothelial Cells: Role of the Endothelium in Lung Inflammation". *Middleton's Allergy: Principles and Practice*. N. F. Adkinson. Mosby St Louis. 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. C.M. Freeman, F.J. Martinez, D.A. Arenberg, S.W. Chensue, **H.S. Murphy**, C. Meldrum, M. Han, K. Flaherty, M. Frederick, B. Thompson, J.L. Curtis. Lung IL-15 production in COPD correlates with measures of disease severity: a study using LTRC resources. American Thoracic Society. 2007.
2. C.M. Freeman, F.J. Martinez, S.W. Chensue, **H.S. Murphy**, D.A. Arenberg, J. Sonstein, C. Meldrum , D.L. Thompson , J.L. Curtis. COPD severity correlates with an increased percentage of dendritic cells expressing CD80 and CD83. American Thoracic Society. 2007.

Jeffrey L. Myers, M.D.

A. James French Professor of Pathology
Director, Division of Anatomic Pathology

I. Clinical Activities

A. Room 1 - 6 weeks

B. GU pathology - 6 weeks

C. Breast pathology - 4 weeks

D. Extramural consultation cases, 1,036 signed cases, 1JUN07 - 31MAY08

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Elective in pulmonary pathology
   a. Diane Hall three months
   b. Hong Li two months
   c. Matthew Wasco - one month
   d. Wren Clingan (Surgical Pathology Fellow from University of Arkansas for Medical Sciences) - one month

III. Research Activities

A. PROJECTS UNDER STUDY

1. Role of transbronchial biopsy in evaluating patients suspected of having UIP/IPF
2. Design, prototype, manufacture and marketing of new tray for pathology slides and blocks (in collaboration with Dr. Peter Lucas, Professor Albert Shih, and Scott Miller, School of Engineering)
3. Pulmonary adenocarcinomas with intestinal differentiation
4. Construction of TMA for lymphangioleiomyomatosis
5. Assessment of potential prognostic factors in IPF patients with atypical findings on imaging studies

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Division of Anatomic Pathology
2. Chair, AP Laboratory Operations Group
3. Faculty Recruitment

B. INSTITUTIONAL
1. Member, Executive Committee on Clinical Affairs

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Executive Advisory Board, Archives of Pathology and Laboratory Medicine
2. Member of Council, United States and Canadian Academy of Pathology
3. Member of Council and President-elect, Association of Directors of Anatomic and Surgical Pathology
4. Primary author of pulmonary pathology journal club blog, Pulmonary Pathology Reviews (www.pulmpathrev.typepad.com)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Member, Editorial Board
   a. *Human Pathology*
   b. *Advances in Anatomic Pathology*
   c. *American Journal of Clinical Pathology*
2. Manuscript Review
   a. *American Journal of Respiratory and Critical Care Medicine*
   b. *European Respiratory Journal*
   c. *Chest*
   d. *Human Pathology*
   e. *Archives of Pathology and Laboratory Medicine*
   f. *Modern Pathology*

B. INVITED LECTURES/SEMINARS
1. Invited Speaker and Faculty, USCAP Diagnostic Pathology 2007, Banff, Alberta, Canada, July 2007.
2. Faculty, Update on Pulmonary and Critical Care Medicine, University of Michigan, Ann Arbor, MI, September 2007.
3. Co-Director and Speaker, New Frontiers in Diagnostic Pathology, University of Michigan, Ann Arbor, MI, September 2007.
4. Visiting Professor, Beth Israel Deaconess Medical Center Department of Pathology, and Invited Speaker, Harvard Combined Pathology Grand Rounds Seminar, Boston, MA, November 2007.

5. Visiting Professor and Speaker, Department of Pathology Research Seminar Series, University of Virginia, Charlottesville, VA, February 2008.
6. Invited Speaker, "Pathology Business Innovations & Competition: Collaborative Opportunities and Solutions", Association of Directors of Anatomic and Surgical Pathology (ADASP) Annual Meeting, Denver, CO, March 2008.
7. Invited Speaker, "Finding Your Place in Academic Pathology", Evening House staff Specialty Conference, Annual Meeting of the United States and Canadian Academy of Pathology, Denver CO, March 2008.
8. Faculty and Co-Director, Short Course "Unusual Lung Lesions: A Potpourri of Interesting Cases for Surgical Pathologists", Annual Meeting of the United States and Canadian Academy of Pathology, Denver, CO, March 2008.
9. Invited Speaker, "Small Cell Carcinoma: Pathologic Classification" and "Pathological Evaluation of Idiopathic Interstitial Pneumonias", Sociedad Mexicana de Neumologia Y Cirugia de Torax A.C., LXVII Congreso Nacional 2008, Istapa-Zihuatanejo, Mexico, March 2008.
10. Invited Speaker and Visiting Professor, the Departments of Pathology and Pulmonary and Critical Care Medicine, the University of Cincinnati and Cincinnati Children's Hospital, Cincinnati, OH, April 2008.
11. Invited Speaker, "The Pathology of LAM", The LAM Foundation/NHLBI Lymphangioleiomyomatosis International Research Conference 2008, Cincinnati, OH, April 2008.
12. Invited Speaker, "Aligning Surgical Pathology and Informatics to Promote Patient Safety", Labinfotech Summit, Las Vegas, NV, April 2008.
13. Visiting Professor and Invited William M Shelley Memorial Lecturer, Department of Pathology, the Johns Hopkins University School of Medicine, Baltimore, MD, April 2008.
14. Invited Speaker and Faculty, 27th Annual Current Issues in Surgical Pathology (sponsored by Department of Pathology, University of Texas Southwestern Medical Center at Dallas), Dallas, TX, May 2008.
15. Invited Speaker, "Problems in Lung Carcinoma Classification", Battle Creek Health System Cancer Care Symposium, Battle Creek, MI, May 2008.
16. Invited Speaker, “Great Cases: Clinical, Radiologic, Pathological Correlations by Master Physicians” (Fellows Conference), ATS 2008, Annual American Thoracic Society International Conference, Toronto, ON, May 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, United States and Canadian Academy of Pathology
   a. Chair, USCAP Education Committee (4-year term ended April 2007)
2. Fellow, American Thoracic Society
3. Fellow, American College of Chest Physicians
4. Fellow, College of American Pathologists
5. Member, Association of Directors of Anatomic and Surgical Pathology

6. Member, Arthur Purdy Stout Society
7. Fellow, American Society of Clinical Pathologists

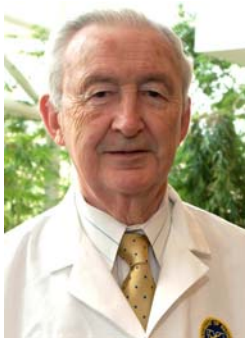
VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Myers J**. Nonspecific interstitial pneumonia: pathologic features and clinical implications. *Semin Diagn Pathol* 2007; 24:183-7.
2. Huang S, Wettlaufer S, Hogaboam C, Flaherty K, Martinez F, **Myers J**, Colby T, Travis W, Toews G, Peters-Golden M. Variable prostaglandin E2 resistance in fibroblasts from patients with usual interstitial pneumonia. *Am J Respir Crit Care Med* 2008; 177:66-74.
3. Aerni M, Aubry M-C, **Myers J**, Vassallo R. Complete remission of nodular pulmonary Langerhans cell histiocytosis lesions induced by 2-chlorodeoxyadenosine in a non-smoker. *Respir Med* 2008 102:316-9.
4. Aerni M, Vassallo R, **Myers J**, Lindell R, Ryu J. Follicular bronchiolitis in surgical lung biopsies: Clinical implications in 12 patients. *Respir Med 2008*; 102:307-12.
5. **Myers J**, Tazelaar H. Challenges in pulmonary fibrosis: Problematic granulomatous lung disease. *Thorax* 2008; 63:78-84.
6. Han M, Murray S, Fell C, Flaherty K, Toews G, **Myers J**, Colby T, Travis W, Kazerooni E, Gross B, Martinez F. Sex differences in physiological progression of idiopathic pulmonary fibrosis. *Eur Respir J* 2008; 31:1183-8.
7. Roden A, Macon W, Keeney G, **Myers J**, Feldman A, Dogan A. Seroma-associated primary anaplastic large-cell lymphoma adjacent to breast implants: an indolent T-cell lymphoproliferative disorder. *Mod Pathol* 2008; 21:455-63.
8. Hanak V, Ryu J, de Carvalho E, Limper A, Hartman T, Decker P, **Myers J**. Profusion of fibroblast foci in patients with idiopathic pulmonary fibrosis does not predict outcome. *Respir Med* 2008; 102:852-6.
9. Trahan S, Hanak V, Ryu J, **Myers J**. Role of surgical lung biopsy in separating chronic hypersensitivity pneumonia from usual interstitial pneumonia/idiopathic pulmonary fibrosis: analysis of 31 biopsies from 15 patients. *Chest* 2008; March 13 [Epub ahead of print] (in press).

Bernard Naylor, M.D.

Professor Emeritus of Pathology



I. Clinical Activities

A. Consultation Service: Cytopathology - 12 months
B. Autopsy Service - 2 weeks coverage

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Diagnostic consultations
   2. Supervision of autopsies
   3. Cytopathology lectures

III. Research Activities – None

IV. Administrative Activities – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. *Acta Cytologica*
      a. Associate Editor
      b. Editorial Advisory Board
      c. North American Review Board

   2. INVITED LECTURES/SEMINARS
      a. Lectures: Cytotechnology training program, Wayne State University

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS
   1. **Naylor B.** Cytopathology of the Uterus: Historical Perspectives. In: *Modern Uterine Cytopathology* by Meisels A, Morin C. American Society of Clinical Pathology, Chicago, IL 2007, pp 1-16.

Alexey Nesvizhskii, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Hyung Won Choi (Biostatistics)
2. Chaitanya Bandlamudi, Winter 2006, rotation student (Bioinformatics)
3. Thesis committee member
   a. Peter Ulintz (Bioinformatics)
   b. Jayson Falkner (Bioinformatics)

B. HOUSE OFFICERS AND FELLOWS
1. Xia Cao, Ph.D., Post-doctoral fellow
2. Ning Kang, Ph.D., Post-doctoral fellow

C. LECTURES
1. Path/Bioinfo/Biomed/Chem 551, Proteome Informatics, 3 credit course, Winter 2008 Course master and main instructor (14 lectures out of 27 in total)
2. Developed the curriculum, prepared and graded homework, exams, and a term project, selected and coordinated guest speakers. Bioinformatics 527, Fall 2007 (1 lecture)
3. Seminar in Cancer Biostatistics, Department of Biostatistics, Fall 2007 (1 lecture)

D. OTHER
1. Member, Bioinformatics Graduate Program
2. Instructor, Proteomics Informatics Course, administered semiannually at the NHLBI Proteomics Center at the Institute for Systems Biology, Seattle. May 14, 2008 (6 hour workshop)
3. Instructor, NHLBI Genomics and Proteomics Hands-On Workshop: From Sample Preparation to Data Analysis, Denver, Colorado. July 26-27, 2007 (4 hour workshop, 1 guest speaker lecture)

4. Instructor, 1st CBC Proteomics and Informatics Workshop, Chicago Biomedical Consortium, Chicago, IL. August 28, 2007 (1 hour tutorial, 1 hour research lecture)

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01Principal Investigator 23% effort, "Analysis and Statistical Validation of Proteomic Datasets", 09/2006 08/2010, $322,599.00/yr total ($1,248,281.00/4 yr total).
2. Leukemia and Lymphoma Society of America (PI: Licht), Co-Investigator 5% effort, "Targeting the MLL Transcription Complex in Acute Myelogenous Leukemia", 01/2007 09/2012, $50,000/yr total.

B. PENDING PROJECTS

1. Multiple Myeloma Research Foundation (MMRF) (P.I.: Sreekumar) Co-Investigator, 10% effort, "Multiple Myeloma Proteomics Initiative", 03/2008 02/2011, $242,834/year direct cost.
2. NIH (P.I.: Elenitoba-Johnson) Co-Investigator 5% effort, "Mass spectrometry-driven systems biologic analysis of salivary MALT lymphoma",07/2008 06/2013, $250,000/year direct cost.
3. NIH R01 (P.I.: Elenitoba-Johnson) Co-Investigator 5% effort, "Mass spectrometry-driven systems biologic analysis of salivary MALT lymphoma", 09/2008 08/2012, $250,000/year direct cost.
4. NIH R21 (P.I.: Elenitoba-Johnson) Co-Investigator, "Large-scale proteomic identification of SCF-E3 ubiquitin ligase substrates", 04/2009 03/2011, $250,000/year direct cost.
5. NIH R21 (P.I.: Lim) Co-Investigator 5% effort, "Phosphoproteomics of formalin-fixed paraffin-embedded tissues", 01/2009 12/2010, $137,500/year direct cost.

C. PROJECTS UNDER STUDY

1. Development of computational methods and tools for analysis of mass spectrometry-based proteomic data.
2. Integrative analysis and mining of proteomic dataset.

IV. Administrative Activities

A. DEPARTMENTAL

1. Interviewer: Candidates for Pathology Resident Program (5 candidates)

B. INSTITUTIONAL

1. Member, Curriculum Development Committee, Bioinformatics Program
2. PIBS Admission Committee (Bioinformatics Program)
3. Interviewer, Bioinformatics Program Direct Admission

4. Interviewer, Faculty Candidates, Medical School

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant reviewer, Technology Development Competition Review Panel, Genome Canada, Nov. 2007
2. Member, Proteome Informatics Research Group, The Association of Biomolecular Research Facilities
3. Member, Clinical Proteomic Technology Assessment for Cancer Working Group, National Cancer Institute
4. Member, Organizing Group, Critical Assessment of Mass Spectrometry-based Identifications Competition (CAMSI)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Member of Editorial Board, *Practical Proteomics*
2. Section Editor, *Journal of Amino Acid and Protein Research*
3. Reviewer
   a. *Science*
   b. *Nature Biotechnology*
   c. *Nature Methods*
   d. *Bioinformatics*
   e. *BMC Bioinformatics*
   f. *Molecular and Cellular Proteomics*
   g. *Proteomics*
   h. *Journal of Proteome Research*
   i. *Analytical Chemistry*
   j. *BMC Genomics*

B. INVITED LECTURES/SEMINARS
1. Invited seminar, Computational analysis of large scale proteomics datasets, Department of Biochemistry, University of Colorado, Bolder, Colorado, July 25, 2007.
2. Invited seminar, Computational analysis of shotgun proteomic data, Stowers Institute for Medical Research, Kansas City, Missouri, November 13, 2007.
3. Invited seminar, Computational analysis of proteomic data generated using tandem mass spectrometry, Samuel Lunenfeld Research Institute, Toronto, Canada, November 5, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, International Society for Computational Biology
2. Member, American Society for Mass Spectrometry
3. Member, Human Proteome Organization (HUPO)

4. Member, Association of Biomolecular Resource Facilities

D. HONORS AND AWARDS

1. Research article, "False Discovery Rates and Related Statistical Concepts in Mass Spectrometry-Based Proteomics", with H. Choi, published in Journal of Proteome Research was featured on the ACS Publications web site as a most-accessed article of the 1st quarter of 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. M. Marelli, **A.I. Nesvizhskii**, and J.D. Aitchison. Identifying bona fide components of an organelle by isotope-coded labeling of subcellular fractions: an example in peroxisomes. *Methods Mol Biol.* 432, 357-371 (2008).
2. H. Choi and **A.I. Nesvizhskii.** False discovery rates and related statistical concepts in mass spectrometry-based proteomics. *J. Proteome Res.* 7, 47-50 (2008).
3. H. Choi, D. Ghosh, and **A.I. Nesvizhskii.** Statistical validation of peptide identifications in large-scale proteomics using target-decoy database search strategy and flexible mixture modeling. *J. Proteome Res.* 7, 286-292 (2008).
4. B. Searle, M. Turner, and **A. I. Nesvizhskii**. Improving sensitivity by probabilistically combining results from multiple MS/MS search methodologies. *J. Proteome Res*. 7, 245-253 (2008).
5. H. Choi and **A.I. Nesvizhskii**. Semi-supervised model-based validation of peptide identifications in mass spectrometry-based proteomics. *J. Proteome Res*. 7, 254-265 (2008).
6. B. S. Taylor, M. Pal, J.Yu, B. Laxman, S. Sundaram, R. Zhao, A. Menon, J.T. Wei, **A.I. Nesvizhskii**, D. Ghosh, G.S. Omenn, D.M. Lubman, A.M. Chinnaiyan, and A. Sreekumar. Humoral response profiling reveals pathways to prostate cancer progression. *Mol. Cell. Proteomics* 7, 600-611 (2008).
7. P.J. Ulintz, B. Bodenmiller, R. Aebersold, P.C. Andrews, and **A.I. Nesvizhskii**. Investigating MS2-MS3 matching statistics: A model for coupling consecutive stage mass spectrometry data for increased peptide identification confidence. *Mol. Cell. Proteomics* 7, 71-87 (2008).
8. D. Mueller, C. Bach, D. Zeisig, M. Garcia-Cuellar, S. Monroe, A. Sreekumar, R. Zhou, **A. Nesvizhskii**, A. Chinnaiyan, J.L. Hess, and R.K. Slany. A role for the MLL fusion partner ENL in transcriptional elongation and chromatin modification. *Blood* 110, 4445-4454 (2007).
9. B. Kim, **A.I. Nesvizhskii**, P.G. Reedy, S. Hahn, R. Aebersold, J.A. Ranish, The transcription elongation factor TFIIS is a component of RNA polymerase II preinitiation complexes. *Proc. Nat. Acad. Sciences U.S.A.* 104, 16068-16073 (2007).

10. **A.I. Nesvizhskii**, O. Vitek, R. Aebersold, R. Analysis and validation of proteomic data generated by tandem mass spectrometry. *Nature Methods* 4, 787-797 (2007).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. P.J. Ulintz, B. Bodenmiller, R. Aebersold, P.C. Andrews, **A.I. Nesvizhskii**. A statistical model for improving probability scores of coupled MS2 and MS3 mass spectrometry data, 8th International Symposium on Mass Spectrometry in Health and Life Sciences, San Francisco, California, August 21, 2007.
2. H. Choi and **A.I. Nesvizhskii**, Probabilities, expectation values, and decoy database searching; building a unified framework for statistical data validation in shotgun proteomics, 8th International Symposium on Mass Spectrometry in Health and Life Sciences, San Francisco, California, August 22, 2007.
3. S.L. Seymour, W.S. Lane, **A.I. Nesvizhskii**, B. Searle, D.L. Tabb, J.A. Kowalak. ABRF iPRG2008 Study: Assessing the Quality and Consistency of Protein Reporting on a Common Data Set, Annual ABRF Conference, Salt Lake City, Utah, February 10, 2008.
4. S.R. Master, **A.I. Nesvizhskii**, L. Kall, W.S. Noble. CAMSI: Critical assessment of mass spectral identifications, US HUPO Annual Conference, Bethesda, Maryland, March 18, 2008.
5. C. Seiler, D. Fermin, **A. Nesvizhskii**, M.S. Lim, K.S.J. Elenitoba-Johnson, Venkatesha Basrur. Characterization of the T-cell leukemia/lymphoma (TCL1) Oncoprotein Interactome, US HUPO Annual Conference, Bethesda, Maryland, March 17, 2008.
6. E. Deutsch, H. Choi, J. Eddes, J. Eng, J. Malmstroem, L. Mendoza, **A. Nesvizhskii**, D. Shteynberg, J. Tasman, R. Aebersold. New Functionality for the Trans-Proteomic Pipeline: Improving the PeptideProphet Classifier, US HUPO Annual Conference, Bethesda, Maryland, March 17, 2008.
7. N. Kang, X. Cao, H.K. Ng, H.W. Leong, and **A.I. Nesvizhskii**, Two-phase Filtering Strategy for Identification of Peptide with Post-Translational Modifications. Annual ASMS Conference, Denver, Colorado, June 3, 2008.
8. P.J. Ulintz, A. Yocum, B. Bodenmiller, R. Aebersold, P.C. Andrews, **A.I. Nesvizhskii**. Comparison of MS2-only, MSA, and MS2/MS3 methodologies for phosphopeptide identification. Annual ASMS Conference, Denver, Colorado, June 3, 2008.
9. D. Shteynberg, R. Aebersold, E. Deutsch, H. Lam, **A.I. Nesvizhskii**. iProphet: A New Tool for Combining PeptideProphet Results from Multiple Search Engines Improves Spectrum Validation. Annual ASMS Conference, Denver, Colorado, June 3, 2008.
10. B.C. Searle, D.L. Tabb, **A.I. Nesvizhskii**, W.S. Lane, J.A. Kowalak, J.A. Falkner, S.L. Seymour. ABRF iPRG 2008 Study: Characterization of Protein Inference Reporting from Proteomics. Annual ASMS Conference, Denver, Colorado, June 5, 2008.

11. X. Cao and **A.I. Nesvizhskii**, Improved Sequence Tag Generation Algorithm for Peptide Identification in Tandem Mass-spectrometry. Annual ASMS Conference, Denver, Colorado, June 5, 2008.
12. H. Choi, D. Fermin, **A.I. Nesvizhskii**, Significance Analysis of Spectral Counts for Differential Expression in Label-free Proteomics Annual ASMS Conference, Denver, Colorado, June 5, 2008.

Duane W. Newton, Ph.D.

Assistant Professor
Director of Microbiology/Virology Laboratory

I. Clinical Activities

A. Director, Clinical Microbiology/Virology Laboratories

B. Coordinator, Infectious Disease Microbiology Laboratory Rounds

C. Technical Consultant - M-Labs

D. Laboratory Director, UMHS outpatient laboratories (Dominoes Farms, Livonia Health Center , Saline Health Center , Ypsilanti Family Practice)

1. New clinical test development, verification and implementation
2. Selected current activities in progress or completed during this year
3. Verification of methods for automated identification of yeast using VITEK II (completed)
4. Verification of methods for automated susceptibility testing of selected yeasts using VITEK II (completed)
5. Implementation of EBV viral load testing (completed)
6. Implementation of COBAS AmpliPrep-COBAS TaqMan for automated specimen extraction, amplification, and quantification of HIV-1 (completed)
7. Verification of Cepheid real-time PCR assay for the detection of HSV in CSF (completed).
8. Implementation of testing methodologies to support active surveillance for MRSA, VRE and C. difficile (completed)
9. Evaluation of real-time PCR assay for direct detection and differentiation of MSSA and MRSA from blood cultures (in progress)
10. Evaluation of chromogenic media for the detection and differentiation of Candida sp. from positive blood cultures (in progress)
11. Evaluation of automated systems for detection of Mycobacteria (in progress)

II. Teaching Activities

A. MEDICAL STUDENTS

1. Preceptor for M-4 elective in Pathology
2. Instructor, Infectious Disease Laboratory Rounds

B. GRADUATE STUDENTS

1. Faculty, EPID 525, Clinical and diagnostic microbiology, UM School of Public Health, Winter term, 2006 (developed course, wrote lectures, presented lectures 2x/week for entire term).
2. Lecturer, Epidemiology 680, "Hospital Epidemiology," UM School of Public Health
3. Lecturer, Epidemiology 605, "Infectious Disease Epidemiology," UM School of Public Health

C. HOUSE OFFICERS AND FELLOWS

1. Instructor, Pathology House Officer Microbiology/Virology Program
2. Coordinator, Clinical Microbiology/Virology In-service Program
3. Instructor, Infectious Disease Laboratory Rounds
4. Coordinator, Clinical Microbiology Journal Club
5. Preceptor for Pharmacy Resident rotation in Clinical Microbiology and Virology
6. Assistant Professor, Department of Epidemiology, School of Public Health
7. PhD thesis committee member
   a) Tomi F. Akinyemiju, MS, Department of Epidemiology, School of Public Health
8. Clinical Pathology Grand Rounds, UM Dept. of Pathology

D. LECTURES

1. “Viral Load Testing in the Management of CMV Disease." Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. 10/9/07.
2. "Blood Donor Screening for Chagas Disease." Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. 10/30/07.
3. "MRSA Colonization To test or not to test?" Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. 11/3/07.
4. "Introduction to molecular diagnostics" Brown-bag lunch seminar for Medical Technology students, Department of Pathology, University of Michigan Medical Center. 03/5/08.
5. “Molecular for Dummies the Molecularly Challenged." Clinical Laboratory Managers Association Meeting, St. Louis, MO. 07/31/07.
6. "Blood Product Screening for Chagas Disease." Michigan Association of Blood Banks Annual Meeting, Livonia, MI. 9/19/07.

7. "Molecular for Dummies the Molecularly Challenged." West Virginia Branch Fall Meeting, South Central Association for Clinical Microbiology, Sutton-Flatwoods, WV. 09/22/07.
8. "Viral Load Testing in the Management of CMV Disease." Beaumont Molecular Symposium, Troy, MI. 9/28/07.
9. "Molecular for Dummies the Molecularly Challenged." American Medical Technology Association Meeting, Frankenmuth, MI. 10/18/07.
10. "MRSA Colonization to test or not to test?" Michigan Branch Fall Meeting, South Central Association for Clinical Microbiology, Brighton, MI. 10/23/07.
11. "You Have to Grow Up Sometime Conversion from Conventional to Molecular Testing for Detection of Microbial Pathogens." Michigan Infectious Diseases Society Meeting, Botsford Hospital, Farmington Hills, MI. 11/1/07.
12. "MRSA Colonization: To Seek or not to Seek? That is the Question." Thermo Fisher Scientific Annual Sales Meeting, New Orleans, LA. 1/22/08.
13. "Is it Time to Abandon Culture for Pathogen Detection?" Roundtable Discussion, MAC -EPID Symposium, Understanding the Human Microbiome II. University of Michigan School of Public Health, Ann Arbor, MI. 3/21/08.
14. "Molecular Microbiology Made Easy." Full-day workshop, South Central Association for Clinical Microbiology Spring Meeting, Plymouth, MI. 4/17/08.
15. "Blood Product Screening for Chagas Disease." Update in Blood Banking, Continuing Education Conference, University of Michigan, Ann Arbor, MI. 5/30/08.

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01 AI057853-01A1, Principal Investigator: Arnold S. Monto, MD, Co-investigator (10% effort), Grant Project Title: Comparative Study of Influenza Vaccines in Adults; completed 2007.
2. Wallace H. Coulter Foundation Grant, Principal Investigator: Alan Hunt, PhD, Co-investigator (10% effort), Project title: Rapid Identification and Susceptibility Testing of Bacteria; 2008-2009.

B. PROJECTS UNDER STUDY

1. Risk factors for infections with MRSA with reduced susceptibility to Vancomycin at UMHS (Newton, DePestel, PIs).
2. Surveillance for carbepenemase producing Enterobacteriaceae at UMHS (Newton, DePestel, PIs, collaborating with CDC).
3. Epidemiology of human metapneumovirus in Michigan (Newton, Lukacs, Monto, PIs).
4. Providing support (sterility testing) for several clinical trials including Human Applications Lab, KeraCure, and Aastrom.
5. Risk factors for ESBL+ Enterobacteriaceae in hospitalized patients (DePestel/Chenoweth, PIs).

6. Molecular methods for detection of fungal pathogens in culture negative specimens (Rogers, PI; NIH grant submitted).
7. Rapid low cost point-of-care device for the detection of bacteremia (RapidBioSense, Mathew, PI; NIH grant submitted).
8. Use of magnetic nanoparticles for the detection and susceptibility testing of bacteria (McNaughton, PI; NIH grant submitted).
9. Novel Strategies for Reduction of Health Care Associated Co-Infection with Methicillin-Resistant and Vancomycin Resistant Staphylococcus aureus and Vancomycin Resistant Enterococcus (Zervos, PI; NIH grant submitted).
10. Clostridium difficile in the Elderly (Malani, PI).
11. S. aureus bacteremia in the Elderly (Malani, PI).
12. Trends in the bacteriology of chronic sinusitis (Tabor, PI).
13. Characterization of the Viral Pathogens and Subsequent Immune Response in Children with Clinical Respiratory Tract Infections (Shanley, PI).
14. Blood Culture Usage during Periods of Crowding in the UM Emergency Department (Younger, PI).
15. Influenzae genes associated with COPD (Gilsdorf, PI).
16. Evaluation of HandyLabs' automated real-time PCR system for the detection of Group B streptococcus in clinical specimens (Newton, PI).
17. Evaluation of Becton-Dickinson VIPER for the detection of CT/NG in clinical specimens (Newton/LeBar, PIs).
18. Identification of viral pathogens in the evaluation of placental chronic villitis (Lieberman/Newton, PIs).
19. Best use of antibiograms to optimize therapy for bacteremia and hospital-acquired pneumonia (Depestel, PI).

IV. Administrative Activities

A. DEPARTMENTAL

1. Clinical Pathology Laboratory Directors Committee
2. Quality Assurance Committee
3. Clinical Microbiology/Virology Senior Staff committee
4. Clinical Pathology Training Program Review Committee
5. Laboratory Infection Control Committee, Chairman

B. INSTITUTIONAL

1. Hospital Infection Control Committee
2. Antimicrobial Use Subcommittee of the Pharmaceutical & Therapeutics Committee
3. Pediatric Virus Prevention Program Committee, Infection Control & Epidemiology
4. SARS Preparedness Planning Working Group
5. Pandemic Influenza Planning Committee
6. Institutional Biohazards Preparedness Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Program Planning Co-chair, South Central Association for Clinical Microbiology
2. Director-at-Large, South Central Association for Clinical Microbiology
3. Rabies Working Group, Michigan Department of Community Health

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc reviewer
   a) Journal of Clinical Microbiology
   b) Morbidity and Mortality Weekly Report
   c) International Journal of Laboratory Hematology
   d) Journal of Clinical Virology

B. INVITED LECTURES/SEMINARS
1. "Introduction to Clinical Microbiology." Grand Rounds presentation, Department of Pharmacy, University of Michigan Medical Center. Part 1, 10/10/06; Part 2, 10/31/06; Part 3, 11/13/06.
2. "Update on Emerging Infectious Disease: West Nile Virus and Avian Influenza." Distinguished Lecture Series, Biology Program of the College of Arts and Sciences, Governors State University, University Park, IL. 08/10/06.
3. "Automated Blood Culture Systems for the Detection of Pathogens in Sterile Body Fluids" bioMerieux Knowledge Leaders Symposium, 107th General Meeting of the American Society for Microbiology, Toronto, ON. 04/23/2007.
4. "Is the Magic Bullet Tarnished? Clinical Significance of Vancomycin-Heteroresistant MRSA." Symposium convener, 107th General Meeting of the American Society for Microbiology, Toronto, ON. 04/24/2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Microbiology
2. Infectious Disease Society of America
3. South Central Association for Clinical Microbiology
4. Pan American Society for Clinical Virology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. P.L. Carver, S.W. Lin, D.D. Depestel, and **D.W. Newton**. 2008. The Impact of mecA Gene Testing and Infectious Diseases Pharmacists' Intervention on the Time to Optimal Antimicrobial Therapy for Staphylococcus aureus Bacteremia at a University Hospital. *Journal of Clinical Microbiology* May 7 Epub ahead of print.
2. S.E. Ohmit, J.C. Victor, E.R. Teich, R.K. Truscon, J.R. Rotthoff, **D.W. Newton**, S.A. Campbell, M.L. Boulton, and A.S. Monto. 2008. Prevention of Symptomatic Seasonal

Influenza in 2005-2006 by Inactivated and Live Attenuated Vaccines. *Journal of Infectious Diseases* June 3 Epub ahead of print.

3. J.K. Rasheed, J.W. Biddle, K.F. Anderson, L. Washer, C. Chenoweth, J. Perrin, **D.W. Newton**, and J.B. Patel. 2008. Detection of the Klebsiella pneumoniae carbapenemase type 2 Carbapenem-hydrolyzing enzyme in clinical isolates of Citrobacter freundii and K. oxytoca carrying a common plasmid. *Journal of Clinical Microbiology* 46:2066-2069.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. R. Hankerd, P. Schooler, and **D. Newton**. 2008. Evaluation of Invader HPV reagents (ASR) for the detection of Human papillomavirus compared to the Hybrid Capture 2 High-Risk HPV DNA test. Poster presented at the 24th Annual Clinical Virology Symposium and Annual Meeting of the Pan American Society for Clinical Virology, Daytona Beach, FL.
2. **D. Newton**, C. Starr, M. Louie, N. Akhras, A. Lionquist, and R. Hankerd. 2008. Evaluation of Nuclisens analyte specific reagents (ASR) for the detection of Human metapneumovirus in clinical specimens. Poster presented at the 24th Annual Clinical Virology Symposium and Annual Meeting of the Pan American Society for Clinical Virology, Daytona Beach, FL.
3. C. Young, L. Lapsley, and **D. Newton**. 2008. Comparison of Four Media for the Detection of Methicillin Resistant Staphylococcus aureus (MRSA) from Nasal Swabs. Poster presented at the 108th General Meeting of the American Society for Microbiology, Boston, MA.
4. **D. Newton**, L. Bischof, K. Fontecchio, D. Jacosalem, and R. Hankerd. 2008. Comparison of Chromogenic Media and PCR for Detection of Methicillin Resistant Staphylococcus aureus (MRSA) from Nasal Swabs. Poster presented at the 108th General Meeting of the American Society for Microbiology, Boston, MA.
5. A. Smith, C. Young, and **D. Newton**. 2008. Comparison of Bile Esculin Azide Agar to Campy CVA Medium for the Detection of Vancomycin Resistant Enterococcus from Rectal Surveillance Cultures. Poster presented at the 108th General Meeting of the American Society for Microbiology, Boston, MA.

Gabriel Nuñez, M.D.

Paul H. De Kruif Professor of Pathology

I. Clinical Activities

A. Autopsy Service -18 days

II. Teaching Activities

A. MEDICAL STUDENTS

1. Viani, Kyle, 08/07-09/08 (Medical Student w/lab rotation)

B. GRADUATE STUDENTS

1. Munoz-Planillo, Raul, 01/06-05/07

C. HOUSE OFFICERS AND FELLOWS

1. Franchi, Luigi, M.D., Ph.D. - 05/04-present
2. Kanneganti, Thirumala-Devi, Ph.D. - 05/05-09/07
3. Park, Jong-Hwan, D.M.V., Ph.D. - 05/05-present
4. Chen, Grace, M.D., Ph.D. - 10/05-present
5. Noemi Marina, Ph.D. - 01/06-05/08
6. Shaw, Michael, Ph.D. - 04/06-present
7. Kim, Yungi, Ph.D. - 05/06-present
8. Lamkanfi, Mohamed, Ph.D. - 07/06-07/07
9. Harder, Juergen, Ph.D. - 07/07-present
10. Reimer, Thornik, D.V.M., Ph.D. - 09/07-present
11. Eigenbrod, Tatjana, Ph.D. - 09/07-present
12. Warner, Neil, Ph.D. - 11/07-present

D. LECTURES

1. "Nod-like Receptors in Innate Immunity and Disease" Silvo O. Conte Digestive Diseases Center Annual Meeting, Gastrointestinal Peptide Research Center, University of Michigan, May 6, 2008.

E. OTHER
1. Patent Information
   a. Nuñez G, Inohara N, "Method of Screening Modulators of NOD1 Signaling" U.S. Patent No. 7.244,557 B2, July 2007.
   b. Nuñez G, Inohara N, Yasunori O "Modulators of NOD2 Signaling" U.S. Patent No. 7,375,086 B2, May 2008.

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NIDDK, R01 DK61707 (Nuñez) Nod2: A Susceptibility Gene for Crohn's Disease. 08/01/07-07/31/12 $220,000/year.
   The major goals of this project are to characterize the function of Nod2 in vivo using mouse models.
2. NIH, R01 Al063331 (Nuñez) Cryopyrin Signaling in Inflammation and Innate Immunity. 05/01/05-01/31/10, $212,500/year.
   The major goals of this project are to understand the activation of Cryopyrin by bacterial ligands and to characterize mutant mice deficient in cryopyrin.
3. NIH/NIDDK, R01 DK067628 (Nuñez) Peptidoglycan signaling in Crohn's disease. 08/01/04-07/30/09, $200,000/year.
   The major goals of this project are to determine the response of Crohn's disease patients to peptidoglycan products, activation of NOD2 protein complex and analysis of the interaction of NOD2 with binding partners.
4. NIH, R01 AI064748 (Nuñez) Role of Ipaf in Inflammation and Host Defense. 05/15/05-04/30/10, $250,000/year.
   The major goals of this project are to characterize the Ipaf protein complex and characterize the host defense against microbial pathogens in Ipaf deficient mice in the presence and absence of TLR2.
5. NIH. R01 1AR052756 (Nuñez) Role of ASC signaling Pathway in Inflammatory Disease. 02/01/06-07/30/111, $250,000/year.
   The major goals of this project are to generate mouse model of autoinflammatory disease, and study the role of ASC in innate immunity and arthritis mouse models.

IV. Administrative Activities

A. INSTITUTIONAL
1. Member, Biomedical Research Core Facilities (BRCF), University of Michigan
2. Member, Immunology Graduate Examination Committee, University of Michigan
3. Member, Research Core Facilities Advisory Panel, University of Michigan
4. Co-Director, Functional Genomics Core, University of Michigan Medical School
5. Thesis Committee's
   a. Hartigan, Adam J. - Winter 2007

b. Hutchens, Martha - Winter 2007/Spring 2008
c. Wolter, Keith - Winter 2008/Summer 2008

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Activities
   a. Section Editor, *Journal Immunology*
   b. Editorial Board, *Microbes and Infection*
2. Ad Hoc Reviewer
   a. Journal of Immunology
   b. Proceedings National Academy of Science USA
   c. Science
   d. Immunity
   e. Journal of Biological Chemistry
   f. EMBO Journal
   g. Cell
   h. Nature
   i. Nature Immunology
   j. Gastroenterology and Gut
   k. Eur. J. Immunology
   l. PLOS-Pathogens
   m. *PLOS-Genetics*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker "The Inflammasome" International Union of Immunological Societies (IUIS) and the Jeffery Modell Foundation (JMF), Symposium on Primary Immunodeficiency Diseases, Jackson Hole, Wyoming, June 8, 2007.
2. Invited Speaker and Session Chair "The Role of NLRs in Innate Immunity and Disease" Macrophage 2007 Conference, Shizouka, Japan, June 14, 2007.
3. Invited Speaker "NOD-like Receptors in Innate Immunity and Disease" IRB Barcelona BioMed Conference, Barcelona, Spain, June 22, 2007.
4. Keynote Speaker "NOD-like Receptors in Innate Immunity and Disease" 13th International Congress of Mucosal Immunology, Tokyo, Japan, July 11, 2007.
5. Invited Speaker "NOD-like Receptors in Innate Immunity and Disease" Special Seminar, Kitasato University, Kitasato, Japan, July 13, 2007.
6. Invited Speaker "NOD-like Receptors in Innate Immunity and Disease" Special Seminar, Department of Microbiology and Immunology, Kyoto University, Kyoto, Japan, July 17, 2007.
7. Invited Speaker "Innate Immunity" AAI Advanced Course in Immunology at the University of Minnesota, Minneapolis, Minnesota, August 5, 2007.
8. Invited Speaker "NOD-like Receptors in Innate Immunity and Disease" 13th International Congress of Immunology, Rio de Janeiro, Brazil, August 22, 2007.

9. Keynote Speaker "NOD-like Receptors in Innate Immunity and Disease" 2nd International Symposium SFB 617, Molecular Mechanisms of Epithelial Defense, Kiel, Germany, August 31, 2007.
10. Invited Speaker "Linking genetics to the etiology of IBD: The Nod story" BEI Immunogenetics Preceptorship Programme, Barcelona, Spain, September 22, 2007.
11. Invited Speaker "Role of NOD-like Receptors in Innate Immunity and Disease", Shinshu University School of Medicine, Asahi Matsumoto, Nagano, Japan, October 8, 2007.
12. Invited Speaker "Role of NOD-like Receptors in Innate Immunity" The 20th Naito Conference "Innate Immunity in Medicine and Biology [III]", Shonan Village Center, Kanagawa, Japan, October 10, 2007.
13. Invited Speaker "Role of inflammasome in fighting against infection" 15th ECDO Euroconference on Apoptosis, Portoroz, Slovenia, October 27, 2007.
14. Invited Speaker "Nod-like Receptors in Innate Immunity and Disease" NIH Immunology Interest Group Seminar Series, Bethesda, Maryland, November 28, 2007.
15. Invited Speaker "Nod-like Receptors in Immunity and Disease" Special Seminar Shering-Plough Corp, Kenilworth, New Jersey, November 29, 2007.
16. Invited Speaker "NOD-like Receptors in Innate Immunity and Disease", Department of Immunology, Special Seminar, Washington University, St. Louis, Missouri, January 29, 2008.
17. Invited Speaker "NOD-like Receptors in Immunity and Disease" Department of Molecular Biomedical Research, Special Seminar, VIB-University of Ghent, Ghent, Belgium, February 13, 2008.
18. Invited Speaker "NOD-like Receptors in Immunity and Disease" Seminario de Investigacin IFIMAV, Valdecilla University, Santander, Spain, February 15, 2008.
19. Invited Speaker "NOD-like Receptors in Immunity and Disease" Immunology Group Seminar Series, University of Maryland, Baltimore, Maryland, March 12, 2008.
20. Invited Speaker " NOD-like Receptors in Immunity and Disease" Infectious Disease and Molecular Microbiology and Immunology Joint Seminar, John-Hopkins Bloomberg School of Public Health, Baltimore, Maryland, March 13, 2008.
21. Invited Speaker "Immune Deficiency Diseases Due to Defects in Isotype Switching" Immunology and Microbial Pathogenesis Research Seminar Series, Cornell University, New York City, New York, April 21, 2008.
22. Invited Speaker "Nod-like Receptors in Immunity and Disease" Department of Immunology, University of Washington-Seattle, Seattle, Washington, June 2, 2008.
23. Invited Speaker "NOD-1 - A Diagnostic and Prognostic Marker for Crohn's Disease." Prometheus Inc., San Diego, California, June 30, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, American Association of Immunologists
2. Member, American Association for the Advancement of Science

3. Member, American Association of Investigative Pathology
4. Member, American Society of Cell Biology
5. Member, American Association of Microbiology
6. Member, Pluto Society (Assoc of American Pathologists)
7. Member, American Association of Physicians (AAP)

D. HONORS AND AWARDS
1. 2008 Distinguished Faculty Lectureship Award, University of Michigan

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Manon F, Favier A, **Nuñez G**, Simorre JP, Cusack S. Solution Structure of NOD1 CARD and Mutational Analysis of its Interaction with the CARD of Downstream Kinase RICK. *J Mol Bio*. 365:160-174 (2007).
2. McAllister-Lucas LM, Ruland J, Siu K, Jin X, Gu S, Kim DS, Kuffa P, Kohrt D, Mak TW, **Nuñez G**. CARMA3/Bc110/MALT1 dependent NF-{kappa}B activation mediates angiotensin II-responsive inflammatory signaling in noimmune cells. *Proc Natl Acad Sci USA* 104:139-144 (2007).
3. Park J.-H., Kim Y.-G., McDonald C., Kanneganti T.-D., Hasegawa M., Body-Malapel M., Inohara I., and **Nuñez G**. RICK/RIP2 Mediates Innate Immune Responses Induced Through Nod1 and Nod2 but not Toll-like Receptors. *J. Immunology* 178:2380-2386 (2007).
4. Coussens NP, Mowers JC, McDonald C, **Nuñez G**, Ramaswamy S. Crystal structure of the Nod1 caspase activation and recruitment domain. *Biochem Biophys Res Commun.* 353:1-5 (2007).
5. Lecine P, Esmiol S, Metais JY, Nicoletti C, Nourry C, McDonald C, **Nuñez G**, Hugot JP, Borg JP, Ollendorff V. The NOD2-RICK complex signals form the plasma membrane. *J Biol Chem*.282:15197-15207 (2007).
6. Hasegawa M, Kawasaki A, Yang K, Fujimoto Y, Masumoto J, Breukink E, **Nuñez G**, Fukase K, Inohara N. A role of lipophilic peptidoglycan-related molecules in induction of Nod1-mediated immune responses. *J Biol Chem*. 282:11757-11764 (2007).
7. Kanneganti TD, Lamkanfi M, Kim YG, Chen G, Park JH, Franchi L, Vandenabeele P, **Nuñez G**. Pannexin-1-Mediated Recognition of Bacterial Molecules Activates the Cryopyrin Inflammasome Independent of Toll-like Receptors Signaling. *Immunity* 26:433-443 (2007).
8. Lamkanfi M, Amer A, Kanneganti TD, Munoz-Planillo R, Chen G, Vandenabeele P, Fortier A, Gros P, **Nuñez G.** The Nod-Like Receptor Family Member Naip5/Bircle Restricts Legionella Pneumophila Growth Independently of Caspase-1 Activation. *J Immunol* 178:8022-8027 (2007).

9. Franchi L, Kanneganti TD, Dubyak GR, **Nuñez G**. Differential Requirement of P2X7 Receptor and Intracellular K+ for Caspase-1 Activation Induced by Intracellular and Extracellular Bacteria. *J Biol Chem.* 282:18810-18818 (2007).
10. Park JH, Kim YY, Shaw M, Kanneganti TD, Fujimoto Y, Fukase K, Inohara N, **Nuñez G.** Nod1/RICK and TLR Signaling Regulate Chemokine and Antimicrobial Innate Immune Responses in Mesothelial Cells. *J Immunol*. 179: 514-521 (2007).
11. Karl E, Zhang Z, Dong Z, Neiva KG, Soengas MS, Koch AE, Polverini PJ, **Nuñez G,** Nor JE. Unidirectional crosstalk between Bcl-x (L) and Bcl-2 enhances the angiogenic phenotype of endothelial cells. *Cell Death Differ.*9:1657-1666 (2007).
12. Qu Y, Franchi L, **Nuñez G**, Dubyak GR. Nonclassical IL-1beta Secretion Stimulated by P2X7 receptors is dependent on inflammasome activation and correlated with exosome release in murine macrophages. *J Immunol*. 179:1913-1925 (2007).
13. Zilbauer M, Dorrell N, Elmi A, Lindley KJ, Schuller S, Jones HE, Klein NJ, **Nuñez G,** Wren BW, Bajaj-Elliott M. A major role for intestinal epithelial nucleotide oligomerization domain 1 (NOD1) in eliciting host bactericidal Immune responses to Campylobacter. *Cell Microbiol.* 10:2541 (2007).
14. Dong Z, Zeitlin BD, Song W, Sun Q, Karl E, Spencer Dm, Jain HV, Jackson T, **Nuñez G**, Nor JE. Level of endothelial cell apoptosis required for a significant decrease in micro vessel density. *Exp Cell Res*. 16:3645-3657 (2007).
15. Suzuki T, Franchi L, Toma C, Ashida H, Ogawa M, Yoshikawa Y, Mimuro H, Inohara N, Sasakawa C, **Nuñez G**. Differential regulation of caspase-1 activation, pyroptosis, and autophagy via Ipaf and ASC in Shigella-infected macrophages. *PLoS Patholog.* 8:111 (2007).
16. Franchi L, Stoolman J, Kanneganti TD, Verma A, Ramphal R, **Nuñez G**. Critical role for Ipaf in Pseudomonas aeruginosa-induced caspase-1 activation. *Eur J Immunol.* 11:3030-3039 (2007).
17. Juricova A, Taniuchi A, Li H, Shan Y, Antenos M, Detmar J, Xu J, Matikaninen T, Hernandez AB, **Nuñez G**, Casper RF. Maternal exposure to polycyclic aromatic hydrocarbons diminishes murine ovarian reserve via induction of Harakiri. *J Clin Invest.* 12:3971-3978 (2007).
18. Kanneganti TD, Lamkanfi M, **Nuñez G.** Intracellular NOD-like receptors in host defense and disease. *Immunity* 4:549-559 (2007).
19. Kim JY, Omori E, Matsumoto K, **Nuñez G**, Ninomiya-Tsuji J. TAK1 is a central mediator of NOD2 signaling in epidermal cells. *J Biol Chem.* 203:137-144 (2008).
20. Hutchens M, Luker KE, Sottile P, Sonstein J, Lukacs NW, **Nuñez G**, Curtis JL, Luker GD. TLR3 Increases Disease Morbidity and Mortality from Vaccinia Infection. *J. Immunol.* 180:483-491 (2008).
21. Hasegawa M, Fujimoto Y, Lucas PC, Nakano H, Fukase K, **Nuñez G**, Inohara N. A critical role of RICK/RIP2 polyubiquitination in Nod-induced NFkB activation. *EMBO J.* 27: 373-383 (2008).
22. Moreira LO, El Kasmi KC, Smith Am, Finkelstein D, Fillon S, Kim YG, **Nuñez G**, Tuomanen E, Murray PJ. The TLR2-Myd88-NOD2-RIPK2 signaling axis regulates a

balanced pro-inflammatory and IL-10-mediated anti-inflammatory cytokine response to gram-positive cell walls. *Cell Microbiol*. (2008) Jun 10 [Epub ahead of print].

23. Song W, Dong Z, Jin T, Mantellini MG, **Nuñez G,** Nor JE. Cancer gene therapy with iCaspase-9 transcriptionally targeted to tumor endothelial cells. *Cancer Gene Ther.* (2008) Jun 20 [Epub ahead of print].
24. Kim YG, Park J-P, Shaw MH, Franchi L, Inohara N and **Nuñez G**. Nod1 and Nod2 are Critical for Intracellular Bacterial Sensing and Host Defense after Exposure to Toll-like Receptors Ligands. *Immunity,* 28: 246-257 (2008).
25. Marina-Garcia N., Franchi L., Kim Y-G., Miller D., McDonald C., Boons G-H., and **Nuñez G** Pannexin-1-Mediated Intracellular Delivery of Muramyl Dipeptide Induces Caspase-1 Activation via Cryopyrin/NLRP3 Independently of Nod2. *J. Immunology,* 6:4050-4057 (2008).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Lamkanfi L, Kanneganti TD, Franchi L, **Nuñez G**. Caspase-1 inflammasomes in infection and inflammation. *J Leukoc Biol* 82:220-225 (2007).
2. Suzuki T, **Nuñez G**. A role for Nod-like receptors in autophagy induced by Shigella infection. *Autophagy*. 1:73-75 (2008).
3. Franchi L, Park JH, Shaw MH, Marina-Garcia N, Chen G, Kim YG, **Nuñez G.** Intracellular NOD-like receptors in innate immunity, infection and disease. *Cell Microbiol.* 10:1-8 (2008).
4. Shaw MH, Reamer T, Kim YG, **Nuñez G.** Nod-like receptors (NLRs): bona fide intracellular microbial sensors. *Curr Opin Immunol*. (2008) Jun 25 [Epub ahead of print].
5. Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, Harton JA, Hoffman HM, Hugot JP, Inohara N, Mackenzie A, Maltais LJ, **Nuñez G**, Ogura Y, Otten LA, Philpott D, Reed JC, Reith W, Schreiber S, Steimle V, Ward P. The NLR gene family: a standard nomenclature. *Immunity* 3:285-287 (2008)

Stephen H. Olsen, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Dermatopathology Service -12 months
B. Dermatopathology Consultation Service -12 months
C. Dermatopathology Direct Immunofluorescence Service -12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. Dermatopathology Laboratory Instructor, MSII Dermatology Sequence
2. Dermatopathology, Pathology Clerkship MSI and MSIV students
3. Dermatopathology, Dermatology Clerkship MSIV students

B. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology sign-out (Pathology and Dermatology Residents)
2. Review of dermatopathology consultation material
3. Dermatopathology teaching conference, Department of Dermatology
4. Dermatopathology teaching conference, Department of Pathology
5. Dermatopathology Grossing Liaison (Pathology Residents and Pathology Assistants)

C. LECTURES
1. University of Michigan, Department of Dermatology, Dermatopathology resident teaching conference - 1/month
2. University of Michigan, Department of Dermatology, Diagnostic Conference - 1/month
3. University of Michigan, Department of Pathology, Dermatopathology Resident Teaching Conference - 3/year

4. "Cutaneous Lymphoma" University of Michigan, Department of Dermatology -1 lecture

D. OTHER
   1. Multidisciplinary Melanoma Tumor Board
   2. Multidisciplinary Merkel Cell Tumor Board

III. Research Activities

A. PROJECTS UNDER STUDY
   1. Immunohistochemical distinction of adenoid cystic carcinoma from adenoidal basal cell carcinoma; Yu L, McHugh J.
   2. Melanocytic activity in pigmented basal cell carcinoma; Dlugosz A.

IV. Administrative Activities

A. DEPARTMENTAL
   1. Interviewer, House Officer Candidates, Department of Pathology
   2. Cutaneous Surgical Oncology Unit QA/QC Committee, Department of Dermatology

B. INSTITUTIONAL
   1. Member, Multidisciplinary Melanoma Tumor Board, University of Michigan Comprehensive Cancer Center
   2. Member, Multidisciplinary Merkel Cell Tumor Board, University of Michigan Comprehensive Cancer Center

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Member, American Society of Clinical Pathology
   2. Member, College of American Pathologists
   3. Member, United States and Canadian Academy of Pathology

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Member, American Society of Clinical Pathology
   2. Member, College of American Pathologists
   3. Member, United States and Canadian Academy of Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Do TT, Gielczyk R, Wang T, **Olsen S**, Lowe L, Gudjonsson JE. Multinodular lesions of the earlobes. *Arch Dermatol* 144: 547-552, 2008.
   2. **Olsen SH**, Ma L, Schnitzer B, Fullen DR. Clusterin Expression in Cutaneous CD30-positive Lymphoproliferative Disorders and their Histologic Simulants. *J Cutan*

Pathol. (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Cutlan J, **Olsen SH**, Fullen DR. White sponge nevus presenting as a genital lesion in a 28 year-old female. American Society of Dermatopathology 2008.

Nallasivam Palanisamy, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities – None

III. Research Activities

A. PENDING PROJECTS

1. Molecular profiling of ETS gene rearrangement in patients registered in REDEEM and REDUCE trial. Proposal submitted to Glaxo Smithkline. Proposal will be reviewed after GSK assembles all the material required for this study.

B. PROJECTS UNDER STUDY

1. ETS gene rearrangement screening in Breast, and endometrial cancers.
2. Screening for chromosome rearrangement of fusion genes listed in Mitelman database (380 candidate genes). A comprehensive screening effort has been initiated for screening in prostate and breast cancer. This study will be expanded to other cancer types when the TMA's are made available.
3. Application of next generation sequencing for comprehensive transcriptome characterization of prostate and melanoma cancer types. Preliminary sequence data has been generated for 23 prostate cancer tissues and 15 melanoma cell lines. Currently we applied Solexa (Illumina) seq technology. Data analysis is in progress.
4. Next seq technology will be expanded for genomic DNA seq to analyze complex genomic rearrangements.

IV. Administrative Activities – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc Reviewer, *Singapore Medical Journal*

2. Advisory Committee Member, International Conference on Biomarkers in Health and Environmental Management and XXXII Annual meeting of Environmental Mutagen Society of India. PSG College of Arts and Science, Coimbatore January 10-12, 2007
3. Advisory Committee Member, International Conference on Toxic exposure related biomarkers, Genomes and Health Effects NEERI Golden Jubilee Celebrations, 2007-2008 January 10-11, 2008, National Environmental Engineering Research Institute, Nehru Marg, Nagpur, 440020, India.
4. Member of the Board of Examiners
   a. PhD thesis evaluation Committee
      i. Bharathiar University, Coimbatore, Tamilnadu, India
      ii. The Tamilnadu Dr.MGR Medical University, Tamilnadu India
      iii. National University of Singapore, Singapore

B. INVITED LECTURES/SEMINARS

1. Alexander Hollaender Course on Genetic Toxicology: Genomic and Proteomic Approaches, and A Special Workshop on Arsenic Exposure Assessment, Indian Institute of Chemical Biology Kolkata, India, December 10-12, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Chin-Yo Lin, Vinsensius B. B. Vega, Jane S. Thomsen, Tao Zhang, Say Li Li Kong, Ming Xie, Kuo-Ping Ping Chiu, Leonard Lipovich, Daniel H Barnett, Fabio Stossi, Ailing Yeo, Joshy George, Vladimir A Kuznetsov, Yew Kok Lee, Tze Howe Charn, **Nallasivam Palanisamy**, Lance David Miller, Edwin Cheung, Benita Katzenellenbogen, Yijun Ruan, Guillaume Bourque, Chia Lin Wei, Edison T. Liu. Whole- Genome Cartography of Estrogen Receptorα Binding Sites. *PLOS Genetics*, 2007 Jun 1;3(6):e87
2. Yijun Ruan, Hong-Sain Ooi, Siew Woh Choo, Kuo-Ping Chiu, Xiao Dong Zhao, K.G. Srinivasan, Fei Yao, Chiou Yu Choo, Jun Liu, Pramila Nuwantha, Wilson G.W.Bin, Vladimir A. Kuznetsov, Atif Shahab, Wing-Kin Sung, Guillaume Bourque, **Nallasivam Palanisamy**, Chia-Lin Wei. Fusion Transcripts and Transcribed Retrotransposed Loci Discovered through Comprehensive Transcriptome Analysis using Paired-End diTags (PETs). *Genome Research*, 2007 17: 828-838.
3. Jieming Zeng, Juan Du, Ying Zhao, **Nallasivam Palanisamy**, Shu Wang. Baculoviral Vector-Mediated Transient and Stable Transgene Expression in Human Embryonic Stem Cells. *Stem Cells*. 2007; 25:1055-1061
4. Chen W, Salto-Tellez M, **Palanisamy N**, Ganesan K, Hou Q, Tan LK, Sii LH, Ito K, Tan B, Wu J, Tay A, Tan KC, Ang E, Tan BK, Tan PH, Ito Y, Tan P. Targets of genome copy number reduction in primary breast cancers identified by integrative genomics. *Genes Chromosomes Cancer*. 2007 Mar; 46(3):288-301.

5. Lian Q, Lye E, Yeo KS, Tan EK, Salto-Tellez M, Liu TM, **Palanisamy N**, El Oakley RM, Lee EH, Lim B, Lim SK. Derivation of Clinically Compliant MSCs from CD105+, CD24- Differentiated Human ESCs. *Stem Cells.* 2007 Feb; 25(2):425-36.
6. Huynh H, Chow PK, **Palanisamy N** , Salto-Tellez M, Goh BC, Lee CK, Somani A, Lee HS, Kalpana R, Yu K, Tan PH, Wu J, Soong R, Lee MH, Hor H, Soo KC, Toh HC, Tan P. Bevacizumab and rapamycin induce growth suppression in mouse models of hepatocellular carcinoma. *J Hepatol.* 2008 Apr 28. [Epub ahead of print] PMID: 18490075.
7. Benot Legrand, C.S. Chang, S.H. Ong, Soek-Ying Neo, **Nallasivam Palanisamy**. Automated identification of chromosome segments involved in translocations by combining spectral karyotyping and banding analysis. *IEEE Transactions on Biomedical Engineering.* Accepted for Publication.
8. Benot Legrand, C S Chang, S.H. Ong, Soek-Ying Neo, **Nallasivam Palanisamy**. Chromosome Classification Using Dynamic Time Warping. *Pattern Recognition Letters* 2008, 29, 215-222.

B. BOOKS/CHAPTERS IN BOOKS

1. **Nallasivam Palanisamy** "Genetics, Biology and therapy of Acute Myelogenous Leukemia" to be published by Springer in the Cancer Treatment and Research Series under the editorship of Dr. Steven T. Rosen. *Chromosomal Translocations in AML: Detection and Prognostic Significance*. Editor: Dr. Lalitha Nagarajan, M D Anderson Cancer Center, USA- In Press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Patrick Tan, **Nallasivam Palanisamy**, Manuel Salto-Tellez, Boon Cher Goh, Chi Kuen Lee, Anaji Somani, How Sung Lee, Ramnarayanan Kalpana, Kun Yu, Puay Hoon Tan, Jeanie Wu, Richie Soong, Ming Hui Lee, Henley Hor, Khee Chee Soo, Han Chong Toh, Pierce KH Chow, Hung Huynh. Effective inhibition of tumor growth in patient-derived xenografts of hepatocellular carcinoma by rapamycin and bevacizumab Presented at the Late Breaking abstract session of the Annual meeting of the American Association for Cancer Research (2007), at Los Angeles, April 14-18, 2007.
2. Xiaosong Wang, Mohan Dhanasekaran, Nameeta Shah, John Liu, Bo Han, Alex Ade, Lihshwu Ke, Fan Meng, Rohit Mehra, **Nallasivam Palanisamy**, Gilbert S. Omenn, Arul Chinnaiyan. Genomic-Scale Screening for Gene Fusions in Human Solid Tumors by Integrative Biomedical Informatics. 3rd Annual Research Conference, National center for Integrative biomedical informatics, April 29-30, 2008. University of Michigan, Ann Arbor, USA.

Sem H. Phan, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. Autopsy Service

B. HOUSE OFFICERS AND FELLOWS
1. Zhang Wu – 12 months
2. House Officer training in autopsy service

C. LECTURES
1. Pathology 581

D. OTHER
1. Training of postdoctoral fellows
2. Supervise Undergraduate Research Opportunities Program (UROP) student projects

II. Research Activities

A. SPONSORED SUPPORT
1. NIH, R37 HL28737 MERIT Award, PI (25% effort), "Mechanisms of pulmonary fibrosis," $218,475 annual direct costs.
2. NIH, R01 HL 52285, PI (20% effort), "Myofibroblasts in pulmonary fibrosis," $250,000 annual direct costs.
3. NIH, R01 HL77297, PI (20% effort), "A novel telomerase expressing lung fibroblast phenotype," $237,045 annual direct costs.
4. The Sandler Family Supporting Foundation, PI (5% effort), "Bone marrow progenitor cells in airway remodeling," $150,000 annual direct costs.
5. NIH, P01 HL 31963, Project Leader (20% effort), Project III, "Lung FIZZ1 expression and its regulation in fibrosis," $239,524 annual direct costs.
6. Genzyme Corp, PI: M Hershenson "Evaluation of systemic vs. intranasal delivery of anti-TGFbeta antibodies in lung fibrosis" $96,250 annual direct costs.

7. NIH, R01 HL90134, Co-Investigator (10% effort), "Multipotent lung mesenchymal cells in neonatal lung injury". $225,000 annual direct costs.

B. PENDING PROJECTS
1. NIH, R01, HL77297, Principal Investigator (20% effort), "A novel telomerase expressing lung fibroblast phenotype," $250,000 annual direct costs, competitive renewal.
2. NIH, P0-1, PI: C Henke, Project Leader (20% effort), Project III, "Role of C/EBPbeta in pulmonary fibrosis," $290,000 annual direct costs.

C. PROJECTS UNDER STUDY
1. Mechanisms of lung injury and fibrosis.
2. Bone marrow precursor cells as extrapulmonary sources of lung fibroblasts.
3. Molecular regulation of the alpha-smooth muscle actin, telomerase reverse transcriptase and FIZZ1 promoter and gene expression.
4. Signaling pathways and epigenetic regulation of myofibroblast differentiation.
5. Resistin-like molecule receptor identification and associated signaling.
6. Induction and regulation of telomerase expression in lung fibrosis.
7. Eosinophil-epithelial crosstalk in pulmonary fibrosis.
8. Characterization of FIZZ1, FIZZ2 & FIZZ4 and their role in myofibroblast differentiation.

III. Administrative Activities

A. DEPARTMENTAL
1. Member, Pathology House Officer Selection Committee
2. Member, Molecular Cellular Pathology Graduate Program Advisory Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Environmental Health Sciences Review Committee, NIEHS, NIH
2. Ad hoc member, various NIH Study Sections/Special Review Panels
3. Member, Review Panel for State of California Tobacco-related disease Research Program

IV. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Associate Editor, *American Journal of Pathology*

B. INVITED LECTURES/SEMINARS
1. Lung bone marrow-derived fibroblast-like cells, NHLBI Lung Cell Workshop, Bethesda, MD, 2007.
2. Is there a role for the bone marrow in pulmonary fibrosis? Medicine Grand Rounds, UTHSCSA, San Antonio, TX, 2008.

3. Genesis of the myofibroblast in pulmonary fibrosis, Department of Medicine, University of Chicago, 2008.
4. Genesis of the myofibroblast in pulmonary fibrosis, Pulmonary Pathology Society Symposium, Experimental Biology 2008, San Diego, CA, 2008.
5. Plasticity, nomenclature and genesis of the myofibroblast in remodeling lung, featured speaker for Mini-symposium on Cell Plasticity: EMT and Stem Cells, American Thoracic Society Annual Meeting, Toronto, 2008.
6. Overview of fibroblast migration & persistence Featured Speaker for Symposium on Fibroblast Migration and Persistence in Lung Injury, Repair and Fibrosis, Toronto, Canada, 2008.
7. Genesis of the myofibroblast in pulmonary fibrosis, Department of Pathology, Emory University, Atlanta, GA, 2008.
8. Whence cometh the myofibroblast in pulmonary fibrosis, Pulmonary Grand Rounds, University of Pittsburgh, Pittsburgh, PA, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Investigative Pathology
2. American Thoracic Society
3. American Society of Biochemistry and Molecular Biology
4. American Association of Immunology
5. International Academy of Pathology
6. Cytokine Society

V. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Liu TJ, Chung MJ, Ullenbruch M, Yu H, Jin H, Hu B, Choi YY, Ishikawa F, and **Phan SH**. Telomerase deficiency impairs bleomycin-induced pulmonary fibrosis in mice. *J. Clin. Invest.* 2007; 117: 3800-9.
2. Milam JE, Keshamouni VG, **Phan SH**, Hu B, Gangireddy SR, Hogaboam CM, Standiford TJ, Thannickal VJ, Reddy RC. PPAR- γ Agonists Inhibit Pro-Fibrotic Phenotypes in Human Lung Fibroblasts and Bleomycin-Induced Pulmonary Fibrosis. *Am J Physiol Lung Cell Mol Physiol.* 2008; in press.

B. BOOKS/CHAPTERS IN BOOKS
1. Gharaee-Kermani G, Hu B, **Phan SH**, Gyetko MR. The role of urokinase in idiopathic pulmonary fibrosis and implication for therapy. *Expert Opin. Investig. Drugs* 2008;17:905-916.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Hu B, Tack DC, Liu T, Wu Z, Ullenbruch MR, **Phan SH**: Notch regulation of telomerase induction in pulmonary fibrosis. *FASEB J.* 2008.
2. Hershenson MB, Goldsmith AM, Kijek T, Liu T, **Phan SH.** Isolation of mesenchymal stem cells from tracheal aspirates of mechanically ventilated premature infants. Am. *J. Resp. Crit. Care Med.* 2008; 177:A450.
3. Liu T, Dolgachev V, Ullenbruch MR, Lukacs N, **Phan SH.** Induction of telomerase in allergic airway disease. *Am. J. Resp. Crit. Care Med*. 2008; 177:A497

Robert T. Pu, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Cytology sign out - 17 weeks

B. GU surgical pathology sign out - 5 weeks

C. Autopsy service, 3 weekends, 4 weekdays

D. Cytology consultation for TS cases, M-lab cases, and from other service

E. Fine needle Aspirations performance at Cancer Center Clinic and hospital wards

F. On site evaluation for specimen adequacy at Taubman Endocrine Clinic, Medical Procedure Unit, Ultrasound and CT-guided aspirations performed by clinical colleagues

G. Daily surgical pathology consensus conference participation

H. Daily cytology consensus conference participation

I. Cytopathology QA/QC program

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Daily sign out sessions
2. Teaching cytotechnologists, 3 1-hour slide conference
3. Weekly interesting fellow cytology case conference
4. Mentoring cytology fellow, Dr Bardarov and residents, Drs. Hall, Lagstein, Wasco, for their research projects

B. LECTURES
   1. Five 1-hour lectures on cytopathology for residents

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH 5 P30 CA46592, Cancer Center Support Grant - PI: M.S. Wicha, Co-director, Cancer Center Tissue Core (10% effort), M.D) 6/01/06 - 5/31/11, $3,415,190 annual directs.

B. PROJECTS UNDER STUDY
   1. Mechanism of WISP3 down-regulation in inflammatory breast cancer: promoter methylation? Wie, I., Zhang, Y., Kleer, C. and Pu, RT.
   2. Tumor Size as the Main Limiting Factor in Diagnosing Papillary Thyroid Carcinoma on Fine Needle Aspiration Siddiqui, M., Michael, CW. and Pu, RT.
   3. Utility of WT-1, p63, and MOC31 Immunostains in Differentiating Malignant Mesothelioma, Squamous Cell Carcinoma, and Adenocarcinoma in Effusions Pu, RT Pang, Y. and Michael, CW.
   4. Cellular Adequacy for Thyroid Aspirates Prepared By ThinPrep: How Many Cells Are Needed? Michael, Pang, Pu, et al.
   5. Utility of Anti-phosphorylated H2AX Antibody (g-H2AX) in Diagnosing Metastatic Renal Cell Carcinoma. Wasco, M.J. and Pu, RT.
   6. The Clinical and Diagnostic Impact of Using Standard Criteria of Adequacy Assessment and Diagnostic Terminology for FNA Diagnosis of Thyroid Nodules. Jing, X, Michael CW and Pu, RT.
   7. Bacteria Vaginosis and Pre-term Labor. Dalton, V, Patel, D. and Pu, RT.
   8. Potential Utility of Cytology Microarrays in Marker Validation. Pu, RT Giordano, T. and Michael, CW.
   9. Cytology evaluation of ThinPreps with discordant results on repeat HPV DNA test. Lagstein, A, Smola, B, Lukette, K., Newton, D, , and Pu RT.

IV. Administrative Activities

A. DEPARTMENTAL
   1. Interviewing Resident, Fellow, and Faculty candidates (8-10)
   2. Committee Member, Cytopathology Fellowship Program
   3. Organizer, Cytopathology monthly research meeting
   4. Participating in monthly Cytopathology Journal Club

B. INSTITUTIONAL
   1. Medical School Admissions Committee
   2. 6 interview sessions (3 to 6 students per session)

3. Co-director, Cancer Center Tissue Core

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Research Committee Member, Papanicolaou Society of Cytopathology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Journal Reviewer
   a. Cancer Cytopathology
   b. European Journal of Endocrinology
   c. *Diagnostic Cytopathology*

B. INVITED LECTURES/SEMINARS
1. Guest lecture on "FNA Diagnosis of Acinic Cell Carcinoma" at "New Frontiers in Pathology" CME course by Dept. of Pathology, Ann Arbor, Michigan, 10/2007.
2. Lecture on "Approaches to Thyroid FNA" for Teleconference organized by University of Texas Health Science Center at San Antonio and Teleconference Network of Texas, 1/2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Papanicolaou Society of Cytopathology Organization
2. Member, American Society of Cytopathology
3. Member, United States and Canadian Academy of Pathology
4. Fellow, College of American Pathologists
5. Research Committee member, Papanicolaou Society of Cytopathology Organization

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Pu, RT**, Pang Y. and Michael, C.W. (2008) Utility of WT-1, p63, Mesothelin, MOC31, and Cytokeratins (K903 and CK5/6) Immunostains in Differentiating Malignant Mesothelioma, Squamous Cell Carcinoma, and Adenocarcinoma in Effusions. *Diagnostic Cytopathology*. 36(1):20-5.
2. Jing, X, Michael CW and **Pu, RT**. (2008) The Clinical and Diagnostic Impact of Using Standard Criteria of Adequacy Assessment and Diagnostic Terminology for FNA Diagnosis of Thyroid Nodules. *Diagnostic Cytopathology* 36(3):161-6.
3. Siddiqui, M, Griffith, K, Michael, CW and **Pu, RT**. (2008) Nodule heterogeneity as shown by size differences between the targeted nodule and the tumor in thyroidectomy specimen: a cause for a false-negative diagnosis of papillary thyroid carcinoma on fine-needle aspiration. *Cancer.* 25;114 (1):27-33.
4. Jing, X and **Pu, RT**. (2008) Fine Needle Aspiration Cytological Features of Cherubism. *Diagnostic Cytopathology* 36(3):188-9.

5. Hall DA and **Pu RT**. (2008) Acinic cell carcinoma of the salivary gland: A Continuing Medical Education Case. *Diagnostic Cytopathology.* 36(6):379-87.
6. Wasco, MJ and **Pu, RT**. Utility of Anti-phosphorylated H2AX Antibody (γ-H2AX) in Diagnosing Metastatic Renal Cell Carcinoma. *Appl Immunohistochem Mol Morphol.* 2008 Jun 3. [Epub ahead of print].
7. Wasco, MJ and **Pu, RT**. Comparison of PAX-2, RCC Antigen, and Anti-Phosphorylated H2AX Antibody (γ-H2AX) in Diagnosing Metastatic Renal Cell Carcinoma by Fine Needle Aspiration. Diagnostic Cytopathology (In press).
8. Wasco, MJ, **Pu, RT**, Yu, L., Su L. and Ma. L Expression of γ-H2AX in melanocytic lesions. *Human Pathology* (In Press).
9. Bardarov, S, Michael CW, Lucas, D, Pang, Y, **Pu, RT**. Fine Needle Aspiration Biopsy of Metastatic Malignant Melanoma Resembling a Malignant Peripheral Nerve Sheath Tumor. *Diagnostic Cytopathology* (In press).
10. Pang, Y., Smola, B., **Pu, R.T.** and Michael. CW. Reprocessing Hypocellular Unsatisfactory ThinPrep Pap Test Specimens Containing Microscopic Red Blood Cells. *Diagnostic Cytopathology* (In Press).
11. **Pu, R.T.**, Giordano, TJ. and Michael, CW. Utility of Effusion Cytology Microarrays in Marker Validation. *Cancer* (In press).
12. **Pu, RT** and Siddiqui, M. Flower-Like Colloid on Thyroid Fine Needle Aspiration. Diagnostic Cytopathology (In Press).
13. Jing, X, McHugh, JB and **Pu, RT**. Fine needle aspiration cytology of Rosai-Dorfman disease of bone. *Diagnostic Cytopathology* (In Press).

B. BOOKS/CHAPTERS IN BOOKS
1. **Pu, RT** and Bedrossian, C. FNA of lung, mediastinal, and pleural. In *FNA* by Schmitt, F and Lagotto, A., Editors.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Pu, RT**, Giordano, TJ and Michael, CW. Utility of Cytology Microarrays in Marker Validation. Poster presentation at 55th Annual ASC meeting in November, 2007.
2. Amir Lagstein, Brian M. Smola, Kimberly S. Luckett, Duane Newton, and **Robert T. Pu**. Cytological Parameters Associated with an Equivocal HPV DNA Test. Poster presentation at 55th Annual ASC meeting in November, 2007.
3. Wasco, M and **Pu, RT**. Utility of γ-H2AX, PAX-2 and RCC-Ma Antibodies in Diagnosing Metastatic Renal Cell Carcinoma by Fine Needle Aspiration. Poster presentation at 55th Annual ASC meeting in November, 2007.
4. Jing, X Y Pang, CW Michael, and **Pu. RT**. Cytological Evaluation of False Positive (FP) Cases of Papillary Thyroid Carcinoma (PTC) on Fine Needle Aspiration (FNA). Poster Presentation at Annual USCAP Meeting (Denver, 2008).

5. Bardarov, S., Michael, C, **Pu, RT**, and Pang Y. Digital Analysis of Congo Red Stained Fat Pad Aspirate Specimen: A Capable Tool in the Diagnosis of Systemic Amyloidosis. Poster Presentation at Annual USCAP Meeting (Denver, 2008).
6. Wasco, MJ, **Pu, RT**, Yu, L., Su L. and Ma. L Expression of γ-H2AX in melanocytic lesions. ASDP Annual Meeting (Oct, 2007. Baltimore, Maryland).

Stephen R. Ramsburgh, M.D.

Assistant Professor
Interim Director of Autopsy Service

I. Clinical Activities

A. General Surgical Pathology - 30 weeks

II. Teaching Activities

A. GRADUATE STUDENTS

1. M-1 Pathology - 14 hours
2. M-1 Histopathology Lectures - 8 hours
3. M-1 Histopathology Lab - 20 hours
4. M-2 Pathology Lab - 70 hours

B. HOUSE OFFICERS AND FELLOWS

1. General Surgical Pathology - 30 weeks
2. Resident Teaching Conference - 65 hours
3. Consultation Conferences - 4 hours
4. Intraoperative consultation - 70 hours
5. Surgical Pathology Elective for senior level residents - 60 hours

III. Research Activities - None

IV. Administrative Activities

A. DEPARTMENTAL

1. Interim director Autopsy Service, 08/2006-03/2008.

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. President-A. James French Society of Pathologists- 2006 to 2008

B. HONORS AND AWARDS
   1. Named Legendary Professor in Code Blue: A Guide to the M1/M2 Years - 2007 to 2008

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Ishizaka T, Devaney EJ, **Ramsburgh SR**, Suzuki T, Ohye RG, Bove EL. Valve sparing aortic root replacement for dilatation of the pulmonary autograft and aortic regurgitation after the Ross procedure. *Ann Thorac Surg*, 75(5):1518-22, 2003.
   2. Mizrachi, Iris Ben-Bassat MD; Trobe, Jonathan D MD; Deeb, Michael G MD; **Ramsburgh, Stephen R MD**; Williams, David M MD; Gebarski, Stephen S MD. Multiple Brain Infarcts and Balint Syndrome in Aortic Arch Angiosarcoma. *J Neuro-Ophth*, 26(2): 107-112, June 2006.
   3. Boscak AR, Al-Hawary M, **Ramsburgh SR.** Adenomyomatosis of the gallbladder. *Radiographics,* 26:941-46, 2006.
   4. Shuman AG, **Ramsburgh SR**, Pynnonen M, Prince ME. Successful multimodal treatment of a carcinosarcoma of the masticator space. *J Otolaryngol*. 2007 Jun;36(3): E28-30.

B. BOOKS/CHAPTERS IN BOOKS
   1. **S. Ramsburgh**. *Quick Compendium of Surgical Pathology,* Chicago: American Society for Clinical Pathology Press. 2008.

Rodolfo Rasche, M.D.

Assistant Professor of Pathology
Associate Director of MLabs

I. Clinical Activities

A. Surgical pathology
   1. Coverage of M-Labs cases. These are cases from clients outside of our Medical Center.

B. Cytopathology
   1. Provide coverage in gynecologic, non-gyn and FNA services at U of M Hospitals, 12-14 weeks

C. Autopsy Service
   1. Coverage for approx. 14 days (weekdays / weekends

D. Clinical pathology
   1. Outside stat consults to M-Labs clients
   2. Review blood smears from Forest Health (Ypsilanti) and University of Michigan Health Service

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Supervise autopsies by residents
   2. Sign-out in Cytopathology, with residents, fellows and, occasionally with medical students.

B. LECTURES
   1. Organize and lecture at the M-Labs Symposium (25th in April 2007), a one day-long event for pathologists in our region (most are M-Labs clients).CME credits provided.
   2. In-service teaching to laboratory staff at M-Labs clients Forest Health medical Center and U of M Health Service
   3. Monthly colposcopy meetings with the Gyn staff at the U of M Health Service

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL

1. Associate Director, M-Labs Program (60% effort as of 1/1/07)
2. Medical director of laboratories at Forest Health Medical Center (Ypsilanti) and U of M Student Health Service as part of our support through the M-Labs Program.

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Inspector for the CAP Accreditation Program. Recent inspections outside the US.

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. College of American Pathologists
2. A. J. French Society

VI. Publications - None

Charles W. Ross, M.D.

Associate Professor of Pathology
Director of Clinical Flow Cytometry Laboratory

I. Clinical Activities

A. DIRECTOR, CLINICAL FLOW CYTOMETRY LABORATORY

B. DIAGNOSTIC SURGICAL PATHOLOGY
   1. Hematopathology
   2. Hematopathology Consultation Cases (including M-Labs and Veterans Administration Hospital)

C. CLINICAL HEMATOLOGY LABORATORY

D. CLINICAL CONFERENCE AND CONSULTATIVE SUPPORT FOR LEUKEMIA/LYMPHOMA PROGRAM, MYELOMA PROGRAM, CUTANEOUS LYMPHOMA PROGRAM, MAST CELL DISEASE PROGRAM

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Lecturer, M2 Hematology Sequence
   2. Laboratory Instructor, M2 Hematology Sequence
   3. Laboratory Instructor, M1 Histopathology Course

B. DENTAL STUDENTS
   1. Lecturer, Integrated Medical Sciences - IV

C. HOUSE OFFICERS AND FELLOWS
   1. Sign-out of bone marrow biopsies, aspirates, blood smears, and body fluids in Hematology Laboratory
   2. Sign-out of lymph node biopsies and review of hematopathology consultation material
   3. Flow cytometry sign-out
   4. Hematopathology case conferences
   5. Hematopathology lecturer

6. Hematopathology Journal Club
7. Leukemia conference/biweekly
8. Lymphoma conference/weekly
9. Hematology conference/biweekly
10. Pathology Grand Rounds
11. Clinical Pathology Case Conference/weekly
12. Cutaneous Lymphoma Conference/monthly
13. Multiple Myeloma Conference/biweekly
14. Hematology/Oncology Morbidity and Morality Conference

D. LECTURES
1. HHV8+ Multicentric Castleman Disease in HIV/AIDS, invited presentation for New Frontiers in Diagnostic Pathology course.
2. Utilization of Flow Cytometry in Diagnostic Evaluation of Hematolymphoid Neoplasms, invited presentation for New Frontiers in Diagnostic Pathology course.

E. OTHER
1. Continuing Medical Education for clinical laboratory staff

III. Research Activities

A. SPONSORED SUPPORT - None

B. PENDING PROJECTS
1. A Single Arm, Phase II, Open-Label Study to Determine the Efficacy of Twice Daily Oral Dosing of PKC412 Administered to Patients with Aggressive Systemic Mastocytosis (ASM) and Mast Cell Leukemia (MCL) +/- Hematological Clonal Non-Mast Cell Lineage Disease (co-investigator with Cem Akin, M.D.)
2. Pathogenesis of idiopathic anaphylaxis (co-investigator with Cem Akin, M.D.)
3. Tissue Banking for Hematologic Translational Research (co-investigator with Megan Lim, M.D.)

C. PROJECTS UNDER STUDY
1. High density single nucleotide polymorphism chip analysis to detect recurrent genomic aberrations in follicular lymphoma (Principal Investigator with Sami Malek, M.D.).
2. Phase 3 Trial to evaluate safety and efficacy of specific immunotherapy, recombinant idiotype conjugated to KLH with GM-CSF, compared to non-specific immunotherapy, KLH with GM-CSF in patients with follicular Non-Hodgkin's Lymphoma (co-investigator with Andrzej Jakubowiak, M.D.).
3. Early response assessment in patients with diffuse large B cell lymphoma using FDG-PET (co-investigator with Rebecca Elstrom, M.D.).

4. A pilot study of combination therapy with VELCADE, Doxil, and Dexamethasone (VDd) as first line therapy for multiple myeloma (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
5. A phase II study of combination of VELCADE, Doxil, and Dexamethasone (VDd) as first line therapy for multiple myeloma (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
6. Tissue Procurement Protocol for patients with multiple myeloma and other plasma cell disorders (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
7. Open-label Phase I Study of the safety of Perifosine in combination with Lenalidomide and Dexamethasone- relapsed or refractory multiple myeloma protocol (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
8. Myeloproliferative Disease Repository (co-investigator with Moshe Talpaz, M.D.).
9. Descriptive investigation of post-transplant lymphoproliferative disorders (co-investigator with Douglas Blayney, M.D.).
10. A Phase II clinical trial of consolidation treatment with iodine I131 tositumomab for multiple myeloma (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Clinical Flow Cytometry Laboratory
2. Oversight of CAP proficiency testing, Hematology and Flow Cytometry Laboratories
3. Interviewer of residency candidates
4. Chair, "Blockbusters" committee (departmental management of paraffin tissue blocks for transfer and consultation cases)
5. Anatomic Pathology Operations committee

B. REGIONAL/NATIONAL/INTERNATIONAL

1. American Society for Clinical Pathology, CheckPath Expert Review Panel, Hematopathology.

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. New Frontiers in Diagnostic Pathology Course (see II. E. above).

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society for Clinical Pathology
2. United States and Canadian Academy of Pathology
3. Society for Hematopathology
4. American Society of Hematology
5. Michigan Society of Pathologists

6. Phi Rho Sigma Medical Society, Zeta Chapter, Ann Arbor

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Ross CW**, Ouillette PD, Saddler CM, Shedden KA, Malek SN. Comprehensive Analysis of Copy Number and Allele Status Identifies Multiple Chromosome Defects Underlying Follicular Lymphoma Pathogenesis. *Clinical Cancer Research* 2007; 13: 4777-4785.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Knight JS, Tsodikov A, Cibrik DM, **Ross CW** et al. Eighty-Five Cases of Lymphoma in a Solid Organ Transplant (SOT) Population: Risk, Treatment, and Histologic Subtype. *Blood* 2007; 110:1268.
2. Cooper LD, Chien A, Ma L, **Ross, CW**, Fullen DR. CD 30 Expression in Large Blastoid Cells of a Marginal Zone Lymphoma: a Potential Pitfall in the Diagnosis of Primary Cutaneous CD30-positive T-cell Lymphoproliferative Disorders. *Journal of Cutaneous Pathology* 2008; 35(1):121.
3. Smith LB, Akin C, Schnitzer B, Roulston D, **Ross CW**. Myelodysplastic/Myeloproliferative disease, unclassifiable (WHO). Case presentation #28, 2007 Workshop of Society for Hematopathology and European Association for Hematopathology, Indianapolis.
4. Miles RR, Smith LB, Akin C, Roulston D, **Ross CW**. AML with t(8; 21) and systemic mastocytosis. Case presentation #54, 2007 Workshop of Society for Hematopathology and European Association for Hematopathology, Indianapolis.
5. Hall DA, Akin C, Roulston D, **Ross CW**. Systemic mastocytosis with concomitant plasma cell myeloma. Case presentation #64, 2007 Workshop of Society for Hematopathology and European Association for Hematopathology, Indianapolis.

Diane Roulston, Ph.D.

Associate Professor of Pathology
Director of Cytogenetics Laboratory

I. Clinical Activities

A. Director, Clinical Cytogenetics Laboratory

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Rotation in Cytogenetics (1)

B. GRADUATE STUDENTS
   1. Rotations in Cytogenetics: Genetic Counseling Master's candidates (5)

C. HOUSE OFFICERS AND FELLOW
   1. Rotations in Cytogenetics
      a. Pathology Residents (5)
      b. Pediatric Hematology/Oncology Fellow (1)
      c. Medical Genetics Fellow (1)
      d. Maternal-Fetal Medicine Fellow (1)

D. LECTURES
   1. Clinical Cytogenetics teaching
      a. Cytogenetics Technical Conference and Case Review: for technologists, residents, fellows, and faculty (Monthly)
      b. Leukemia Conference (Biweekly)
      c. Medical Genetics Conference (Monthly)
   2. Clinical Pathology Grand Rounds:
      a. "Introduction to Clinical Cytogenetics: Constitutional abnormalities"
      b. "Microdeletions, Genomic Disorders, and Copy Number Variants"
   3. "Clinical Cytogenetics" Human Genetics 641 Applied Clinical Genetics "Cytogenetics in Reproductive Medicine", Human Genetics HG643 Reproductive Genetics

III. Research Activities

A. PROJECTS UNDER STUDY
   1. BCR/ABL FISH analysis of bone marrow stem cells in collaboration with Dr. Moshe Talpaz, Hematology/Oncology.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Clinical Cytogenetics Laboratory
2. Interviewer, Molecular Pathology Fellowship candidate
3. Training Programs in Hematopathology, Dermatopathology, Molecular Pathology

B. UNIVERSITY OF MICHIGAN
1. Training Program in Medical Genetics and Clinical Cytogenetics

C. REGIONAL AND NATIONAL
1. American Board of Medical Genetics
2. Diplomate and Extended Maintenance of Certification participant
3. Item writer for Clinical Cytogenetics specialty board examination
4. Fellow, American College of Medical Genetics
5. Children's Oncology Group (COG)
6. Cytogenetics Committee member and Young Investigator Committee liaison
7. Director of an Approved Laboratory; submit cases for review
8. Germ Cell Tumor Study, Cytogenetics coordinator
9. Southwest Oncology Group (SWOG)
   a. Member, Cytogenetics Committee
   b. Director of an Approved Laboratory for SWOG Cytogenetics studies

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Peer Reviewer: *Pediatric Hematology and Oncology*

B. INVITED LECTURES/SEMINARS
1. "Cytogenetics of Myeloid Leukemias" Clinical Laboratory Sciences Department, Seminars in 21st Century Clinical Medicine, Northern Michigan University, Marquette, October, 2007.

C. MEMBERSHIP AND OFFICE IN PROFESSIONAL SOCIETIES
1. American Society of Human Genetics
2. American Association for the Advancement of Science

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED IN REFEREED JOURNALS
1. Tomlins SA, Laxman, B, Dhanasekaran, Helgeson BE, **Roulston, D,** Chinnaiyan AM**,** et. al. Distinct classes of chromosomal rearrangements create oncogenic ETS gene fusions in prostate cancer. *Nature* 448: 595-9. 2007.
2. Wang L, Bhargava R, Zheng T, Wexler L, Collins MH, **Roulston D**, Ladanyi M. Undifferentiated small round cell sarcomas with rare EWS gene fusions: Identification of a novel EWS-SP3 fusion and of additional cases with the EWS-ETV1 and EWS-FEV fusions. *J. Molecular Diagn.* Sept; 9(4):437-40, 2007.

Robert E. Ruiz, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Consultant, pediatric surgical pathology, full time
2. Surgical pathology frozen section call, 4 weeks
3. CVC frozen section coverage, 60 partial days
4. Placental pathology sign-out, 4 weeks

B. HEMATOPATHOLOGY
1. Hematopathology sign-out, 6 weeks
2. Flow cytometry sign-out, 7 weeks
3. Hematopathology weekend call, 5 weekends

C. AUTOPSY SERVICES
1. Consultant, pediatric autopsy pathology, full time

D. TERATOLOGY
1. Consultant, fetal histopathology, full time

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 Pathology Laboratory, ~10 contact hours

B. HOUSE OFFICERS AND FELLOWS
1. Pathology Teaching Conferences - 2 hours
2. Hematopathology/Flow cytometry Sign-out - 13 weeks x 3 to 6 hours/day
3. Pediatric Autopsy Pathology cases and sign-out , variable
4. Pediatric Surgical Pathology Cutting Manual revision, ongoing
5. Pediatric GI Fellow Tutorials, variable
6. Pediatric Hematology Oncology Fellow Pathology Tutorials, variable
7. Pediatric Hematology Oncology Wednesday Morning Teaching Conference, variable

C. OTHER
1. Pediatric GI Pathology Case Conference - 2 hours per month
2. Pediatric Hematology Oncology Tumor Board - 2 hours per month
3. Pediatric Surgery, Radiology, Pathology Conference - 1.5 hours per month
4. Pediatric Otolaryngology Pathology Conference - 1 hour per quarter
5. Pediatric Uroradiology Conference - up to 1 hour per month
6. Pediatric Pulmonology Conference, variable
7. Pediatric Morbidity & Mortality Conference, variable

III. Research Activities - None

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology coordinator, Children's Oncology Group cases

B. INSTITUTIONAL
1. Mott Executive Committee
2. Medical School Admissions Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Website Editor, *Society for Pediatric Pathology* (www.spponline.org)
2. Newsletter Editor, *Society for Pediatric Pathology*
3. Ad hoc reviewer, Pediatric *and Developmental Pathology*

B. INVITED LECTURES/SEMINARS
1. Seminar, New Frontiers in Diagnostic Pathology CME Course, Ann Arbor, MI, 9/2007.
2. Seminar, Department of Pathology Grand Rounds, Yale University, New Haven, CT, 4/2008.
3. Seminar, Department of Pathology, Chicago Children's Memorial Hospital, Chicago, IL, 4/2008.
4. Seminar, Department of Pathology, Texas Children's Hospital, Houston, TX , 5/2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Society for Pediatric Pathology
2. Ex-Officio Member, Publications Committee, Society for Pediatric Pathology
3. Member, United States and Canadian Academy of Pathology
4. Member, American Society of Clinical Pathology
5. Member, College of American Pathologists
6. Member, Society of Toxicologic Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Thorne MC, **Ruiz RE**, Carvalho J, Lesperance MM. Proboscis lateralis: case report and review. *Arch Otolaryngol Head Neck Surg* 133:1051, 2007.
2. Chao MM, Levine JE, **Ruiz RE**, Kohlmann WK, Bower MA, Petty EM, Mody RJ. Malignant triton tumor in a patient with Li-Fraumeni syndrome and a novel TP53 mutation. *Pediatr Blood Cancer* 49:1000, 2007.
3. Allred L, **Ruiz R**, Jones D, Donn SM. Intractable respiratory failure in a term newborn. *Am J Perinatol* 25:101, 2008.
4. Islam S, Soldes OS, **Ruiz R**, Geiger JD. Primary colonic congenital infantile fibrosarcoma presenting as meconium peritonitis. *Pediatr Surg Int* 24:621, 2008.
5. Karplus G, **Ruiz R**, Thomas DG, Ehrlich PF. Cholecystokinin receptor positivity in children with chronic acalculous gallbladder dysfunction: a pilot study to investigate the etiology of chronic acalculous gallbladder dysfunction. *J Pediatr Surg* 43:850, 2008.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Jarzembowski JA, Thomas DG, **Ruiz RE**. Is MIB-1 proliferation index an effective substitute for mitotic-karyorrhectic index (MKI) in neuroblastoma classification? Presented at the Society for Pediatric Pathology Spring Meeting, Denver, CO, March 1-2, 2008.
2. Thomas DG, **Ruiz RE**. Assessment of nuclear N-Myc protein concentration in neuroblastomas by quantitative immunofluorescence and comparison to MYCN copy number. Presented at the Society for Pediatric Pathology Spring Meeting, Denver, CO, March 1-2, 2008.

J. Vidya Sarma, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Daniel Rittirsch, M.D. (postdoctoral fellow)
2. Michael Flierl, M.D. (postdoctoral fellow)
3. Gelareh Atefi, M.D., (postdoctoral fellow)

B. OTHER
1. Firas Zetoune, B.S., M.B.A., (Research Associate)
2. UROP students
   a. Brian Nadeau (undergraduate student)
   b. Anthony Chen (undergraduate student)
   c. Danielle Day (undergraduate student)

III. Research Activities

A. SPONSORED SUPPORT
1. RO1 GM069438-01A1, PI John Younger, Co Investigator: J. Vidya Sarma 10% effort, C5a in defense against murine Gram-negative pneumonia. 07/01/04 06/30/09, $200,00/yr.
2. RO1-GM029507, PI Peter Ward, Co Investigator: J. Vidya Sarma 30% effort, Lung injury by Oxygen Metabolites.07/01/01 - 06/30/09, $312,396/yr.
3. RO1-GM061656-05A12, PI Peter Ward, Co Investigator: J. Vidya Sarma 30% effort, Protective effects of anti-C5a in Sepsis. 09/25/06 08/31/10, $404,314/yr.

B. PROJECTS UNDER STUDY
1. Role of Complement fragment 5a and it's receptors in sepsis and lung inflammation.
2. Role of cytokines and chemokines in sepsis and lung inflammation.
3. Complement activation pathways.

IV. Administrative Activities

A. INSTITUTIONAL

1. Member APRAPT Committee (2006-2009)

B. REGIONAL/NATIONAL/INTERNATIONAL

C. Co-chaired Mini-symposium entitled 'Inflammatory mechanisms in models of human disease' held at FASEB meetings on April 5th 2008 at San-Diego.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript reviews
   a. *American Journal of Pathology*
   b. *Critical Care Medicine*
   c. *FASEB Journal*
   d. *Journal of Clinical Investigation*
   e. *Journal of Experimental Medicine*
   f. *Journal of Immunology*
   g. *Nature*
   h. *Nature Medicine*
   i. *Nature Biotechnology*
   j. *Shock*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for Advancement of Science

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Flierl MA, Rittirsch D, Nadeau BA, Chen AJ, **Sarma JV**, Zetoune FS, McGuire SR, List RP, Day DE, Hoesel LM, Gao H, Van Rooijen N, Huber-Lang MS, Neubig RR, Ward PA: Phagocyte-derived catecholamines enhance acute inflammatory injury. *Nature* 2007 449:721-725.
2. Flierl MA, Rittirsch D, Huber-Lang M, **Sarma JV**, and Ward PA: Catecholamines Crafty weapons in the inflammatory arsenal of immune/inflammatory cells or opening Pandora's box? *Mol Med*, 2008 14: 195-204.
3. Hoesel LM, Flierl MA, Niederbichler AD, Rittirsch D, **Sarma JV**, McClintock SD, Reuben JS, Pianko MJ, Stone W, Yang H, Smith M, Ward PA: Ability of anti-oxidant liposomes to prevent acute and progressive pulmonary injury. *Antioxid Redox Signal*, 2008 10: 973-981.
4. Flierl MA, Rittirsch D, Huber-Lang MS, **Sarma JV**, and Ward PA: Molecular events in the cardiomyopathy of sepsis. *Mol Med* 2008, 14:327-336.

5. Flierl MA, Rittirsch D, Gao H, Hoesel LM, Nadeau BA, Day DE, Zetoune FS, **Sarma JV**, Huber-Lang MS, Ferrara JLM, and Ward PA: Adverse functions of IL-17A in experimental sepsis. *FASEB J.* 2008 22:2198-2205.
6. Rittirsch D, Flierl MA, Nadeau BA, Day DE, Hoesel LM, Zetoune FS, MacKay CR, Cianflone K, Gerard NP, Huber-Lang MS, Khl J, Gerard C, **Sarma JV**, and Ward PA: Functional roles for C5a receptors in sepsis. *Nat Med,* 2008 14:551-557.
7. Rittirsch D, Flierl MA, Day DE, Nadeau BA, McGuire SR, Hoesel LM, Ipaktchi K, Zetoune FS, **Sarma JV**, Leng L, Huber-Lang MS, Neff TA, Bucala R, and Ward PA: Acute lung injury induced by lipopolysaccharide is independent of complement activation. *J Immunol*, 2008 180:7664-7672.
8. Flierl, M.A., Rittirsch, D., Chen, A.J., Nadeau, B.A., Day, D.E., **Sarma, J.V**., Huber-Lang, M.S. and Ward, P.A. The complement anaphylatoxin C5a induces apoptosis in adrenomedullary cells during experimental sepsis. *PLoS ONE* 2008 On-Line Vol 3/issue 7/e2560.

B. BOOKS/CHAPTERS IN BOOKS

1. **Sarma, J.V**. and Ward, P.A. In vivo biological responses in the presence or absence of C3. In *Advances in Experimental Medicine and Biology*, Volume 598. Back, N., Cohen, I.R., Lajtha, A., Lambris, J.D., Paoletti, R. (eds). Current Topics in Innate Immunity. Springer, New York, N.Y. pp. 598:240-250, 2007.
2. **Sarma, J.V**. and Ward, P.A. The role of complement in sepsis. In *Critical Care Nephrology*, 3rd Ed., C. Ronco, R. Bellomo, J. Kellum (eds). Elsevier, Philadelphia, PA. 2007, In Press.

Bertram Schnitzer, M.D.

Professor of Pathology

I. Clinical Activities

A. Sign-out of Hematopathology consultation cases - 12 months

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Consultation cases at microscope
2. Unknown slide conferences

B. LECTURES

1. Benign lymphadenopathies to Fellows and Residents
2. Non-Hodgkin's Lymphomas to Fellows and Residents
3. Hodgkin lymphomas to Fellows and Residents

III. Research Activities – None

IV. Administrative Activities

A. REGIONAL/NATIONAL/INTERNATIONAL

1. Chair, CheckPath Hematology Committee, American Society for Clinical Pathology, 6 months
2. Member, Committee on Assessment, American Society for Clinical Pathology, 6 months.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. *Human Pathology*
2. *American Journal Clinical Pathology*

B. INVITED LECTURES/SEMINARS

1. A Practical Approach to Diagnostic Hematological Problems", ASCP Educational Course, Lectures given included: a) Classification of Non-Hodgkin's Lymphomas, b)

Hodgkin Lymphoma; c) Extranodal Lymphomas. Las Vegas, NV, November 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Hematology
2. United States and Canadian Academy of Pathologists
3. American Society for Clinical Pathology
4. Society for Hematopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Rawal A, Valdez R, **Schnitzer, B**, Finn, WG: Site-specific morphological differences in extranodal marginal zone B cell lymphomas. *Arch Pathol Lab Med*, 131:1673-1678, 2007.

B. BOOKS/CHAPTERS IN BOOKS
1. Hsi ED., **Schnitzer B.** Benign Lymphadenopathies. In Jaffee ES, Harris NL, Vardiman J (eds). *Diagnostic Hematopathology*. Harcourt Health Sciences, 2009.
2. Smith LB., **Schnitzer B.** Hodgkin's Lymphoma In Kroft S. and Reichard K (eds). Practical *Lymph Node Pathology*. Churchill-Livingstone, 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Hall D, Schumacher JA, Lim, MS, **Schnitzer B**: Concurrent involvement of the colon by adenocarcinoma and systemic mastocytosis. Presentation at the Workshop of The Society for Hematopathology, Indianapolis, November, 2007.
2. Kodali D, Mesa H, Gupta P, Knapp D, **Schnitzer B**, Kratzke RA, Rawal A. 4E-Binding protein 1 expression in reactive lymphoid tissue and B-cell non-Hodgkin's lymphomas. *Mod Pathol* 21:260A, 2008.
3. Kodali D, Rawal A, Patel M, Mesa H, **Schnitzer B**, Kratzke RA, Gupta P: Expression of the Cap-Mediated Translation Pathway in Non-Hodgkin’s Lymphomas: Diagnostic and Therapeutic Implications. In abstracts of the 44th Annual Meeting of the American Society of Clinical Oncology (ASCO). Chicago, IL.

Rajal B. Shah, M.D.

Associate Professor of Pathology
Director of Genitourinary Pathology Service
Co-Director of Prostate SPORE Tissue Core

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY
1. Room 1 General Surg Path sign-out - 4 weeks/yr

B. GENITOURINARY PATHOLOGY
1. GU Surg subspecialty sign-out - 13 weeks/yr
2. Genitourinary Transfer cases - 13 weeks/yr
3. GU Consultation service, daily, 12 months
4. Participation in Urology Tumor Board & Grand Rounds, weekly, - 12 months

C. BREAST PATHOLOGY
1. Breast Pathology subspecialty sign-out - 4 weeks/yr

D. AUTOPSY SERVICE
1. Rapid warm autopsies for men with advanced prostate cancers, 24/7 availability, 12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2-Renal Sequence and Reproductive Sequence lectures, 3/yr

B. HOUSE OFFICERS AND FELLOWS
1. Residents didactic Monday evening Anatomic Pathology lectures, 3/yr
2. Wednesday Consultation Conferences, 3/yr
3. GU Clinical Pathology Resident teaching, 13 weeks
4. General Surgical Pathology Resident teaching, 4 weeks
5. Urology Resident Pathology lectures, 4/yr
6. Breast Clinical Pathology Resident teaching, 4 weeks

C. POSTDOCTORAL FELLOWS
1. Angela Wu, Genitourinary Pathology Fellow, 12 months

III. Research Activities

A. SPONSORED SUPPORT
1. NIH- P50 CA69568 (Pienta)-University of Michigan Prostate SPORE (Specialized Program for Research Excellence), Co- Principal Investigator 20% effort. Tissue and Serum Core Resource Grant. 07/01/03-05/31/08, $251,033.
2. W81XWH-05-1-0173 (PI-A. Chinnaiyan) Co-investigator 2.5% effort, Molecular profiling of prostate cancer. $61,858.
3. P50 CA069568 (PI-Pienta/Shaomeng Wang) Co-investigator 5% effort, Evaluation & Development of Non-peptide MDM2 inhibitors in the treatment of metastatic prostate cancer. $150,000.
4. P50 CA069568 (PI-Piert) Co-investigator, 2% effort, Prostate Cancer Imaging for Radiation. $40,286.
5. University of Michigan. (NIH funded pilot of biomarker validation) PI 0% effort, Inter prostate biomarker study (IPBS).

B. PROJECTS UNDER STUDY
1. Kunju LP, Daignault S, Wei JT, **Shah RB**. Should multiple cores with prostate cancer submitted in the same container be assigned individual Gleason scores?

IV. Administrative Activities

A. DEPARTMENTAL
1. Co-Director, Prostate SPORE tissue core laboratory
2. Section Head, Urological Surgical Pathology
3. Director, GU Fellowship Program
4. House Officer/GU Fellowship and Faculty Candidate interviews
5. Translational research/pathology consultant for Genitourinary research, 12 months

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc Journal reviewer
   a. *Journal of Clinical Pathology*
   b. *Archives of Pathology and Laboratory Medicine*
   c. *BMC Cancer*
   d. *Human Pathology*
   e. *Journal of Histochemistry and Cytochemistry and Cancer Research*
   f. *Journal of Urology*
   g. *Clinical Cancer Research*

B. INVITED LECTURES/SEMINARS

1. 1. "Contemporary Issues in Prostate, Urinary Bladder, and Renal Pathology American Society of Clinical Pathologists (ASCP) annual meeting: New Orleans, LA, October 18, 2007.
2. "Select diagnostic difficulties and contemporary issues in Urologic Pathology" Video Microscopy tutorial, American Society of Clinical Pathologist (ASCP) annual meeting, New Orleans, LA, October 19, 2007.
3. "Interpretation of Prostate Needle Biopsies: Critical Issues and Emerging Markers". Short course, course director, United States and Canadian Academy of Pathology, Denver, CO, March 3, 2008.
4. "Contemporary Issues in Prostate, Urinary Bladder, and Renal Pathology" Weekends in Pathology, American Society of Clinical Pathologists (ASCP): Chicago, IL, June 21, 2008
5. "TMPRSS2-ETS gene rearrangements in clinically localized prostate cancers" guest lecturer, Department of Pathology, University of California at Los Angeles , California , August 10, 2007
6. "Urologic Pathology Case Presentation: New Frontiers in Diagnostic Pathology: An Update For Practicing Pathologists" University of Michigan Department of Pathology and A. James French Society of Pathologist symposium, 9/28/07 , Ann Arbor, MI-48109
7. "TMPRSS2-ETS" Family Gene Rearrangements in Prostate Cancers. Guest Speaker, Convention for Human Medical Genetics, Foundation for Research in Genetics and Endocrinology Institute of Human Genetics, January 6, 2008, Ahmedabad, Gujarat India .
8. "Recent advances in prostate cancer biomarkers recurrent fusions of TMPRSS2-ETS family Genes" Guest Speaker, Smt. NHL municipal medical school and VS Hospital, Association of Pathologists and Microbiologist, Gujarat chapter, January 11, 2008, Ahmedabad, Gujurat, India.
9. " Heterogeneity of TMPRSS2 Gene Rearrangements in Multifocal Prostate Adenocarcinoma: Molecular evidence for an Independent Group of Diseases" 97th annual meeting, United States and Canadian Academy of Pathology, Denver, CO, 2008
10. "Assessment of Pathologic Risk Factors for Understaging in Patients with Clinical T1 Bladder Cancers" -97th annual meeting, United States and Canadian Academy of Pathology, Denver, CO, 2008.
11. "Characterization of TMPRSS2 -ETS Gene Aberrations in Androgen Independent Metastatic Prostate Cancer" Platform presentation, The American urology association (AUA) meeting, Orlando, FL, May 19, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Clinical Pathologist
2. College of American Pathologists

3. United States and Canadian Academy of Pathology
4. International Society of Urologic Pathology
5. American Urological Association, Inc.

D. HONORS AND AWARDS

1. America 's Top Physician (consumer research council of America)
2. Judge, American Journal of Clinical Pathology Resident Research Symposium Competition, New Orleans, LA
3. "Cover in Urology journal", Senior author
4. Short course faculty, United States and Canadian Academy of Pathology
5. "Cover in Cancer Research", Co-senior author

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Weizer AZ, Ye Z, Hollingsworth JM, Dunn RL, **Shah RB**, Wolf JS Jr, Wei JT, Montie JE, Hollebeck BK. Adoption of new technology and healthcare quality: surgical margins after robotic prostatectomy. *Urology*, 70(1): 96-100.
2. Kim JH, Dhanasekaran SM, Mehra R, Tomlins SA, Gu W, Yu J, Kumar-Sinha C, Cao X, Dash A, Wang L, Ghosh D, Shedden K, Montie J, Rubin M, Pienta KJ, **Shah RB**, Chinnaiyan AM. Integrative Analysis of Genomic Aberrations Associated with Prostate Cancer Progression. *Cancer Research*, 67(17): 8229-8239, 2007.
3. Mehra R, Han B, Tomlins SA, Shen R, Wang L, Menon A, Wasco M, Shen R, Montie JE, Chinnaiyan AM and **Shah RB** . Heterogeneity of TMPRSS2 Gene Rearrangements in Multifocal Prostate Adenocarcinoma: Molecular Evidence for an Independent Group of Diseases. *Cancer Research*, 67(17): 7991-95, 2007.
4. Yu J, Cao Q, Mehra R, Laxman B, Yu J, Tomlins SA, Creighton CJ, Dhanasekaran SM, Shen R, Chen G, Morris DS, Marquez VE, **Shah RB**, Ghosh D, Varambally S, Chinnaiyan AM. Integrative Genomics Analysis Reveals Silencing of beta-Adrenergic Signaling by Polycomb in Prostate Cancer. *Cancer Cell*, 12(5):419-31, 2007.
5. Yu J, Yu J, Rhodes DR, Tomlins SA, Cao X, Chen G, Mehra R, Wang X, Ghosh D, **Shah RB**, Varambally S, Pienta KJ, Chinnaiyan AM. A Polycomb Repression Signature in Metastatic Prostate Cancer Predicts Cancer Outcome. *Cancer Research*, 67(22); 10657-10633, 2007.
6. Gobbo S, Eble JN, Grignon DJ, Martignoni G, MacLennan GT., **Shah RB**, Zhang S, Brunelli M, Cheng L. Clear-Cell Papillary Renal cell Carcinoma: a Distinct Histopathological and Molecular Genetic Entity. *Am J Surg Pathol*, 2008, June 27 Epub ahead of print.
7. Weizer AZ, **Shah RB**, Lee CT, Gilbert SM, Daignault S, Montie JE, Wood DP, Jr., M.D. Evaluation of the prostate peripheral zone/capsule in patients undergoing radical cystoprostatectomy; Defining risk with prostate capsule sparing cystectomy. *Urologic Oncology*, 25:460-64, 2007.

8. Friedman J, Dunn RL, Wood D, Vaishampayan U, Montie J, Sarkar FH, **Shah RB**, Hussain M. Neoadjuvant docetaxel and capecitabine in patients with high risk prostate cancer. *J Urol*, 179(3):911-5, January 22, 2008.
9. Miller DC, **Shah RB**, Bruhn A, Madison R, Saigal CS, Urologic Diseases in America Project. Trends in the use of gross and frozen pathological consultations During Partial or Radical Nephrectomy for Renal Cell Carcinoma. *J Urol*, 179(2):461-7, 2008.
10. Tomlins SA, Laxman B, Varambally S, Cao X, Yu J, Helgeson BE, Cao Q, Presner JR, Rubin MA, **Shah RB** , Mehra R, Chinnaiyan AM. Role of TMPRSS2-ETS Gene Fusion in Prostate Cancer. *Neoplasia,* 10(2):177-88, 2008
11. Shangary S, Quin D, McEachern D, Liu M, Miller RS, Qui S, Nikolovska-Coleska Z, Ding K, Wang G, Chen J, Bernard D, Zhang J, Lu Y, Gu Q, **Shah RB**, Pienta KJ, Ling X, Kang S, Guo M, Sun Y, Yang D, and Wang S. Temporal activation of p53 by a specific MDM2 inhibitor is selectively toxic to tumors and leads to complete tumor growth inhibition. *Proc Natl Acad Sci U S A*, 105(10):3933-8, 2008.
12. Hall CL, Daignault SD, **Shah RB**, Pienta KJ, Keller ET. Dickkopf-1 expression increases early in prostate cancer development and decreases during progression from primary tumor to metastasis. *Prostate*, 2008, June 16 Epub ahead of print.
13. Mehra R, Tomlins SA, Wang L, Menon A, Pienta KJ, **Shah RB***, Chinnaiyan AM*. Characterization of TMPRSS2-ETS Gene Aberrations in Androgen Independent Metastatic Prostate Cancer. *Cancer Research*, 68(10):3857-90, 2008. *(Co-senior author) (Featured as a cover article).
14. Schulte RT, Wood DP, Diagnault MS, **Shah RB**, Wei JT. Utility of Extended Pattern Prostate Biopsies for Tumor Localization: Pathologic Correlation following Radial Prostatectomy. *Cancer*, In Press.
15. Tomlins SA, Rhodes DR, Yu J, Varambally S, Mehra R, Perner S, Demichelis F, Helgeson BE, Laxman B, Morris DS, Cao Q, CAO X, Andren O, Fall K, Johnson L, Wei JT, **Shah RB**, Al-Ahmadie H, Eastham JA, Eggener SE, Fine SW, Hotakainen K, Stenman UH, Tsodikov A, Gerald WL, Lilja H, Reuter VE, Kantoff PW, Scardino PT, Rubin MA, Bjatell AS, Chinnaiyan AM. The role of SPINK1 in ETS rearrangement-negative prostate cancers. *Cancer*, 13(6):519-28, 2008.
16. Mosquera JM, Perner S, Genega EM, Sandra M, Hofer MD, Mertz KD, Paris PL, Bismar TA, Ayala G, **Shah RB**, Loda M, Rubin MA. Characterization of TMPRSS-ERG Fusion High-grade Prostatic Intraepithelial Neoplasia and Potential Clinical Implications. *Cancer Res*, 14(11):3380-5, 2008.
17. Wu A, Kunju LP, Cheng L, **Shah RB.** Renal Cell Carcinoma in Children and Young Adults: Analysis of Clinicopathologic, Immunohistochemical and Molecular Characteristics with an Emphasis on the Spectrum of Xp11.2 Translocation Associated and Unusual Clear Cell Type. *Histopathology,* In Press.

B. BOOKS/CHAPTERS IN BOOKS

1. Weizer AZ, Gilbert SM, **Shah RB** and Wood DP Jr. Management and controversies of HGPIN and ASAP on prostate biopsy: In *Prostate Biopsy: Indications, Techniques and Complications*. Humana Books Contemporary Clinical Urology Series. March, 2008.
2. Wasco M, and **Shah RB**. "Benign Diseases and Neoplasms of Penis". *Surgical Pathology Clinics: Current Concepts in Genitourinary Pathology*. Scheduled to be published in 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Yang XJ, Zhou M, Hes O, Shen S, Li R, Lopez J, **Shah RB**, Y Yang, Chauang ST, Lin F, Tretiakova MM, Kort EJ, Teh BT. Tubulocystic Carcinoma of the Kidney: Clinicopathological, Immunohistochemical and Molecular characterization. *Modern Pathology*, 21:872:191A, Jan, 2008.
2. Mehra R, Tomlins S, Chinnaiyan AM, **Shah RB**. TMPRSS2: ETS Gene fusions in androgen independent metastatic prostate cancers: An association of TMPRSS2: ERG fusions through intronic deletions and molecular evidence of clonal expansion. *Modern Pathol*, 21:170A:775, Jan, 2008. (Winner of the Stowell-Orbison Certificate of Merit, USCAP, 2008).
3. Wasco M, Weizer A, Daignault S, Montie JE, Lee C and **Shah RB**. Assessment of Pathologic Risk Factors for Understaging in Patients with Clinical T1 Bladder Cancers. *Modern Pathology*, 21: 866:170A, Jan, 2008.
4. Wu A, Wasco M, Daignault S, Kunju LP, Wood DP Jr, Wei JT and **Shah RB**. Correlation of biopsy and radical prostatectomy Gleason score in contemporary extended ≥12 core biopsies practice: Improved correlation with biopsy worst Gleason score. *Laboratory Investigation*, 88: 869:190A, Jan, 2008.
5. Mehra R, Han Bo, Tomlins S, Wang Lei, Menon A, Wasco MJ, Shen R, Montie JE, Chinnaiyan AM, **Shah RB**. Heterogeneity of TMPRSS2 Gene Rearrangements in Multifocal Prostate Adenocarcinoma: Molecular evidence for an Independent Group of Diseases. *Modern Pathol*, 67:7991: 17A, Jan, 2008.
6. Kunju LP, Diagnauli S, Wei JT, **Shah RB**. Should multiple cores with prostate cancer submitted in the same container be assigned individual Gleason scores? *Laboratory Investigation*, 88:746: 164A, Jan 2008.
7. Mosquera JM, Mehra R, Regan M, Genega EM, Gaston S, Perner S, Connor M, Bueti G, Tomlins DA, **Shah RB**, Wei J, Kearney M, Johnson LA, Tang JM, Chinnaiyan AM, Sandra MG, Rubin MA. Prevalence of TMPRSS2-ERG fusion prostate cancer in men undergoing prostate biopsy in the United States. *Laboratory Investigation*, 88:786:172A, Jan, 2008.
8. Sercia L, Yang XJ, Lopez, JI, Hes O, Shen S, Li R, **Shah RB**, Yang Y, Lin F, Tubbs R, Zhou M. Renal tubulocystic carcinoma is related to papillary renal cell carcinoma:

Cytogenetic and histologic evidence. *Laboratory Investigation*, 88: Supplement 1:180A, Jan, 2008.

9. Wasco MJ, Weizer A, Daignault S, You L, Montie JE, Lee CT, **Shah RB**. Assessment of pathologic risk factors for understanding in patients with clinic T1 bladder cancer. *Laboratory Investigation*, 88: Supplement 1:189A, Jan, 2008.
10. Gobbo S, Eble JN, Grignon DJ, Martignoni G, MacL3ennan GT, **Shah RB**, Zhang S, Brunelli M, Gheng L. Renal papillary clear cell tumor is a distinct entity in the spectrum of renal cell neoplasia: An immunohistochemical and cytogenic analysis. *Modern Pathol*, 21(1);715: 157A, Jan, 2008.
11. Mosquera JM, Perner S, Genega EM, Sanda M, Hofer MD, Mertz KD, Paris PL, Simko J, Bismar TA, Ayala G, **Shah RB**, Loda M, Rubin MA. Characterization of TMPRSS2-ERG fusion high-grade prostatic intraepithelial neoplasia (HGPIN) and potential clinical implications. *Modern Pathol*, 21(1):784: 172AS, Jan, 2008.
12. Sercia L, Yang XJ, Lopez JI, Hes O, Shenn S, Li R, **Shah RB**, Yang Y, Lin F, Tubbs R, Zhou M. Renal tubulocystic carcinoma is related to papillary renal cell carcinoma: cytogenetic and histological evidence. *Laboratory Investigation*, 88(1): 824:180A, Jan, 2008.
13. Weizer AZ, Ye Z, Hollingsworth JM, Dunn RL, **Shah RB**, Wolf JS Jr., Wei JT, Montie JE, Hollenbeck BK. Adoption of new technology and healthcare quality: Surgical margins after robotic prostatectomy. *Urol Oncol*, 26(2):223-4A, March, 2008.
14. Mosquera JM, Mehra R, Regan M, Genega EM, Gaston S, Perner S, Bueti G, Tomlins SA, **Shah RB**, Wei JT, Kearney M, Johnson LA, Tang JM, Chinnaiyan AM, Rubin MA, Sanda MG. TMPRSS-2ERG Fusion prostate cancer prevalence, association with PSA density and histologic features in a multi-center U.S. cohort of men undergoing prostate biopsy. *J Urol*, 179(4): 705-706, April, 2008.
15. Mehra R, Tomlins SA, Wang L, Menon A, Pienta KJ, **Shah RB**, Chinnaiyan AM. Characterization of TMPRSS2-ETS Gene Aberrations in Androgen Independent Metastatic Prostate Cancer. *J Urol*, 2008.

Douglas M. Smith, M.D., Ph.D.

Professor of Pathology
Director of Histocompatibility Laboratory

I. Clinical Activities

A. Director, Clinical Histocompatibility Laboratory

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Resident rotations on CPE
2. One Transfusion Medicine Fellow
3. Continuing education for the HLA lab techs
4. CP grand rounds, 1 lecture
5. Two lectures for the BMT conference ("A tissue typer's guide to the BMT galaxy" & "Liver Transplant Associated GVHD")

B. LECTURES

1. Transplant Immunology (CP grand rounds)
2. Clinical Histocompatibility (CP grand rounds)
3. Clinical Histocompatibility for Heart Transplantation x 2 (Heart transplant fellows & faculty)
4. Panel reactive antibody & flow crossmatching (Nephrology & Surgery fellows & faculty)
5. Panel reactive antibodies and crossmatching (renal transplant clinical coordinators)
6. Flow cytometric crossmatching principles (clinical lab staff)
7. HLA Nomenclature and analysis of PRA results (clinical laboratory staff)
8. Other interesting HLA cases (clinical laboratory staff), about 3 hours

III. Research Activities

A. PENDING SUPPORT

1. Subcontract for a USDA program project grant on SLA typing of pigs for a PRRS virus study.

B. PROJECTS UNDER STUDY
   1. SLA typing by PCR-SSP and DNA sequencing. Peptide binding motifs of SLA antigens. I am planning some projects related to desensitization of patients with anti-HLA antibodies.

IV. Administrative Activities

A. REGIONAL/NATIONAL/INTERNATIONAL
   1. Member of the CAP Histocompatibility and Identity Testing Committee
   2. Chairman of the SLA Nomenclature Committee for the International Society for Animal Genetics and curator of the IPD/SLA website

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
   1. Invited presentation on "Genetics and Polymorphism of the Swine MHC" for a seminar on Rational Vaccine Design in Copenhagen, Denmark in August 2008.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Association of Blood Banks
   2. American Society of Histocompatibility and Immunogenetics
   3. American Society for Transplantation
   4. American Association for the Advancement of Science
   5. College of American Pathologists
   6. International Society for Animal Genetics

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Lee YJ, Cho KH, Kim MJ, **Smith DM**, Ho CS, Jung KC, Jin DI, Park GS, Jeon JT, Lee JH. Sequence-based characterization of the eight SLA loci in Korean native pigs. *Immunogenetics* June 10, 2008 (Epub ahead of print).
   2. Lunney JK, Ho CS, Wysocki M ,**Smith DM.** Molecular genetics of the swine major histocompatibility complex, the SLA complex. *Developmental and Comparative Immunology* (In Press).

Lauren Smith, M.D.

Assistant Professor

I. Clinical Activities

A. 33 weeks on service
1. 9 weeks TH/Flow
2. 9 weeks of TH/consult
3. 10 weeks of in-house
4. 1 week of in-house/consults
5. 1 week of flow only
6. 3 weeks of TH only
7. 4 weeks of hemoglobin electrophoresis service

B. Tumor Boards
1. 14 lymphoma conferences
2. 1 myeloma conference
3. 2 cutaneous lymphoma conferences
4. 3 leukemia conferences

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Slide seminar, Fall 2007, Body fluids
2. Bioethics Grand Rounds, August 2007, Genetic Testing: The Wild West?
3. Clinical Grand Rounds, January 2008, Low grade B-cell lymphomas
4. Hematopathology Teaching Conference, January 2008, NLPHD
5. Slide Seminar, February, 2008, Interesting cases
6. Hematology noon conference, March 2008, NLPHD
7. 33 weeks of on-service teaching with residents & fellows

III. Research Activities

A. PROJECTS UNDER STUDY

1. Nodular lymphocyte predominant Hodgkin lymphoma: A single institution experience
2. Nodular lymphocyte predominant Hodgkin lymphoma: Transformation to higher grade lymphoma
3. Elderly Classical Hodgkin lymphoma: A study of 50 cases
4. EBER positive plasma cell myeloma
5. A mouse model of SLE, collaboration with Dr. James Shayman
6. CML, a collaboration with Dr. Kent Johnson
7. CJD exposure notification, a bioethics project with Dr. Barnosky

IV. Administrative Activities

A. DEPARTMENTAL

1. Member of 2007-2008 resident selection committee

B. INSTITUTIONAL

1. Bioethics committee, including approximately 6 weeks of consult call

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Journal Reviewer
   a. *American Journal of Clinical Pathology*
   b. *Archives of Pathology and Laboratory Medicine*

B. INVITED LECTURES/SEMINARS

1. “B-cell lymphoma: A review of the WHO Classification”. St. Mary's of Saginaw, Continuing medical education course for nurses and physicians, November, 2007.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS – None

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **Smith LB**, Roulston D, Akin C & Ross CW. (presented by moderator). Ph- chronic myeloproliferative disorder with eosinophilia. Society for hematopathology workshop, Indianapolis, IN. November, 2007.
2. Miles RR, **Smith LB**, Akin C, & Ross CW. Acute myeloid leukemia with t(8;21) and systemic mastocytosis. Society for hematopathology workshop, Indianapolis, IN. November 2007.
3. **Smith LB**, Kitko C & Schnitzer B. NLPHD with diffuse areas. Accepted for slide box and either oral presentation or presentation by the moderator at the European Association of Hematopathology workshop, Bordeaux, France. September 2008.

Arun Sreekumar, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Laila Poisson (Thesis advisor: Debashis Ghosh)

B. HOUSE OFFICERS AND FELLOWS

1. T. M. Rajendiran (Research Investigator)
2. Amjad Khan (Research Fellow)
3. Bhaskar Malayappan (Research Fellow)
4. Anastasia Yocum (Research Fellow under Arul Chinnaiyan)
5. Adaikalam Velaichamy (Research Fellow under Arul Chinnaiyan)

C. LECTURES

1. Ad hoc lecturer for the Bioinformatics B551 course. The lecture was on Protein Microarrays and Immunomics on April 3 2008.

D. OTHER

1. Selected as Affiliate Faculty Center for Computational and Molecular Biology, University of Michigan.

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, 1R01CA133458-01, PI, Sreekumar 3.6 cal. mos., Integrative Metabolomics of Prostate Cancer Progression 04/01/08-03/31/2013, $250,000/yr (direct costs).
2. Multiple Myeloma Research Foundation, 602005, PI Sreekumar, 0.6 cal. mos. Proteomic Profiling of Multiple Myeloma Progression, 04/01/08-02/28/2011, $250,000 /yr (direct costs).
3. National Center for Integrative Biomedical Informatics, 1 U54 DA021519-01A1 (PI: Athey) Co-Investigator, 0.6 cal. mos., 09/25/05-08/31/10 $2,543,758/yr.

4. U/M Medical School Michigan Institute for Clinical and Health Research, PI Sreekumar, 2.6 cal. mos., Metabolomics Markers for Prostate Cancer Progression, 09/01/07 - 08/31/08, $100,000.
5. NIH/NCI, R01 CA106402 (PI: Lubman) Co-Investigator, 1.0 cal. mos., Protein Microarrays for the Humoral Response of Cancer, 06/15/04 05/31/09, $194,378/yr.
6. Michigan Economic Development Corporation, MEDC GR-687, (PI: Omenn, G.), Co-Investigator, 1.2 cal. mos., Proteomics Alliance for Cancer Research Michigan Technology, Tri-Corridor Fund, 09/01/2005-08/31/2008, $165,000/yr.
7. NIH, R01 GM049500-11A2 (Lubman) Co-Investigator 2.4 cal. mos., Differential Mapping of Posttranslational Modifications in Tumor Cells, 08/01/07 07/31/11 $201,250.
8. Metabolon, PI Sreekumar, Metabolomic Profiling of Prostate Cancer, 07/2008-06/2010, $228,000.

B. PENDING PROJECTS
1. NIH, OBrien Center (Pilot Grant) PI Sreekumar, Metabolomic Profiling of Benign Prostatic Hyperplasia, 09/01/08 08/31/09, $60,000.
2. DOD, IDEA grant, PI Sreekumar, Multiplex Urine Metabolites As Diagnostic Markers for Prostate Cancer, 11/2008-10/2011, $375,000.
3. U/M Medical School Michigan Institute for Clinical and Health Research, Co-PI, Delineating Proteomic Markers in MM Patients Predictive of Response to RVDD, 09/01/08 - 08/31/09.

C. PROJECTS UNDER STUDY
1. Profiling Humoral Response in Prostate Cancer Using Two-Dimensional Liquid Phase Fractionation and Protein Microarrays
2. Profiling Interactome of Prostate Cancer using Protein Microarrays and Mass Spectrometry
3. Profiling Metabolome of Prostate Cancer Progression Using Mass Spectrometry
4. Validating Clinically relevant metabolomic markers for prostate cancer progression
5. Quantitative Profiling of Prostate Cancer proteome
6. Integration of matched "Omics" data to understand prostate cancer progression with a systems perspective
7. Delineating post-translational modifications of prostate cancer proteome using protein microarrays and mass spectrometry
8. Using Multiple Reaction Monitoring Mass spectrometry as a diagnostic tool to detect ETS-fusion products in prostate cancer
9. Delineating Androgen regulated proteome using Mass spectrometry

IV. Administrative Activities

A. INSTITUTIONAL

1. Served as proxy to Arul Chinnaiyan in the thesis committee of Greg Garuda, from the Department of Physiology, University of Michigan.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Reviewer
   a. Cancer Investigation
   b. Cancer Research
   c. *Clinical Proteomics*
2. Grant review
   a. US Army Medical Research and Material Command (USAMRMC)

B. INVITED LECTURES/SEMINARS

1. Oral Presentation entitled Metabolomics of Prostate Cancer Progression at the IMPaCT meeting of Department of Defense Prostate Cancer Research Program, Atlanta, Sept 5-8, 2007.
2. Invited lecture entitled" Omics of Prostate Cancer Progression" sponsored by "Genesis" at the Indian Institute of Science Bangalore, India, July 2007.
3. Oral Presentation entitled Integrative "Omics" Analysis of Prostate Cancer Progression sponsored at the Research Seminar Series sponsored by College of Medicine, University of Florida, Gainesville, Fl, Jan 31 2008.
4. Invited lecture entitled Omics of Prostate Cancer Progression" sponsored by Medical College of Georgia Cancer Center, Augusta, GA, Jan 24, 2008.
5. Invited lecture entitled "Profiling Prostate Cancer Progression Using Metabolomics and Proteomics Strategies: Early Leads and Pointers" in the Biomedical Research Seminar Series at the Alfred I DuPont Hospital for Children, Delaware, Feb 8, 2008.
6. Invited lecture entitled "Metabolomics of Prostate Cancer Progression" at the 8th Annual Symposium of the Michigan Prostate Research Colloquium at Grand Rapids, May 2-3, 2008.
7. Bagel talk entitled "Profiling Prostate Cancer Progression using Proteomics and Metabolomics: Early Pointers and Leads, sponsored by Department of Radiation Oncology, University of Michigan, April 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Taylor BS, Pal M, Yu J, Laxman B, Kalyana-Sundaram S, Zhao R, Menon A, Wei JT, Nesvizhskii AI, Ghosh D, Omenn GS, Lubman DM, Chinnaiyan AM, **Sreekumar A**. Humoral response profiling reveals pathways to prostate cancer progression. *Mol Cell Proteomics*. 2008 Mar; 7(3):600-11. Epub 2007 Dec 11. PMID: 18077443.
2. Mueller D, Bach C, Zeisig D, Garcia-Cuellar MP, Monroe S, **Sreekumar A**, Zhou R, Nesvizhskii A, Chinnaiyan A, Hess JL, Slany RK. A role for the MLL fusion partner ENL in transcriptional elongation and chromatin modification. *Blood*. 2007 Dec 15; 110(13):4445-54. Epub 2007 Sep 12. PMID: 17855633.

Lloyd M. Stoolman, M.D.

Professor of Pathology

I. Clinical Activities

A. Flow Cytometry Diagnostic Service: Triage and interpret cell surface marker studies in the evaluation of hematologic disorders, immune deficiencies and autoimmune processes.
   1. 50-60% coverage of diagnostic service and primary responsibility for fellow/resident training.
   2. General management of laboratory activities including development of flow cross-match capability (joint development with Tissue Typing Laboratory), development of 8-10 color diagnostic flow cytometry and general expansion of test menu.

B. Autopsy Service (weekend and holiday coverage)

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Virtual Microscopy Initiative, Director
      a. Conceived, designed and partially edited (M1 and M2 Pathology sequences) online virtual microscopy laboratories serving 500+ medical, dental and graduate students annually
      b. Coordinated the teams in Pathology, Medical Education and Medical School Information Systems that maintained infrastructure for virtual microscopy (details below)
      c. Produced the digital slide content used for laboratories, conferences and testing
      d. Developed the networked hardware that supports virtual laboratories
      e. Created the websites linking written content with virtual slides
   2. M2 Hematology sequence (15th year), Co-director
      a. Lecturer and seminar leader
      b. Hematopathology virtual laboratories, author
   3. M1 Host Defense sequence (15th year) , lecturer and seminar leader
   4. D1 Host Defense sequence (15th year) , lecturer

B. HOUSE OFFICERS AND FELLOWS
   1. Resident/Fellow education and training
      a. Flow cytometry fundamentals, procedures, analytic tools and interpretation.
      b. Autopsy service
   2. Research education and training
      a. Supervised research activities of post-graduate (3) and undergraduate (3) investigators
      b. Graduate Seminar in Immunology, 3-lecture hours
      c. Thesis committees (3), Immunology Program
      d. Comprehensive Examination Committees (2), Immunology Program
      e. Consultation services for Flow Cytometry and Digital Microscopy Core laboratories

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH, R01CA73059, PI, T Cell Trafficking in Adoptive Cellular Immunotherapy; no-cost extension until Mar. 2008.

IV. Administrative Activities

A. DEPARTMENTAL
   1. Flow Cytometry Clinical and Core Research Laboratories, Managing Director
      a. Managing Director of the Clinical Flow Cytometry Laboratory
      b. Managed interdisciplinary group that provides departmental investigators cost-effective access to research grade flow cytometers (Coulter/Beckman FC 500 [2-laser, 5-color, 8-parameter; carousel-loader], Becton-Dickinson LSR-II [3-laser, 10-color, 13-parameter; plate-loader]), networked data storage and web-based scheduling system.
      c. >50 undergraduates, graduate students, post-docs, research associates and principal investigators from 16 laboratories used one or both Core instruments. The instruments operated ~2000 hours or 78% (FC-500) and 33% (LSR-II) of the available time (based on 40 hrs/week and ~20 hrs/month maintenance). Instrument/software/network maintenance, training (instruments operated by users 95% of the time), assisted data acquisition/analysis and ad-hoc troubleshooting functions performed by Dr. Stoolman and Ronald Craig, Ph.D (0.5 FTE).
      d. Current projects include:
         i. Websites tailored for research and clinical users
         ii. Beta test of CytoGenie experimental design/tracking software
         iii. Development of LSR-II based, 8-10 color flow cytometry panels for minimal residual leukemia detection following bone marrow transplantation
         iv. Co-development of flow cross-match (with Tissue Typing Laboratory)

2. Pathology Digital Microscopy Core Laboratory, Director
    a. Supervised the Informatics group in Pathology that generates diagnostic quality (200-1000X) digital slide scans using an Aperio T2-robotic slide scanner, a Zeiss Axiomat with mosaic stitching software and networked Image servers. 5000+ scans (~5 terabytes) currently online including
        i. M1 Histology (University of Michigan and University of California at San Francisco collections)
        ii. M1 Histopathology
        iii. Neuropathology
        iv. M2 Organ Systems Pathology
        v. Graduate Student Histopathology
        vi. Research collections for Pathology department faculty
    b. 22 members of the Pathology faculty and many clinical and research trainees requested or used the virtual slides created and maintained by the service. This fiscal year, ~2200 200X, 400X and 1000X scans were conducted using both automated and manual methods. All of the 1000X scans and approximately 25% of the 200X and 400X scans required substantial operator effort. In particular, our 1000X scanning platform requires ~10 hours of operator time over 2-days to construct a ~14mm2 scan. Database maintenance, instrument/software/network maintenance and training functions are performed by Dr. Stoolman and Ronald Craig, Ph.D (0.5 FTE).
    c. Current projects include
        i. Slide quality optimization on all educational websites
        ii. Beta test of robotic 830-1000X under oil slide scanners for Hematopathology applications
        iii. Development of searchable teaching sets for Pathology residents, fellows and technologists
        iv. Expansion of clinical conference support
        v. Integration of virtual microscopy with the Laboratory Information System.
3. Virtual Microscopy Initiative, Coordinator
    a. Supervised the interdisciplinary group (Pathology, Medical Education, Developmental Biology, Learning Resource Center, Medical School Information Systems) that designed, authored, edited and implemented the virtual microscopy laboratories in Histology, Histopathology and Organ Systems Pathology. All microscopy laboratories during the first two years of Medical School, as well as selected courses in the Dental and Graduate Schools, now use online, diagnostic quality virtual slides. In aggregate, ~500 students in the professional and graduate schools access our virtual laboratories annually.
    b. The technology replaces microscopes in the laboratories, provides Web-based access to online syllabi and allows slide based tests to be conducted online. The University of Michigan is a leader in virtual microscopy for educational uses and the first amongst its peer institutions to replace microscopes with laptops (one-

for-one) in the laboratories. The Websites and slide content can be accessed at the following URLs.

i. M1 Histology: www.med.umich.edu/histology
ii. M1 Histopathology: www.med.umich.edu/digitallab/histopathology
iii. M2 Organ Systems Pathology: www.med.umich.edu/digitallab/M2schedule.html

4. Faculty Coordinator for Technology in the Medical Education
   a. Appointed by the Associate Dean for Medical Education (J. Fantone, M.D.) as liaison with IT groups and consultant regarding the use of information technology for teaching. A major focus this year was evaluating digital recording systems that improve the quality and organization of recorded lecture material. The streaming video content is highly valued by students. Our current system is serviceable but inadequate for teaching that requires high resolution images. Three systems are currently under evaluation with replacement planned for the 2009/2010 academic year.
   b. Served on CTools Faculty Advisory Committee that advises the Associate Provost for Information Technology on content and policies for CTools and other University-wide educational information systems (https://ctools.umich.edu/portal).

V. Other Relevant Activities – None

VI. Publications

A. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Designed websites, authored content (Hematopathology) and managed infrastructure for the Virtual Microscopy Initiative (see sections II. A. and links under IV. B. 2).
2. William G. Finn, Kevin Carter, Raviv Raich, **Lloyd M. Stoolman** and Alfred Hero Cytometry. 2008. Analysis of Clinical Flow Cytometric Immunophenotyping Data by Clustering on Statistical Manifolds: Treating Flow Cytometry Data as High-Dimensional Objects (in press)

Cheryl Utiger, M.D.

Lecturer

I. Clinical Activities

A. Hematology sign out, approx 60% of VA total for year

B. Surgical Path 25% of VA total

C. Cytology 50% of VA total

D. Sign out Special Chemistry 50% of VA total

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 teaching labs in Pathology Resp., Endo., Reproductive

B. HOUSE OFFICERS AND FELLOWS

1. Teaching of residents gross and surgical sign-out
2. Review blood and bone marrow slides with residents and medical students

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL

1. Medical director of Hematology lab VAAAHS
2. Medical director of Blood Bank VAAAHS

B. COMMITTEES AND ADMINISTRATIVE SERVICES

1. Chair, Blood Utilization Committee, VAAAHS

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Michigan Society of Pathology
2. American Society of Clinical Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Finn WG, Sreekumar A, Menon A, **Utiger C**, Chinnaiyan A. Trisomy 12-associated, t(11;14)-negative mature B-cell leukemia with gene expression profile resembling mantle cell lymphoma. *Leuk Lymphoma.* 2006 Jan; 47(1):121-7.
2. **Utiger, Cheryl A**, Headington, John T: Psammomatous Melanotic Schwannoma: A new Cutaneous Marker for Carney's Complex. *Archives of Dermatology,* 129:202-204; 1993.

Sooryanarayana Varambally, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Chad Brenner
2. Mithil Pandi- Under graduate

B. HOUSE OFFICERS AND FELLOWS
1. Qi Cao
2. Adaikkalam Vellaichamy, PhD
3. Ram mani, PhD

C. LECTURES
1. Cancer Biology Graduate teaching- 553 Gene expression analysis

III. Research Activities

A. SPONSORED SUPPORT
1. Gen-Probe, 07-0651 PI: Varambally University of Michigan /Gen-Probe Partnership to Develop Gene Fusion Based Diagnostic for Prostate Cancer, 08/01/2006 to 08/01/2011,$254,908/yr.
2. DOD, W81XWH-06-1-0224 (PI: Chinnaiyan), Co-Investigator 30% effort, Integrative Proteomic and Genomic Analysis of Prostate Cancer Progression, 12/15/05-01/14/09, $106,000/yr.
3. NIH, 5 R01 CA107469-03 (PI: Kleer) Co-Investigator 25% effort, Role of EZH2 in Breast Cancer, 02/01/05-12/31/09, $152,381.
4. GlaxoSmithKline (GSK), PI Varambally S, 10% effort, The Role of AVODART in Pre-Clinical Models of Gene Fusion Positive Prostate Cancer, 07/01/07 6/30/08, $52,165.

5. NIH, 5 P50 CA069568 (PI: Pienta) Co-Investigator 15% effort, Discovering Classes of ETS Gene Fusions in Prostate Cancer, 06/01/07-05/31/08.
6. Prostate Cancer Foundation, Project # NA (PI: Chinnaiyan) Co-Investigator 20% effort, Development of Small Molecule Inhibitors Against Gene Fusion Products of Prostate Cancer, 07/01/07 06/30/08, $100,000.
7. SPORE, NCI: P50 CA69568, (PI, Pienta) Prostate Specialized Project of Research Excellence, 05/01/03 - 05/31/08, $12,016,950.
8. NIH, R01 GM-072007-01 (PI, Ghosh) Statistical Methods for the Analysis of Functional Genomic Data, 09/01/04-08/31/09, $1,124,785.
9. NIH/NIGMS, R01 GM067827-01A2 (PI, Duckett) Control of Apoptosis and Signaling by XIAP, 04/01/05-03/31/10, $1,309,467.

B. PENDING PROJECTS
1. NIH, R01CA132874-01 (PI: Chinnaiyan) Co-Investigator, 20% effort, Molecular Sub-typing of Prostate Cancer Based on Recurrent Gene Fusions, 12/01/2008 11/31/2013, $225,000/yr.
2. DOD, BCO75023 (PI: Chinnaiyan) Co-Investigator, 25% effort, A Search for Gene Fusions/Translocations in Breast Cancer, 09/01/2008-08/31/2013, $500,000/yr.

C. PROJECTS UNDER STUDY
1. Studies to understand the molecular basis and functional relevance of EZH2 in prostate and breast cancer progression.
2. Identification of small molecule inhibitor of EZH2.
3. Deciphering the role of ETS transcription factors in prostate cancer progression.
4. Profiling microRNA gene expression in prostate cancer.

IV. Administrative Activities – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

B. Reviewer
1. *Cancer Research*
2. *Proteomics*

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Yu J, Cao Q, Mehra R, Laxman B, Yu J, Tomlins SA, Creighton CJ, Dhanasekaran SM, Shen R, Chen G, Morris DS, Marquez VE, Shah RB, Ghosh D, **Varambally S** ,

Chinnaiyan AM. . Integrative Genomics Analysis Reveals Silencing of β-adrenergic Signaling by Polycomb in Prostate Cancer. *Cancer Cell*. 2007 Nov; 12 (5):419-31.

2. Yu J, Yu J, Rhodes DR, Tomlins SA, Cao X, Chen G, Mehra R, Wang X, Ghosh D, Shah RB, **Varambally S**, Pienta KJ, Chinnaiyan AM. A polycomb repression signature in metastatic prostate cancer predicts cancer outcome. *Cancer Res*. 2007 Nov 15; 67(22):10657-63.
3. Nikiforov MA, Riblett M, Tang WH, Gratchouck V, Zhuang D, Fernandez Y, Verhaegen M, **Varambally S**, Chinnaiyan AM, Jakubowiak AJ, Soengas MS. Tumor cell-selective regulation of NOXA by c-MYC in response to proteasome inhibition. *Proc Natl Acad Sci U S A*. 2007 Dec 4; 104(49):19488-93.
4. Helgeson BE, Tomlins SA, Shah N, Laxman B, Cao Q, Prensner JR, Cao X, Singla N, Montie JE, **Varambally S**, Mehra R, Chinnaiyan AM. Characterization of TMPRSS2:ETV5 and SLC45A3:ETV5 gene fusions in prostate cancer. *Cancer Res*. 2008 Jan 1; 68(1):73-80.
5. Huang W, Zhang Y, **Varambally S**, Chinnaiyan AM, Banerjee M, Merajver SD, Kleer CG. Inhibition of CCN6 (Wnt-1-Induced Signaling Protein 3) Down-Regulates E-Cadherin in the Breast Epithelium through Induction of Snail and ZEB1. *Am J Pathol*. 2008 Mar 5.
6. Tomlins SA*, Laxman B*, **Varambally S *** , Cao X, Yu J, Helgeson BE, Cao Q, Prensner JR, Rubin MA, Shah RB, Mehra R, Chinnaiyan AM. The Role of the TMPRSS2-ERG Gene Fusion in Prostate Cancer. Neoplasia. *Neoplasia.* 2008 Feb; 10(2):177-88. *Equal contribution first author.
7. Tomlins SA, Rhodes DR, Yu J, **Varambally S**, Mehra R, Perner S, Demichelis F, Helgeson BE, Laxman B, Morris DS, Cao Q, Cao X, Andrn O, Fall K, Johnson L, Wei JT, Shah RB, Al-Ahmadie H, Eastham JA, Eggener SE, Fine SW, Hotakainen K, Stenman UH, Tsodikov A, Gerald WL, Lilja H, Reuter VE, Kantoff PW, Scardino PT, Rubin MA, Bjartell AS, Chinnaiyan AM. The Role of SPINK1 in ETS Rearrangement Negative Prostate Cancers. *Cancer Cell*. In Press.

James Varani, Ph.D.

Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. MEDICAL STUDENTS
1. Diana Spahlinger, 1st year medical student, University of Michigan (June - September 2007)

B. UNDERGRADUATE STUDENTS
1. Monica Deming, 1st year undergraduate, Michigan State University (June 2008 - present)
2. Siddharth Goyal, 3rd year undergraduate, University of Michigan (February 2008 - present)
3. Madhav Naik, 3rd year undergraduate, University of Michigan (April 2006 - present)
4. Stephanie Weber, 4th year undergraduate, University of Michigan (September 2006 - present)
5. Tejaswi Paruchuri, graduated Spring 2008, University of Michigan (July 2007 - present)

C. HOUSE OFFICERS/FELLOWS
1. Muhammad Nadeem Aslam, M.D. (June 2002 - present)

D. RESEARCH FACULTY
1. Narasimharao Bhagavathula, Ph.D. (April 2000 - present)

E. OTHER
1. Instructor: Pathology 581: Tissue, cellular and molecular basis of disease
2. Instructor: Dental School interdisciplinary course
3. Instructor: Pathology 582: Tissue, cellular and molecular basis of disease Part II
4. Instructor: Pathology 553: Cancer Biology

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NIAID, AR49621, Non-irritating retinoids for the treatment of skin aging
2. NIH/NIAMS, GM77724, Wound-healing properties of a non-irritating retinoid
3. NIH, AG024824 (P30), Older Americans Independence Center Epidermal growth control in aged mice (development project)
4. Pfizer, Inc. (Ann Arbor, MI) Use of whole skin organ culture with human skin with hair follicles for assessment of biomarkers of hair growth
5. NIH/NIAMS, AR50330, New Topical Treatment for Psoriasis
6. NIH/NIAMS, AR052889, Amphiregulin in Psoriatic Epidermal Hyperplasia

B. PENDING PROJECTS

1. HL70797-04 MMP-1 and MMP-3 in Acute Lung Injury and Its Consequences
2. NCI/NIH Molecular determinant of colon cancer growth control

C. PROJECTS UNDER STUDY

1. The biology of collagen destruction and repair in diabetic and aged skin.
2. Role of MMP-3 in acute and chronic lung injury.
3. Topical PPAR-γ ligands for treatment of psoriasis.
4. Development of a non-irritating retinoid for replacement of RA in therapy of skin aging and as a wound-healing agent.
5. Use of ex vivo approaches to distinguish irritant dermatitis from contact dermatitis.
6. Role of the calcium-sensing receptor in colon cancer growth control.

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Department of Pathology Advisory Committee on Appointments, Promotions and Tenure
2. Member, Department of Pathology Graduate Program Committee
3. Member and Chairman Pathology Graduate Program Curriculum Revision Committee

B. INSTITUTIONAL

C. Member, Institutional Review Board of the UM Medical School (IRBMED)

D. Member, IRBMED's task force on adverse event reporting

E. Member, UM Program in Biomedical Sciences (PIBS) Curriculum Committee

F. Member, UM Department of Dermatology Research Training Grant Steering Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board

a. *Expert Review of Dermatology*
b. Manuscript Reviews
   i. *American Journal of Pathology*
   ii. *Cancer Research*
   iii. *Journal of Investigative Dermatology*

B. INVITED LECTURES/SEMINARS
1. PCITX Product Development Conference 2007, New York City, NY, September 22, 2007.
2. Molecular Design International, Memphis, TN, February 15, 2008.
3. Accelerating the Future - Ingredient and Technology Conference, New York City, NY, March 17, 2008.
4. Experimental Biology 2008, San Diego, CA, April 7, 2008.
5. Magen BioSciences, Boston, MA, April 9, 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Bhagavathula N, Hanosh A, Nerusu KC, Appelman H, Chakrabarty S, **Varani J.** Regulation of E-cadherin and β-catenin by Ca2+ in colon carcinoma is dependent on calcium-sensing receptor expression and function. *Int J Cancer* 121(7):1455-1462, 2007.
2. Wang F, Garza LA, Kang S, **Varani J**, Orringer JS, Fisher GJ, Voorhees JJ. In vivo stimulation of de novo collagen production caused by cross-linked hyaluronic acid dermal filler injections in photodamaged human skin. *Arch Dermatol* 143(2):155-163, 2007.
3. Kafi R, Kwak HSR, Schumacher WE, Cho SY, Hanft VN, Hamilton TA, King AL, Neal JD, **Varani J**, Fisher GJ, Voorhees JJ, Kang SW. Improvement of naturally aged skin with vitamin A (retinol). *Arch Dermatol* 143(5):606-612, 2007.
4. **Varani J**, Fay K, Perone P. MDI 301, a non-irritating retinoid, induces changes in human skin that underlie repair. Arch Dermatol Res 298:439-448, 2007.
5. **Varani J**. Ex vivo methods for the preclinical evaluation of potential anti-psoriatic therapeutics. *Bioprocess J* (in press) 2007.
6. Warner RL, Bhagavathula N, Nerusu K, Hanosh A, McClintock SD, Naik M, Johnson KJ, **Varani J**. MDI 301, a nonirritating retinoid, improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen* 16(1):117-124, 2007.
7. **Varani J**, Bhagavathula N, Aslam MN, Fay K, Warner RL, Hanosh A, Barron AG, Miller RA. Inhibition of retinoic acid-induced skin irritation in calorie-restricted mice. *Arch Dermatol Res* 300:27-35, 2008.
8. **Varani J**, Perone P, Spahlinger DM, Singer LM, Diegel KL, Bobrowski WF, Dunstan R. Human skin in organ culture and human skin cells (keratinocytes and fibroblasts)

in monolayer culture for assessment of chemically induced skin damage. *Toxicol Pathol* 35(5):693-701, 2007.

9. Reichrath J, Lehmann B, Carlberg C, **Varani J**, Zouboulis CC. Vitamins as hormones. *Horm Metab Res* 39(2):71-84, 2007.
10. **Varani J.** Control of normal and abnormal proliferation in the epidermis: EGF receptor function and epidermal hyperplasia. *Expert Rev Dermatol* 2:629-638, 2007.
11. Nerusu KC, Warner RL, Bhagavathula N, McClintock SD, Johnson KJ, **Varani J.** Matrix metalloproteinase-3 (stromelysin-1) in acute inflammatory tissue injury. *Exp Mol Pathol* 83(2):169-176, 2007.
12. Dame MK, Spahlinger DM, DaSilva M, Perone P, Dunstan R, **Varani J.** Establishment and characteristics of Gottingen minipig skin in organ culture and monolayer cell culture: relevance to drug safety testing. *In Vitro Cell Dev Biol Anim* (Epub ahead of print) 2008.
13. Fisher GJ, **Varani J**, Voorhees JJ. Looking older: fibroblast collapse and therapeutic implications. *Arch Dermatol* 144(5):666-672, 2008.
14. **Varani J**, Perone P, Warner RL, Dame MK, Kang S, Fisher GJ, Voorhees JJ. Vascular tube formation on matrix metalloproteinase-1-damaged collagen. *Br J Cancer* 98(10):1646-1652, 2008.
15. Liu G, Hu X, **Varani J**, Chakrabarty S. Calcium and calcium-sensing receptor modulates the expression of thymidylate synthase, NAD(P)H:quinone oxidoreductase 1 and surviving in human colon carcinoma cells: promotion of cytotoxic response to mitomycin C and fluorouracil. *Mol Carcinogenesis* (in press) 2008.

B. BOOKS/CHAPTERS IN BOOKS

1. **Varani J**. A solid foundation is important for healthy looking skin. In Nutritional *Cosmetics.* Edited by A Tabor and RM Blair. New York: William Andrew Publishing, 2007.
2. **Varani J**, Quan T, Fisher GJ. *Mechanisms and pathophysiology of skin aging and photoaging*. Edited by A Kozlowski. Carol Stream, IL: Allured Publishing, 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Dame MK, Spahlinger D, DaSilva M, Perone P, Dunstan R, **Varani J**. Organ and monolayer cell culture of Gottingen minipig skin:a model for whole skin study and drug safety. In *Vitro Cell Dev Biol Anim* (abstract) 2008.
2. Barron AG, Warner RL, Bhagavathula N, Johnson KJ, **Varani J**. Determination of rodent tropoelastin in the skin by competitive ELISA. *FASEB J* 22:1121.4, 2008.
3. Warner RL, Bhagavathula N, Hanosh A, McClintock SD, Naik MK, Johnson KJ, **Varani J**. MDI 301, a non-irritating retinoid, improves abrasion wound healing in both aged and diabetic skin. *FASEB J* 22: 1121.3, 2008.

4. **Varani J**, Perone P, Warner RL, Dame MK, Kang S, Fisher GJ, Voorhees JJ. Vascular tube formation on matrix metalloproteinase-1 damaged collagen. *FASEB J* 22:470.11, 2008.
5. DaSilva M, Bhagavathula N, Barron AG, Warner RL, Weber S, **Varani J**. Anti-oxidant activity increased in human dermal fibroblasts and intact skin by Zingiber officinale CO2 extract. *FASEB J* 22:897.11, 2008.
6. Aslam MN, Paruchuri T, Bhagavathula M, **Varani J**. Dietary modifications of colon tumorigenesis. AACR Annual Meeting Program (Abstract 5476) p. 434, 2008.

Daniel W. Visscher, M.D.

Associate Professor of Pathology
Director of Surgical Pathology

I. Clinical Activities

A. General Surgical Pathology (Room 1) - 8 weeks

B. GU Service - 4 weeks

C. Breast Service - 10 weeks

D. Gyn Service - 5 weeks

E. Intra-Operative Consultation (On-Call) - 4 weeks

F. Outside consultations - 344 (VI & MY)

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 Lab Instructor (7/07-6/08)

B. HOUSE OFFICERS AND FELLOWS

1. Frozen Section Conference, weekly, 1 hour each

C. LECTURES

1. The Impact of Pathology: Reporting on Managing Patient's with Breast Diseases, New Frontiers in Pathology Conference, Ann Arbor, MI, September 27, 2007.
2. Breast Pathology, New Frontiers in Pathology Conference, Ann Arbor, MI, September 28, 2007.

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL
   1. Director of Surgical Pathology
   2. Medical Director of Histology and Pathologists Assistants

B. INSTITUTIONAL
   1. UM Medical School Admissions Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board: Human Pathology

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. United States and Canadian Academy of Pathologists (sustaining member)
   2. Michigan Society of Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Degnim AC, **Visscher, DW**, Berman HK, Frost MH, Sellers TA, Vierkant RA, Maloney SD, Pankratz VS, de Groen PC, Lingle WL, Ghosh K, Penheiter L, Tisty T, Melton LJ III, Reynolds CA, Hartmann LC. Stratification of breast cancer risk in women with atypia: A Mayo cohort study. *J Clin Oncol*, 2007 Jul 1;25(19):2671-7.
   2. **Visscher DW**, Pankratz VS, Santisteban M, Reynolds C, Ristimaki A, Vierkant RA, Lingle WL, Frost MH, Hartmann LC. Association between cyclooxygenase-2 expression in atypical hyperplasia and risk of breast cancer. *J Natl Cancer Inst.* March, 2008, 100 (6): 421-7.
   3. Berg JC, **Visscher DW**, Vierkant RA, Pantratz VS, Maloney SD, Lewis JT, Frost MH, Ghosh K, Degnim AC, Brandt, KR, Vachon CM, Reynolds CA, Hartmann LC. Breast cancer risk in women with radial scars in benign breast biopsies. *Breast Cancer Res Treat*, 2008, 108: 167-174.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Sharaf Aldeen B, Arabi H, Chen W, **Visscher, DW**, Nassar H. DCIS in African-American vs. Caucasian-American Women: Analysis of Pathologic Features and Outcome. *Modern Pathol*, 21, Supplement 1, January, 2008.
   2. McKain KP, Reynolds CA, Vierkant RA, Anderson S, Frost MH, **Visscher DW**, Nassar A, Hartmann LC. Lobular Involution: A Quantitative Trait Directly Linked to Breast Cancer. *Modern Pathol*, 21, Supplement 1, January, 2008.
   3. **Visscher DW**, Reynolds C, Vierkant RA, Frost MH, Hartmann LC. Longitudinal Analysis of Benign Breast Disease in Women Developing Breast Cancer after a Benign Biopsy, *Modern Pathol*, 21, Supplement 1, January, 2008.

4. Kunju LP, Cookingham CL, Banerjee M, Kleer CG, **Visscher DW**. Experience with Oncotype DX at a Single Institution: Correlation with Histologic Tumor Features, *Modern Pathol*, 21, Supplement 1, January, 2008.
5. **Visscher DW**, Reinholtz M, Hillman D, Jenkins R, Perez E. Analysis of Staining Heterogeneity and Level of Amplification in Breast Carcinomas with "2+" HER-2 Immunoreactivity, *Modern Pathol*, 21, Supplement 1, January, 2008.

Peter A. Ward, M.D.

Godfrey D. Stobbe Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Fellows:
   a. Daniel Rittirsch, M.D.
   b. Michael Flierl, M.D.
   c. Gelareh Atefi, M.D.

B. OTHER

1. Firas S. Zetoune, Research Associate
2. UROP Undergraduate Students
   a. Anthony Chen
   b. Danielle Day
   c. Brian Nadeau

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NHLBI P01-HL31963, (Project 1), PI, 25% effort, Inflammatory Cells and Lung Injury, 02/01/05 01/31/10, $264,827 /yr.
2. NIH/NIGMS, (MERIT) R01- GM29507, PI, 20% effort; Lung Injury by Oxygen Metabolites, 07/01/05 06/30/09, $312,396/yr.
3. NIH/NIGMS R01- GM61656,.PI, 20% effort, Protective Effects of Anti-C5a in Sepsis, 09/25/06 08/31/10, $404,314/yr.
4. USAMRMC W18XWH-06-2-0044, PI, 5% effort, Mechanisms and Prevention of Lung Injury Caused by Exposure to Mustard Gas, 08/21/06 08/31/08, $348,514/yr.

IV. Administrative Activities

A. INSTITUTIONAL

1. Medical School Executive Committee
2. Michigan Eye Bank Research Review Committee

3. Undergraduate Research Opportunity Program, University of Michigan
4. Conflict of Interest Advisory Committee for the University of Michigan
5. HUMES Oversight Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a. *American Journal of Pathology*
   b. *American Review of Respiratory Diseases,* Consulting Editor
   c. *Free Radical Biology & Medicine*
   d. *Journal of Clinical Investigation,* Consulting Editor
   e. *Journal of Experimental and Molecular Biology*
   f. *Toxicologic Pathology*
   g. *Biological Perspective, American Journal of Pathology,* Special Editor
   h. *SHOCK Journal,* Associate Editor
   i. *Molecular Medicine Reports (International)*
   j. *Journal of Organ Dysfunction*
   k. *FASEB* Board of Directors
2. Reviewer
   a. *American Journal of Pathology*
   b. *American Journal of Physiology Cell Physiology*
   c. *American Journal of Physiology Lung Cellular and Molecular Physiology*
   d. *American Journal of Respiratory Cell and Molecular Biology*
   e. *American Journal Respiratory Critical Care Medicine*
   f. *Biomarkers in Medicine*
   g. *Critical Care Medicine*
   h. *Current Respiratory Medical Reviews*
   i. *European Journal of Immunology*
   j. *European Respiratory Journal*
   k. *Experimental and Molecular Pathology*
   l. *Experimental Lung Research*
   m. *Expert Opinion on Biological Therapy*
   n. *Expert Opinion on Pharmacotherapy*
   o. *FASEB Journal*
   p. *Free Radical Biological and Medicine*
   q. *Human Molecular Genetics*
   r. *Immunobiology*
   s. *Immunological Investigations*
   t. *Journal of American Society of Nephrology*
   u. *Journal of Cellular and Molecular Medicine*
   v. *Journal of Clinical Investigation*
   w. *Journal of Experimental Biology*

x. *Journal of Immunology*
y. *Journal of Investigative Surgery*
z. *Journal of Leukocyte Biology*
aa. *Journal of Surgical Research*
bb. *Journal of Thrombosis and Haemostasis*
cc. *Kidney International*
dd. *Molecular Immunology*
ee. *Nature*
ff. *Nature Biotechnology*
gg. *Nature Immunology*
hh. *Nature Medicine*
ii. *Nature Reviews Biology*
jj. *Open Toxicology*
kk. *Scandinavian Journal of Immunology*
ll. *SHOCK*

3. Grant Reviewer
   a. National Institute of Allergy and Infectious Diseases
   b. National Institute of Health Study Section
   c. National Heart, Lung, & Blood Institute
   d. Michigan Eye Bank Research
   e. Wellcome Trust Grants
   f. Shriners Children Hospital
   g. Canada Foundation for Innovation

B. INVITED LECTURES/SEMINARS

1. Invited Speaker, "Diagnostic and Therapeutic Strategies in Sepsis", 3rd Intl Congress on Sepsis & Multiorgan Dysfunction, Weimar, Germany, September 5, 2007.
2. Invited Speaker, "Role of Complement Activation Products and Receptors in Lung Inflammatory Injury", 4th International Symposium on Respiratory Diseases, Shanghai, China, November 3 5, 2007.
3. Invited Speaker, "Sepsis as an Exaggerated Inflammatory Disorder" GTCbio 3rd Annual Modern Drug Discovery & Development Summit, San Francisco, CA, November 28, 2007.
4. Keynote Speaker, "Role of Complement in the Sepsis Syndrome", UC Davis Cancer Center Inflammation Symposium, Davis, CA, January 17, 2008.
5. Invited Speaker, "Apoptosis in Experimental Sepsis", Apoptosis 2008 Conference, Luxembourg, January 23 26, 2008.
6. Invited Speaker, Inflammation Seminar, "Molecular Mechanisms of Sepsis", Michigan State University, East Lansing, MI, February 14, 2008.
7. Invited Speaker, "Role of Complement Receptors in Sepsis and Acute Lung Injury", Experimental Biology 2008, San Diego, CA, April 5 - 9, 2008.

8. Invited Platform Speaker, "Liposomal Blockade of Lung Injury after Exposure to 2-Chloroethyl Ethyl Sulfide (CEES)", at the 16th Biennial Medical Chemical Defense Bioscience Review, Hunt Valley, MD, June 4, 2008.
9. Invited Speaker, "Roles of C5aR and C5L2 in Experimental Sepsis", Aegean Conference, 5th International Innate Immunity Conference, Chania, Crete, Greece, June 21-26, 2008.
10. Invited Speaker, "Changes in Lung (and Beyond) During Sepsis", Proceedings of the International Shock Congress, Cologne, Germany, June 28 July 2, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Immunologists
2. American Society for Clinical Investigation
3. American Society for Investigative Pathology, representative to FASEB Board
4. Association of American Physicians
5. American Thoracic Society
6. American Heart Association, Fellow
7. Association of Pathology Chairmen
8. American Association of University Pathologists
9. A. James French Society of Pathologists
10. Institute of Medicine, National Academy of Sciences
11. Michigan Society of Pathologists
12. Committee on Recognition and Alleviation of Distress in Laboratory Animals
13. Chair, 2006-present
14. Glue Grant Advisory Committee, February 2008, Boston, MA
15. FASEB Finance Committee, May 2008

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Wrann, C.D., Tabriz, N.A., Barkhausen, T., Klos, A., van Griensven, M., Pape, H.C., Kendoff, D.O., Guo, R., **Ward, P.A.**, Krettek, C., Riedemann, N.C.: The phosphatidylinositol 3-kinase signaling pathway exerts protective effects during sepsis by controlling C5a-mediated activation of innate immune functions. *J. Immunol*. 2007; 178:5940-5948.
2. Leinhase, I., Rozanski, M., Harhausen, D., Thurman, J.M., Schmidt, O.I., Hossini, A.M., Taha, M.E., Rittirsch, D., **Ward, P.A.**, Holers, V.M., Ertel, W., Stahel, P.F.: Inhibition of the alternative complement activation pathway in traumatic brain injury by a monoclonal anti-factor B antibody: a randomized placebo-controlled study in mice. *J. Neuroinflammation*, 2007 4:13.
3. Hoesel, L.M., Niederbichler, A.D., Schaefer, J., Ipaktchi, K.R., Gao, H., Rittirsch, D., Pianko, M.J., Vogt, P.M., Sarma, J.V., Su, G.L., Arbabi, S., Westfall, M.V., Want,

S.C., Hemmila, M.R., **Ward, P.A**. C5a-blockade improves burn-induced cardiac dysfunction. *J. Immunol*. 2007 178:7902-7910.

4. Gao, H. and **Ward, P.A**. STAT3 and suppressor of cytokine signaling 3: potential targets in lung inflammatory responses. *Expert Opin Ther Targets*. 2007 11: 869-880.
5. **Ward, P .A**: The curiosity of IL-15. Nat Med 2007 13(8):903-904.
6. Guo, R.F. and **Ward, P.A**: Role of oxidants in lung injury during sepsis. *Antioxid Redox Signal*. 9: 1991-2002, 2007.
7. **Ward, P.A.** Role of the complement in experimental sepsis. Epub *J. Leukoc Biol*. 2007 Sep 17.
8. Sarma, J.V. and **Ward, P.A.** In vivo biological responses in the presence or absence of C3. *Adv. Exp. Med. Biol*. 2007 598:240-250.
9. Flierl, M.A., Rittirsch, D., Nadeau, B.A., Chen, A.J., Sarma, J.V., Zetoune, F.S., McGuire, S.R., List, R.P., Day, D.E., Hoesel, L.M., Gao, H., Van Rooijen, N., Huber-Lang, M.S., Neubig, R.R., **Ward, P.A.** Phagocyte-derived catecholamines enhance acute inflammatory injury. *Nature,* 449: 721-725.
10. Shapcovitch, V.M., Seeliger, S., Huber-Lang, M., Balkow, S., Feld, M., Hollenberg, M.D., Sarma, J.V., **Ward, P.A**., Strey, A., Gerke, V., Sommerhoff, C.P., Vergnolle, N., Steinhoff, M.: Agonists of proteinase-activated receptor-2 affect transendothelial migration and apoptosis of human neutrophils. *Exp. Dermatol*. 2007 16:799-806.
11. Flierl, M.A., Rittirsch, D., Huber-Lang, M., Sarma, J.V., and **Ward, P.A.**: Catecholamines Crafty weapons in the inflammatory arsenal of immune/inflammatory cells or opening Pandora's box? *Mol Med*. 2008, 14:195-204.
12. Hoesel, L.M., Flierl, M.A., Niederbichler, A.D., Rittirsch, D., Sarma, J.V., McClintock, S.D., Reuben, J.S., Pianko, M.J., Stone, W., Yang, H., Smith, M., **Ward, P.A**.: Ability of anti-oxidant liposomes to prevent acute and progressive pulmonary injury. *Antioxid Redox Signal*. 2008; 10: 973-981.
13. Flierl, M.A., Rittirsch, D., Huber-Lang, M.S., Sarma, J.V., and **Ward, P.A**.: Molecular Events in the Cardiomyopathy of Sepsis. *Mol Med* [Epub ahead of print], Feb 7, 2008.
14. Flierl, M.A., Rittirsch, D., Gao, H., Hoesel, L.M., Nadeau, B.A., Day, D.E., Zetoune, F.S., Sarma, J.V., Huber-Lang, M.S., Ferrara, J.L.M., and **Ward, P.A.**: Adverse Functions of IL-17A in Experimental Sepsis. *FASEB J* [Epub ahead of print], Feb 25, 2008.
15. Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, Harton JA, Hoffman HM, Hugot JP, Inohara N, Mackenzie A, Maltais LJ, Nuñez G, Ogura Y, Otten LA, Philpott D, Reed JC, Reith W, Schreiber S, Steimle V, **Ward PA**. The NLR gene family: a standard nomenclature. *Immunity* 2008 3:285-287.
16. Patel, S.N., Berghout, J., Lovegrove, F.E., Ayi, K., Serghides, L., Min-oo, G., Sarma, J.V., Rittirsch, D., **Ward, P.A.**, Looareesuwan, S., Liles, W.C., Gros, P., and Kain,

K.C. C5 deficiency and C5a or C5aR blockade protects against cerebral malaria. *J Exp Med.* [Epub ahead of print], Apr 21, 2008.

17. Rittirsch, D., Flierl, M.A., Nadeau, B.A., Day, D.E., Hoesel, L.M., Zetoune, F.S., MacKay, C.R., Cianflone, K., Gerard, N.P., Huber-Lang, M.S., Khl, J., Gerard, C., Sarma, J.V., and **Ward, P.A.**: Functional roles for C5a receptors in sepsis. *Nat Med.* [Epub ahead of print], May 4, 2008.
18. Rittirsch, D., Flierl, M.A., Day, D.E., Nadeau, B.A., McGuire, S.R., Hoesel, L.M., Ipaktchi, K., Zetoune, F.S., Sarma, J.V., Leng, L., Huber-Lang, M.S., Neff, T.A., Bucala, R., and **Ward, P.A**. Acute lung injury induced by lipopolysaccharide is independent of complement activation. *J Immunol*. 2008 180:7664-7672.
19. Flierl, M.A., Rittirsch, D., Chen, A.J., Nadeau, B.A., Day, D.E., Sarma, J.V., Huber-Lang, M.S. and **Ward, P.A.**: The complement anaphylatoxin C5a induces apoptosis in adrenomedullary cells during experimental sepsis. *PLoS ONE* 2008 On-Line Vol 3/issue 7/e2560.
20. Flierl, M.A., Rittirsch, D., Nadeau, B.A., Day, D.E., Zetoune, F.S., Sarma, J.V., Huber-Lang, M.S. and **Ward, P.A.**: Functions of the complement components C3 and C5 during sepsis. *FASEB J*. 2008 Jun 27 [Epub ahead of print].

B. BOOKS/CHAPTERS IN BOOKS

1. Smith, M.G., Stone, W., Guo, R.F., **Ward, P.A.**, Suntres, Z., Mukherjee, S., and Das, S.K. Vesicants and Oxidative Stress. In *Chemical Warfare Agents. Chemistry, Pharmacology, Toxicology, and Therapeutics,* J.A. Romano, Jr., B.J. Lukey, H. Salem (eds). 2nd Edition, CRC Press, Boca Raton, FL. pp.247 312, 2007.
2. Sarma, J.V. and **Ward, P.A.** The role of complement in sepsis. *In Critical Care Nephrology*, 3rd Ed., C. Ronco, R. Bellomo, J. Kellum (eds). Elsevier, Philadelphia, PA. 2007.
3. Guo, R.F. and **Ward, P.A.** Role of C5a in inflammatory responses. In *Annual Review of Immunology,* Paul, W.E., Littman, D.R. (eds.). Palo Alto, CA. Vol. 26, 23:821-852, 2008.
4. Lukacs, N.W., and **Ward, P.A**. Leukocyte accumulation in pulmonary disease. In *Fishman's Pulmonary Diseases and Disorders*, 4th Ed., Fishman, A.P., Elias, J.A., Fishman, J.A., Grippi, M.A., Kaiser, L.R., Senior, R. (eds) McGraw-Hill, New York, NY. pp.347-357, 2008.
5. Flierl, M.A., Rittirsch, D., Sarma, J.V., Huber-Lang, M., and **Ward, P.A.**: Adrenergic regulation of complement-induced acute lung injury. In *Advances in experimental medicine and biology current topics in complement II*, J.D. Lambris (ed), Springer, New York, NY. vol. 632, 2008.
6. **Ward, P.A.,** Johnson, K.J.: Integrating academic laboratories into pharmaceutical development, In *Biomarkers in Drug Development: A Handbook of Practice, Application, and Strategy*, Rahbari, R., Jurima-Romet, M., Carini, C., Bleavins, M. (eds), John Wiley & Sons, Inc 2008, In Press.

Roscoe L. Warner, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Research Investigator
   a. Thekkelnaycke Rajendiran Ph.D., UM Investigator
2. Research Assistants
   a. Shannon McClintock, B.S.
   b. Adam Barron, B.S.
   c. Daniela Bickel, B.S.

III. Research Activities

A. SPONSORED SUPPORT

1. 2R44GM077724-02, James J. Varani (P.I.), Roscoe L. Warner (Co-P.I.), "Wound-Healing Properties of a Non-Irritating Novel 9-cis Retinoic Acid Derivative", 4/17/08 - 3/31/10, $385,986.00/2 yr.
2. NIH GM-77724, SBIR Phase-I, James J. Varani (P.I.), Roscoe L. Warner (Co-P.I.), "Topical Skin Treatment to Facilitate Wound Healing in the Aged Population," (Funded).

B. PROJECTS UNDER STUDY

1. Determination of Biomarkers in Human Vasculitis and Rodent Models of Vasculitis.
2. Mechanisms of MMP-3 Action in Acute Lung Injury.
3. Protein Carbohydrate Interactions Use of Marasmius oreades lectin in a model of microangiopathic injury in mice.
4. Mechanisms of MMP-3 Action in Bleomycin induced Airway Thickening.
5. Mechanisms of Action of a Benzodiazepine Derivative in Rodent Models of LUPUS.
6. Development of Human and Rat Antibody Microarrays.
7. Cyclosporin-induced nephrotoxicity.
8. Dermal Abrasion model to screen Retinoic Acid Derivative Wound Healing.

IV. Administrative Activities – None

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Assoc. Matrix Biology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Kamalakar N.C., **Warner, R.L**. Bhagavathula,N., McClintock, S.D., Johnson, K.J., Varani, J. (2007) Matrix metalloproteinase-3 (stromelysin-1) in acute inflammatory tissue injury. *Exp. Molec. Pathol.* 83:169-176.
2. **Warner, R.L.**, McClintock, S.D., Barron, A.G. and de la Iglesia, F. (2007) Hemostatic properties of a venomic protein in rodent dermal injuries. *Exp. Molec. Pathol*. 83:241-248.
3. **Warner, R.L.**, Bhagavathula, N., McClintock, S.D. and Varani J. (2008) MDI 301, a non-irritating retinoid improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen*. 16:117-124.
4. Varani, J., Bhagavathula, N., Fay, K., **Warner, R. L.**, Aslam, M.N., Hanosh, A., Barron, A.G., Miller, R.A. (2008) Inhibition of retinoic acid induced skin irritation in calorie-restricted mice. *Archiv. Dermatol. Research* 300:27-35.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Bickel, D., **Warner, R.L.**, and Johnson, K.J. Antibody microarray longevity study: How long-term storage affects the dynamic range of printed slides. 2008 Experimental Biology, San Diego, CA.
2. **Warner, R.L.**, Bhagavathula, N., Hanosh, A., McClintock, S.D., Naik, M.K., Johnson, K.J., and Varani, J. MDI 301, A non-irritating retinoid, improves abrasion wound healing in both aged and diabetic skin. 2008 Experimental Biology, San Diego, CA.
3. McClintock, S.D., Barron, A., **Warner, R.L.**, and Johnson, K.J.: Murine model of occupational injury induced by chronic exposure to oak dust. 2008 Experimental Biology, San Diego, CA.
4. Barron, A.G., **Warner, R.L.**, Bhagavathula, N., Johnson, K.J., and Varani, J. Determination of rodent tropoelastin in the skin by competitive ELISA. 2008 Experimental Biology, San Diego, CA.
5. James Varani, Patricia Perone, **Roscoe L. Warner**, Michael K Dame, Sewon Kang, Gary J Fisher, and John J Voorhees . Vascular tube formation on matrix metalloproteinase-1 damaged collagen. *FASEB J*. 22: 470.11.
6. Marissa DaSilva, Narasimharao Bhagavathula, Adam Barron, **Roscoe Warner**, Stephanie Weber, and James Varani. Anti-oxidant activity increased in human dermal fibroblasts and intact skin by Zingiber officinale CO 2 extract. *FASEB J*. 2008 22:897.11.

7. Cibrik, D.M., **Warner, R.L.**, Bickel, D., and Johnson, K.J. Antibody microarray of renal transplant recipients. May 2008, American Transplant Congress, Toronto, Ontario, Canada.

Jeffrey S. Warren, M.D.

Aldred S. Warthin Endowed Professor of Pathology
Director of Clinical Pathology

I. Clinical Activities

A. Director, Division of Clinical Pathology/Clinical Laboratories

B. Director, Clinical Immunopathology Service

C. Microbiology Laboratory; review of peripheral blood parasite smears

D. Molecular Diagnostics laboratory; sign-out of cases (currently 16week/year)

E. Director, Pathology Phlebotomy Service

II. Teaching Activities

A. MEDICAL STUDENTS

1. "Current Topics in Immunopathology" journal club series: pathology residents, M4 students (26 contact hours).
2. Clinical Pathology Grand Rounds: "Cases and Images in Immunopathology" (11-6-07).
3. Immunopathology sign-out: pathology residents, M4 medical students, medical technology students (3 times/week; 48 weeks/year).

B. HOUSE OFFICERS AND FELLOWS

1. "Current Topics in Immunopathology" journal club series: pathology residents, M4 students (26 contact hours).
2. Clinical Pathology Grand Rounds: "Cases and Images in Immunopathology" (11-6-07).
3. Rheumatology-Pathology Case Conference": pathology residents, rheumatology fellows and faculty (1/month; 10 months/year).
4. Immunopathology sign-out: pathology residents, M4 medical students, medical technology students (3/week; 48 weeks/year).
5. Immunopathology component of Block E (Clinical Pathology); ad hoc topical reviews: pathology residents (73 contact hours).

6. Collaboration in Research activities for: Anjali Desai, Ph.D. (Research Investigator; Department of Pathology). (6/15/96-5/31/07).
    a. Dr. Desai is currently a Research Investigator in Internal Medicine. We meet approximately every 6 weeks to discuss completion of projects. (7/01/07 - present).

III. Research Activities

A. PROJECTS UNDER STUDY

1. Modulation of proatherogenic endothelial and smooth muscle cell functions by erythropoietin, reactive oxygen intermediates, and reactive nitrogen intermediates.
2. Role of erythropoietin in accelerated atherogenesis in ApoE-(-/-) mice with drug-induced chronic renal disease. (with Anjali Desai, Ph.D.)
3. Pathophysiologic role of oxidants in uremia and its complications.
4. Atypical laboratory presentations of cryoglobulinemia.

IV. Administrative Activities

A. DEPARTMENTAL

1. Interviewer of Pathology Residency Candidates
2. Chairman, Laboratories Communications Committee
3. Chairman, Clinical Pathology Quality Assurance Committee
4. Chairman, Requisition Review Committee

B. INSTITUTIONAL

1. Member, Center for Genetics in Health and Medicine Steering Committee, University of Michigan
2. Promotion Reader, University of Michigan Provost

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, Council for Diagnostic Immunology and Molecular Pathology, American Society of Clinical Pathology
2. Member, Diagnostic Immunology Resource Committee, College of American Pathologist
3. Member, Test Committee for Molecular Genetic Pathology; American Board of Pathology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc referee
    a. *American Journal of Pathology*
    b. *Laboratory Investigation*
    c. *Human Pathology*
    d. *Journal of Applied Physiology*

e. Lung
f. Blood
g. Journal of Laboratory and Clinical Medicine
h. Pediatric Research
i. Journal of Leukocyte Biology
j. American Review of Respiratory Disease
k. Chest
l. Journal of Pharmacology and Experimental Therapeutics
m. Circulation
n. Ophthalmology
o. American Journal of Respiratory Cell and Molecular Biology
p. Clinical Immunology and Immunopathology
q. Circulation Research
r. Journal of Immunology
s. Surgery
t. Reviews of Infectious Diseases
u. Infection and Immunity
v. Experimental Lung Research
w. Journal of Rheumatology
x. Clinical Infectious Diseases
y. Journal of Clinical Investigation
z. Cytometry
aa. Biological Signals
bb. Metabolism
cc. Molecular Medicine Today
dd. American Journal of Respiratory and Critical Care Medicine
ee. The Cancer Journal
ff. British Journal of Pharmacology
gg. Kidney International

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Desai A, Zhao Y, **Warren JS.** Development of atherosclerosis in Balb/c Apo E (-/-) mice. *Cardiovascular Pathology.* 2007 Dec; (Epub ahead of print).
2. Desai A, Zhao Y, **Warren JS.** Human recombinant erythropoietin augments asymmetric dimethylarginine concentrations but does not compromise nitric oxide generation in mice. *Nephrol Dialysis Transplant* 2008; 23:1513-1520.

B. BOOKS/CHAPTERS IN BOOKS

1. **Warren JS.** Functional disorders of leukocytic phagocytes, in Keren DF, McCoy JP, Carey JL (eds). *Flow Cytometry and Clinical Diagnosis*, 4th Edition, ASCP Press, Chicago, IL, 247-258, 2007.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Desai A, **Warren JS.** EPO induces rise in serum ADMA but does not prevent the increase in NO release: the likely involvement of HO-1. *Nephrol. Dial. Transplant*, 2008 (in press) (letter).

Thomas E. Wilson, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. ASSOCIATE DIRECTOR OF THE MOLECULAR DIAGNOSTICS LABORATORY. Case sign-out (17 weeks), physician consultation, new test development. Areas of special expertise

1. Genetic identity testing: worked with bone marrow transplant team to continue implementation of lineage specific chimerism analysis, and HLA lab regarding solid organ/transfusion GVHD monitoring.
2. Pharmacogenetics: engaged pharmacy regarding implementation of new pharmacogenetic testing, evaluated and selected method for warfarin sensitivity genotyping, coordinated protocol for referring HLA-based pharmacogenetic testing to the HLA laboratory.

II. Teaching Activities

A. GRADUATE STUDENTS

1. Course master, PATH 850, Research Colloquium in Experimental Pathology
2. Course master, PIBS 507, Introduction to Translational Research
3. Mentor, MSTP fellow (1): Phillip Palmbos (moved on to residency)
4. Mentor, rotation student (1): Lauren McNeill (PIBS)
5. Member, thesis committees (5)
   a. Marc Prindle (CMB, successfully defended)
   b. Matthew Pratt-Hyatt (Biological Chemistry, successfully defended)
   c. Jessica O'Konek (Pharmacology, successfully defended)
   d. Graham Brady (Pathology)
   e. Kevin Hicks (Pharmacology)
6. Member, preliminary examination committees (1): Grace Lin (CMB)

B. HOUSE OFFICERS AND FELLOWS

1. Associate coordinator for Molecular Diagnostic component of Pathology Block E rotation: sign-out review, didactic sessions, resident projects.

2. University of Michigan Physician Postdoctoral Research Training Program: Two week full-time course in molecular biology and DNA repair.

C. LECTURES
1. PATH 581, lecture and exam
2. EHS 583, lecture and exam
3. GENETICS 541, three lectures and exam
4. CANBIO 553, lecture
5. Clinical Pathology Grand Rounds, lecture on genetic identity testing

D. OTHER
1. Mentor, postdoctoral fellows (2)
   a. Dongliang Wu
   b. William Kittleman (moved on to new postdoctoral fellowship)
2. Mentor, undergraduate students (3):
   a. Catherine Dinh (UROP summer fellowship)
   b. Sarah Tochman (UROP summer fellowship)
   c. Benjamin Gilbert (UROP)
3. CME coordinator for physicians, Pathology Research Seminar
4. CME coordinator for physicians, Michigan Translational Research Seminars

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NCI 1 R01 CA102563-01, PI 30% effort, "Systematic Genetic Analysis of Yeast NHEJ", 8/1/2004-7/31/2009, $157,500/current year ($787,500/five years).
2. NIH/NCI 2 R01 CA76581, (PI: Donna Shewach) Co-investigator 4% effort, "Enhancing suicide gene therapy through mechanism-based approaches", 4/1/2008-1/31/2013, $178,000/current year ($8,000 Wilson lab) ($890,000 ($40,000)/5 years).
3. University of Michigan Endowment for the Basic Sciences, CGHM Pilot Feasibility Grant, PI (Co-PI: Thomas Glover), "High resolution analysis of sporadic and induced genome copy number alterations", 0% effort (research funding only, no salary support), 4/1/2008-3/31/2009, $50,000/current year.
4. Mentor, University of Michigan Summer Biomedical Research Fellowship, Sarah Tochman, 5/1/2008-8/31/2008.

B. PENDING PROJECTS
1. NIH/ NCI 1 R01 CA138645-01, PI 25% effort, (Co-PI: David Ferguson), "Molecular mechanism(s) of double-strand break resection", 4/1/2009-3/31/2014, $250,000/first year ($1,250,000/5 years).

C. PROJECTS UNDER STUDY
1. My laboratory studies basic mechanisms of DNA double-strand break repair and genome rearrangement predominantly using yeast as a model organism but with extension to both humans and human bacterial pathogens. Current specific interests in supported and pending projects include the delineation of:
   a. the molecular mechanisms of nonhomologous end joining, including both the core structural proteins and end-processing enzymes, especially DNA polymerases;
   b. the molecular mechanisms of resection of DSB ends that prevent end joining and commit chromosome breaks to homologous recombination;
   c. the contribution of the above mechanisms to de novo chromosome rearrangements following replication stress; and
   d. the contribution of the above other DNA damage response mechanisms to the efficacy of DNA-damaging chemotherapeutic agents.

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair and organizer, Pathology Research Seminar Series
2. Member, Pathology Graduate Program Curriculum Committee
3. Pathology student/resident interviews/recruitment
4. Faculty candidate interviews/recruitment

B. INSTITUTIONAL
1. Member, University of Michigan Biomedical Research Council (BMRC)
2. Co-organizer, Michigan Translational Research Seminars
3. Planning Committee, Biological Sciences Scholars Retreat
4. Member, MSTP Career Advisory Panel
5. Faculty candidate interviews/recruitment
6. MSTP and PIBS student interviews/recruitment

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Co-organizer, 11th Annual Midwest DNA Repair Symposium (with Dr. Mats Ljungman)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc manuscript review
   a. MCB
   b. Genetics
   c. DNA Repair
   d. EMBO
   e. PLOS Genetics

2. Ad hoc grant review, Netherlands Organization for Scientific Research

B. INVITED LECTURES/SEMINARS
1. "Polymerization and ligation during nonhomologous end joining; how to hold and glue wet spaghetti". Columbia University, New York, New York, Oct. 2007.
2. "Enzyme recruitment and catalysis in yeast nonhomologous end joining". Plenary speaker, Recombination Session, 5th DNA Repair Workshop, Smolenice, Slovak Republic, May 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Fellow, College of American Pathologists
2. Member, American Association for the Advancement of Science
3. Member, American Society for Microbiology
4. Member, American Association for Cancer Research
5. Member, Association for Molecular Pathology
6. Member, Genetics Society of America
7. Member, Environmental Mutagen Society

D. HONORS AND AWARDS
1. Interviewee, Chemical Heritage Foundation, Pew Oral History Project: project seeks to explore the development of scientists and scientific ideas.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Daley J, **Wilson TE**. Evidence that base stacking potential in annealed 3' overhangs determines polymerase utilization in yeast nonhomologous end joining. *DNA Repair* 7:67-76 (2007).
2. Chovanec M, **Wilson TE**. Restricting the ligation step of nonhomologous end joining. *DNA Repair* 6:1890-1893 (2007).
3. Wu D, Topper LM, **Wilson TE**. Recruitment and dissociation of NHEJ proteins at a DNA double strand break in Saccharomyces cerevisiae. *Genetics* 178:1237-1249 (2008).

B. BOOKS/CHAPTERS IN BOOKS
1. **Wilson TE**. Nonhomologous recombination. Wiley *Encyclopedia of Chemical Biology*, online publication http://mrw.interscience.wiley.com/emrw/0470-048670/home/, (2008).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Sanks JK, **Wilson TE**, Elenitoba-Johnson K. Determination of human blood group antigens by multiplex PCR with array-based allele-specific detection. Association for Molecular Pathology 13th Annual Meeting, Los Angeles, California, November 2007.

Anuska Andjelkovic Zochowska, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS
1. PIBS 503 (Research Responsibility and Ethics) small group moderator
2. Elizabeth Spehalski rotation PIBS student (3 months)

B. UNDERGRADUATE STUDENTS
1. Ivana Jankovic (undergraduate student, UROP project)
2. Melina Imshaug (undergraduate student, UROP project)
3. UROP summer fellowship program Shayna Toyan Joy Bradford

C. HOUSE OFFICERS AND FELLOWS
1. Svetlana Stamatovic , MD, Ph.D. (postdoctoral fellow)

D. OTHER
1. Faculty Director for Psych 326.
2. Member, Neuroscience Graduate Program
3. Member, Pathology Graduate Program

III. Research Activities

A. SPONSORED SUPPORT
1. National Institute of Neurological Disorders and Stroke, R01 NS 044907, PI, 70% effort, "Chemokine effects on blood-brain barrier permeability" December 2003-November 2007.
2. National Institute of Neurological Disorders and Stroke, R01 NS 34709, (PI: Richard F. Keep) Co-Investigator, 30% effort, "Endothelial preconditioning and ischemic brain injury", June 2003-May 2008.

3. McKay foundation Cardiovascular Center University of Michigan, PI 20% effort, Nicotine aggravate brain ischemia-reperfusion injury, June 2008- May 2009, Direct cost: $15,000.
4. National Institute of Neurological Disorders and Stroke, R21 NS 044907, PI 20% effort, Nicotine and brain ischemic/reperfusion injury, December 2008-November 2010, Direct cost: $275,000.

B. PENDING PROJECTS
1. National Institute of Neurological Disorders and Stroke, R01 NS 044907, PI, 50% effort, The blood brain barrier in Neuroinflammation, June 2008-May 2012, Direct cost: $800,000.
2. National science foundation (NSF), PI, 20% effort, Endocytotic pathways in unsealing endothelial tight junctions, December 2008-November 2011, Direct cost: $425,000.
3. National Institute of Neurological Disorders and Stroke R21 (NS 044907), PI 20% effort, Chemokines and brain angiogenesis, Dec. 2008-Nov. 2010, Direct cost: $275,000.
4. National Institute of Cardiovascular Diseases, R01, PI 50% effort, Inflammation and Blood brain barrier permeability, March 2009-May 2013, Direct cost: $800,000.
5. National Institute of Neurological Disorders and Stroke, R01, PI 50% effort, Blood brain barrier and cerebral ischemia, March 2009-May 2013, Direct cost: $800,000.
6. Dana foundation, PI "Blood brain barrier and bacterial meningitis", October 2008-September 2011, Direct cost $200,000.

C. PROJECTS UNDER STUDY
1. Molecular mechanism of CNS inflammation.
2. Inflammatory mediators and glioma associated angiogenesis.

IV. Administrative Activities

A. INSTITUTIONAL
1. Member of PIBS admission committee school year 2007/2008
2. Elected in Medical school Senate Assembly (three years term)
3. PIBS student interviews

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript review for:
   a. *Journal of Neurochemistry*
   b. *American Journal of Pathology*
   c. *British Journal of Pharmacology*
   d. *American Journal of Respiratory Cell and Molecular Biology*
   e. *Brain Research*

f. *Developmental Neuroscience*
g. *Glia*
h. *European Journal of Biochemistry*
i. *Journal of Neuroscience*
j. *American Journal of Physiology*
k. *Journal of Applied Physiology*
l. *European Journal of Cell Biology*
m. *European Cytokine Networks*
n. *Atherosclerosis*
o. *Experimental neurology*
p. *Stroke*

B. INVITED LECTURES/SEMINARS
1. "Inflammation and Brain edema: new insight into role of chemokines and their receptors", International Symposium on Hyperammonemia and hepatic encephalopathy, September 9-12, 2007.
2. "Endocytosis is dominant mechanism in remodeling of brain endothelial tight junction complex and "opening of blood brain barrier", 10th Symposium Signal transduction in the Blood Brain Barrier, Potsdam, Germany September 13-16, 2007.
3. Chemokines and Blood Brain Barrier Integrity Neuroimmunology Lecture Series, University of Michigan, October 12 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Society for Neuroscience
2. International Society of Neuroimmunology
3. Society for In Vitro Biology
4. Society of Leukocyte Biology
5. American Society of Molecular Biology and Biochemistry
6. American Stroke society

D. HONORS AND AWARDS
1. Editorial Advisory Board Member RECENT PATENTS ON CNS DRUG DISCOVERY
2. Editorial Advisory Board Member, Current Neuropharmacology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Stamatovic SM, Keep RF, **Andjelkovic AV** 2008: Brain endothelial cell-cell junctions: How to "open" the blood brain barrier? *Current Neuropharmacology* invited review (in press).

2. Stamatovic SM, Wong MM, Keep RF and **Andjelkovic AV** (2008): Caveole-mediated endocytosis is required for remodeling of the tight junctional complex and opening of the brain endothelial barrier. *J. Cell Sci*. (in press).
3. Hoffman W, Stamatovic SM, Rafols JA, Kreipke CW and **Andjelkovic AV** (2008): Inflammatory mediators and blood brain barrier disruption in fatal brain edema of diabetic ketoacidosis. *J Neuropath Exp. Neurology.* (in press).
4. Kroenke M, **Andjelkovic AV** and Segal B: IL-12 and IL-23 modulated T cells induce distinct types of EAE based on histology, CNS chemokine profile and response to immunomodulatory intervention. *J. Exp Med.* (in press).

B. BOOKS/CHAPTERS IN BOOKS
1. Richard F. Keep, Jianming Xiang, Steven R. Ennis, **Anuska Andjelkovic**, Ya Hua Guohua Xi and Julian T. Hoff*. Blood-Brain Barrier Function in Intracerebral Hemorrhage, *Cerebral Hemorrhage* Springer Wien New York. (In press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. "Inflammation and Brain edema: new insight into role of chemokines and their receptors", International Symposium on Hyperammonemia and hepatic encephalopathy, September 9-12, 2007.
1. "Endocytosis is dominant mechanism in remodeling of brain endothelial tight junction complex and "opening of blood brain barrier", 10th Symposium Signal transduction in the Blood Brain Barrier, Potsdam, Germany September 13-16, 2007.

RESEARCH INVESTIGATORS

Research Investigators

Venkatesha Basrur, Ph.D. .....Elenitoba-Johnson Laboratory

Research Focus: Research Investigator/Laboratory Manager for the departmental Proteomics Resource Facility, charged with the day-to-day operations of the facility including maintaining state-of-the-art instrumentation and implementation of new techniques to the analysis of the proteome. I'm also involved in discussing the proteomic projects with the concerned PI (along with Dr. Elenitoba-Johnson), sample preparation, data analysis and interpretation. I do not have a research project of my own. I work with all faculty members of the department who are interested in applying proteomics approach to address the biological problem that they are trying understand. However, I work most closely with Drs. Elenitoba-Johnson and Lim's laboratory. For more detailed information, please refer to the activites of the PRF in the Division of Translational Pathology report.

Saravana Mohan Dhanasekaran, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus:

1. Breakpoint Characterization of Gene Fusions in Prostate Cancer.
2. Androgen Regulated Gene Expression in Human Prostate.
3. Role of EZH2 in Prostate Cancer.
4. Epigenetic profiling of prostate cancer
5. Characterization of genomic aberrations in prostate cancer by aCGH

James Harper, Ph.D. ..... R. Miller Laboratory

Research Focus: The four primary areas of research include:

1. Development of intact skin, pulmonary fibroblast cell lines, and aortic organ culture for the assessment of multiorgan stress resistance in long-lived Snell dwarf mice.
2. Examining the role of early postnatal undernutrition in the determination of stress resistance, insulin signaling, hypothalamic-pituitary-adrenal axis activity and life span in mice.
3. Characterization of Macrophage Migration Inhibitory Factor (MIF) knockout mice, a new long-lived mouse model.
4. Development of primary canine and avian fibroblast cell lines for aging research.

Thirumala-devi Kanneganti, Ph.D. .....G. Nuñez Laboratory

Research Focus: Understanding the role of NALPs (pyrin domain containing nucleotide binding oligomerization (NOD) family members) in mediating differential responses to distinct pathogen classes. These studies have implications to the investigations on infectious diseases, autoimmunity, and vaccine development.

Randall N. Knibbs, PhD. ..... L. Stoolman Laboratory

Research Focus:

1. Currently, we are working to optimize protocols for the Adoptive Immunotherapy of Cancer. We are seeking to manipulate the trafficking of CD8 T-cells to tumor vasculature. To this end we are treating animals with the anti-angiogenesis drug Sutent (Pfizer) in order to normalize the vasculature and facilitate the interaction of adoptively transferred T-cells with tumor vessels.
2. We are continuing to work on methods to transduce / transfect murine T-cells with L-selectin and with CD49d in order to manipulate trafficking of adoptively transferred T-cells.

Bharathy Laxman, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus:

1. Prostate cancer biomarker analysis in urine
2. Characterization of gene fusions in prostate cancer
3. Role of EZH2 in Prostate Cancer

Tianju Liu, M.D., Ph.D. ..... S. Phan Laboratory

Research Focus: The two primary areas of research include:

1. A novel telomerase expressing lung fibroblast phenotype (the project is to elucidate molecular regulation of telomerase expression in fibroblasts from injured/fibrotic lungs and to analyze its role in fibrogenesis).
2. Notch signaling in myofibroblast differentiation (the objective of this project is to address the role of notch signaling in lung fibrosis, identify the cells exhibiting such signaling, and evaluate its potential role in myofibroblast differentiation).

Thekkelnaycke Rajendiran, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus: The primary areas of research include:

1. Mass spectrometry based Metabolomic Profiling:
   Identification and validation of multiple metabolites in Tissues, Urine, Plasma and cell lines of Prostate cancer Using GC-MS, LC-MS/MS and NMR
2. Synthesis and Characterization of Tumor Inhibitors:
   Synthesize small organic drug candidates to inhibit Prostate Tumors and characterize by IR, NMR and LC-MS/MS.

Dafydd G. Thomas, Ph.D. ..... T. Giordano Laboratory

Research Focus: The four primary areas of research include:

1. Utilization of the AQUA^{TM} and quantitative immunofluorescence assays to determine concentrations of biomarkers in Breast Ca (HER2 and ERa, R21 grant to be submitted November, 2007), osteosarcoma and Ewing's Sarcoma (enzymes responsible for chemotherapy drug metabolism) and neuroblastoma (nMYC expression).

2. Characterization of fusion genes in the follicular variant of papillary thyroid carcinoma by genomic DNA isolation from formalin fixed paraffin embedded tissue, PCR and sequencing of a PPARg/PAX8 fusion gene.
3. I have extracted approximately 70 sarcoma specimens from patients with sarcomas defined by fusion translocations, in addition to several osteosarcoma, leiomyosarcoma and MPNST specimens and performed quantitative capture ELISA to determine the concentration and specific activity of IGF-1r in these specimens. These findings have been extended by SDS-PAGE and western blot immunoanalysis for downstream effectors of the pathways associated with IGF-1r signalling in addition to confirming the results of the ELISA. These results are currently being assembled into a manuscript.
4. I provide basic science support to three sarcoma clinical trials; UM04-078, treatment of advanced sarcomas with Erbitux, UM05-002, treatment of DFSP with Gleevec and UM06-127, treatment of advanced sarcomas with Dasatinib.

George Xiaoju Wang, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus: Cancer development and progression, as well as biomarker discovery, using proteomic and bioinformatics approaches, with a primary focus on prostate cancer. The long term goals would be to study alterations in levels of various biomarkers identified in serum samples from patients with different cancer, by multiplexing the biomarkers to identify cancer patients from control subjects.

Rong Wu, M.D. .....K. Cho Laboratory

Research Focus: The primary areas of research include:

1. Identify genetic alterations associated with ovarian tumor development and progression.
2. Preclinical testing of novel PI3K/Akt and/or Wnt pathway inhibitors using the well-established mouse ovarian endometroid carcinoma model.

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