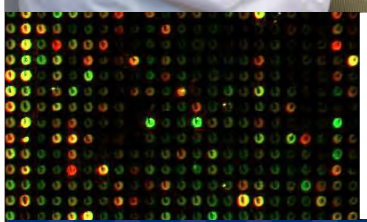





ANNUAL REPORT
2006-2007

University of Michigan
Medical School

DEPARTMENT OF PATHOLOGY

THE UNIVERSITY OF MICHIGAN

MEDICAL SCHOOL

Department of Pathology

Annual Report

1 July 2006 – 30 June 2007

The University of Michigan
Department of Pathology

2006 - 2007

2006-2007 PATHOLOGY RESIDENTS AND FELLOWS

Christopher Przybycin,MD
HO, PGY 4
CHIEF RESIDENT

Jason Carvalho,MD
HO, PGY 3
ASST. CHIEF RESIDENT

Lauren Smith,MD
HO, PGY 5

Diane Hall,MD,PhD
HO, PGY 4

Bun (Brian) Siu,MD,PhD
HO, PGY 4

Dionne Stanchina,MD,PhD
HO, PGY 4

Angela Wu,MD
HO, PGY 4

Kristen Curlett,MD
HO, PGY 3

Malti Kshirsagar,MD
HO, PGY 3

Amir Lagstein,MD
HO, PGY 3

Kajal Sitwala,MD,PhD
HO, PGY 3

Matthew Wasco,MD
HO, PGY 3

Allecia (Lisa) Wilson,MD
HO, PGY 3

Bryan Coffing,MD
HO, PGY 2

Jonathan Cutlan,MD
HO, PGY 2

Julie Jorns,MD
HO, PGY 2

Seung (David) Kim,MD,PhD
HO, PGY 2

Cohra Mankey,MD
HO, PGY 2

Julianne Purdy,MD
HO, PGY 2

Lindsay Schmidt,MD
HO, PGY 2

Ebe Chinweze,MD
HO, PGY 1

Sara Farmen,MD,PhD
HO, PGY 1

Donna Jones,MD
HO, PGY 1

Jingmei Lin,MD,PhD
HO, PGY 1

Pedram Pouryazdanparast,MD
HO, PGY 1

He Wang,MD,PhD
HO, PGY 1

Limin Yu,MD
HO, PGY 1

Maria Braman,MD
LECTURER
SURGICAL PATH FELLOW

Christopher Golembeski,MD
LECTURER
GASTROINTESTINAL FELLOW

Michael Hayes,MD
LECTURER
BREAST PATHOLOGY FELLOW

Erica Jacobson,MD
PGY 5
HEMATOPATHOLOGY FELLOW

Xin Jing,MD
PGY 5
CYTOPATHOLOGY FELLOW

Stephen Olsen,MD
PGY 6
DERMATOPATHOLOGY FELLOW

Angela Ruiz,MD
LECTURER
SURGICAL PATH FELLOW

Masood Siddiqui,MD
PGY 6
CYTOPATHOLOGY FELLOW

Mohammad Yousef,MD
LECTURER
SURGICAL PATH FELLOW

TABLE OF CONTENTS

DEPARTMENT OVERVIEW

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

Dear Colleagues:

This has been another exciting year for both the Department of Pathology as well as the Healthcare System. While we face a number of challenges, including decreased reimbursement for clinical services and flat NIH funding among many others, as I like to tell our faculty almost all of the news from the Department is extremely positive. As I noted last year, we continue to keep the patient needs foremost as we pursue our three missions.

This Annual Report summarizes the activities and accomplishments of the Department in detail. I did want to provide a brief overview of some of the notable developments during the year. At the Medical School level, Dr. James Woolliscroft, a long time advocate and supporter of the Department, was named the new permanent Dean to succeed Dr. Alan Lichter. With the departure of Medical School CFO William Elger, plans are underway to merge the financial and budgetary activities of the hospital and Medical School, which is likely to improve the alignment of institutional objectives and speed decision-making.

We are continuing to work to improve the quality, safety and efficiency of our clinical laboratories. Dr. Steven Mandell, working closely with Dr. Jeffrey Warren, has implemented a number of Lean workflow re-engineering initiatives in phlebotomy, central distribution, and the hematology and clinical chemistry laboratories, resulting in dramatic reductions in turnaround time. In addition, Dr. Jeffrey Myers and colleagues implemented a work-flow reorganization in surgical pathology that has also resulted in dramatic improvement in turnaround times. These initiatives are an important first step in a journey of process improvements that will also include LIS replacement, bar code tracking and additional laboratory performance enhancements.

This year marked the launch of the Michigan Center for Translational Pathology (MCTP), which is directed by Dr. Arul Chinnaiyan. The goal of this Center, which was established with funding from the Department of Pathology, UMHS, the Medical School and President Coleman, is to be a nidus for cutting-edge research in disease biomarker discovery and characterization. They, along with other Pathology Department programs including cytogenetics, will occupy 12,000 square feet of modern leased research space at the Traverwood facility.

We completed renovations of a number of areas this year including research laboratories, informatics and administrative space on Medical Sciences I fourth and fifth floors; and histology laboratories, cytopathology laboratories and AP sign-out areas in University Hospital. To meet

the diagnostic and research needs of the future, we will need to significantly expand our space envelope. To this end, we completed a building programming consultancy with Burt Hill and now are moving ahead with HHC to the conceptual planning phase to construct a new Pathology Building with both clinical and research space on the Kresge site.

This year we completed a number of mission critical recruitments including Dr. Sharon Betz as Associate Director of the Cytogenetics Laboratory, Dr. Bryan Betz as Technical Director of Molecular Pathology Laboratory, and Dr. Steven Olsen as Assistant Professor in Dermatopathology. Another key recruitment was Mr. Martin Lawlor, who was recruited from the Department of Pathology at UCLA to serve as our new Director of Finance and Administration.

A number of Research Track faculty were hired into the MCTP. Dr. Christopher Beecher was recruited from Metabolon to establish a metabolomics facility to make the Department an international leader in metabolomic profiling. We have also continued to enhance our research infrastructure. Equipment purchases were completed to expand the capabilities of the Department's proteomic laboratory. In addition, we established the Molecular Pathology Resource Laboratory, led by Dr. Thomas Giordano, and the Analytic Flow Cytometry Resource Laboratory, led by Dr. Lloyd Stoolman. Our faculty continue to be highly productive and published numerous papers in high-impact journals. We are especially proud of Dr. Gregory Dressler, who was the 2007 recipient of the Dean's Basic Science Award for his research on the molecular biology of kidney development.

This was also a strong year for our residency and fellowship programs. In a year in which many prestigious programs did not match all slots, the Department of Pathology filled all seven residency slots with U.S. trained medical school graduates, including two highly-ranked M.D. Ph.D. clinician scientists.

Despite major investments in clinical, research and education, the Department's finances remain exceptionally strong with net assets continuing to increase. In addition, through the generosity of the Oberman family and friends of the Department of Pathology, we established a new endowed Professorship, the Harold Oberman endowed Professorship, with Dr. Celina Kleer identified as the first chairholder. We will be announcing the establishment of additional endowed Professorships over the course of the coming year.

I am especially proud of our faculty and staff who make these accomplishments possible. One last accomplishment I want to highlight, which emphasizes the compassion and patient-centered focus of the Department, is the Pathology Patient Charities effort. In spite of all of the demands of work and home, Pathology faculty and staff raised $32K for patient charities - nearly $100K over the past five years. Many more exciting plans are in store for the Department of Pathology for the upcoming year. It continues to be a great pleasure serving as Chairman of the Department of Pathology at the University of Michigan and I hope you find this Annual Report to be a helpful source of information about this outstanding Department.

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

DIVISION 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 experienced a number of changes in fiscal year 2007 (FY2007), including the remodeling of hospital laboratories, grossing areas, and sign-out rooms. In addition, a new frozen section laboratory was opened in the Cardiovascular Center using a novel staffing model, developed in collaboration with clinical chemistry, to support the operating rooms.

The practice remains strong with sustained growth in Surgical Pathology, Medical Pathology subspecialties, and Cytopathology. Dr. Daniel Visscher assumed the role as Director of Surgical Pathology in July 2006. An incremental position was filled with a graduate of our residency program, Dr. Jonathan McHugh, who was sponsored for an additional year of fellowship training in head and neck pathology at the University of Pittsburgh. Dermatopathology recruited the first graduate of our newly created dermatopathology fellowship, Dr. Stephen Olsen, to a faculty position vacated with the departure of Dr. Lyndon Su. Cytopathology continues to recruit for an open position and, in the interim, appointed a graduate of our cytopathology fellowship, Dr. Xin Jing, for one year as a lecturer effective July 1, 2007. The autopsy service continues to provide high levels of service under the leadership of an Interim Director, Dr. Stephen Ramsburgh, while moving forward with plans to merge the University Hospital service with the Washtenaw County Medical Examiner's office.

Strategic priorities continue to evolve around safety, quality, innovation and informatics, driven by our vision that by 2010, everyone everywhere will think of the University of Michigan when asked about excellence in Anatomic Pathology. Evidence of progress toward these strategies includes implementation of a number of new electronic tools developed in collaboration with Pathology Informatics, creation of a QA Coordinator position shared with the Division of Clinical Pathology, and major redesign of surgical pathology services scheduled for an August 1 launch.

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. A new model for supporting projects celebrated its first year anniversary under the leadership of Dr. Kathleen Cho and offers an opportunity for more robust integration with the departmentally-supported Molecular Pathology Research Laboratory under the direction of Dr. Thomas Giordano.

CLINICAL ACTIVITIES

Surgical Pathology

A total of 69,991 surgical pathology specimens, including a combination of intramural and extramural cases, were processed in FY2007 compared to 68,295 in FY2006. This represents an annual growth rate of 2.5% and a 23.8% increase over the last five years. Our gastrointestinal pathology service experienced the most dramatic growth with 15,560 cases in FY2007, a 10.7% increase over the 14,054 cases accessioned in FY2006. Consultation cases accessioned through M-Labs grew at the astounding rate of 21% compared to 2006, accounting for 7,316 cases in FY2007 compared to 6,083 in FY2006 and 3,785 in FY2002. This reflects a 94.5% increase in five years.

Members of our GI pathology group, in collaboration with an external consultant and others, are currently developing strategies for partnering with community pathologists to confront threats posed by in-office and pod laboratories. The solutions they develop are likely to apply elsewhere in the practice, especially in Genitourinary Pathology.

The contribution of consultation cases and concomitant increases in corresponding RVUs effective January 1, 2007, resulted in a disproportionate increase in clinical productivity beyond that predicted by case numbers alone. Expressed as a twelve-month rolling average, RVUs demonstrated an annual growth rate of 5.4% in FY2007 and a 41.8% increase over the last five years. Growth in workload coupled with stable staffing resulted in an upward trend in productivity expressed as the ratio of RVUs to paid clinical FTEs in the last two quarters of FY2007, a trend that will be offset by the addition of Drs. McHugh and Jing.

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:

	2004-2005	2005-2006	2006-2007
ID	6,888	11,586	11,637
MD	8,878	4,892	4,609
TD	1,758	1,703	1,715
DP	1,871	2,162	2,283
MISC	148	123	111
TOTALS	19,543	20,343	20,355

The dermatopathology service continues to be a high-volume service, with greater than 20,000 cases signed out this year. The consult service continues to expand and experienced a 5% growth in volume. Dr. Lyndon Su left the University after nine years and his position was filled by Dr. Stephen Olsen.

Dermatopathology faculty remain actively involved in the University of Michigan Multidisciplinary Melanoma Clinic (MDMC) and Tumor Board. This is 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. In

addition, members of our dermatopathology faculty have a very visible role in the Cutaneous Lymphoma Conference and Tumor Board.

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 Assistant Professor. Clinical demand was relatively stable compared to FY2006 with just over 1200 neurosurgical cases examined this year. Personal consultation cases accounted for an additional 170 cases (Dr. Blaivas = 111, Dr. McKeever = 59). The Diagnostic Unit of the Neuropathology Core Laboratory of the MADRC processed 19 dementia brain cases (16 MADRC, 3 University Hospital) compared to 20 in FY2006.

Stability in the neuropathology biopsy practice was driven in large part by growth in peripheral nerve and muscle biopsies that offset a slight (-7.6%) decline in hospital cases. Peripheral biopsies demonstrated the largest annual growth rate (6.7%), a consistent trend over the last five years.

Neuropathology continues to provide support for the hospital autopsy service, examining over 175 brains in FY2007. 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 remains stable, showing a slight (-6.7%) decrease compared to FY2006 but a 5.1% and 23.5% increase over the last five and ten years, respectively. That growth rate translates into an increase of 15-20 cases monthly from July 1996 through June 2007 with no corresponding increase in staffing.

Cytopathology
The cytopathology practice remains stable, with a total of 55,473 cases in FY2007. Gynecologic cases (i.e. pap smears) have fallen to 46,708, a 0.32% decrease from FY2006. This reflects the new recommendations for cervical screening in HPV-negative women and is consistent with the national experience over the last three years. Non-gynecologic cases and FNAs have increased from 8,619 to 8,765 and from 1,946 to 2,281, representing increases of 1.7% and 17.2% respectively. The aspirates performed and assessed by pathologists increased to 401, a 6.4% increase, and those assisted by the pathologists increased to 829, representing a remarkable 42.2% increase.

The impact of the change in case-mix is an increase in cytology-associated RVUs that is disproportionate to the total decrease in case numbers attributed to the decrease in pap smears, given that only 8% of pap smears require review by a cytopathologist, whereas all other cases are reviewed by a member of the faculty. In addition, the unusual increase in assisted aspirates resulted in increasing challenges for our faculty given that all assisted aspirates are attended by a pathologist. These trends were accommodated, in part, by shifting responsibilities from fellows to cytotechnologists in an effort to maintain the integrity of the training program.

A national search is underway for a candidate with dedicated interest and experience in cytopathology to address this growth and to accommodate the loss of two faculty, Drs. Cynthia

Krueger (Lecturer) and Yiran Dai (Assistant Professor), as well as reallocation of Dr. McKenna's effort to gastrointestinal pathology. Dr. Xin Jing was appointed as junior faculty (Lecturer) as an interim solution for FY2008. Continued participation of other faculty from within and outside the division in the cytology practice is an essential component of our near-term staffing strategy.

Autopsy Pathology
The hospital autopsy practice remains stable with a slight increase in both the autopsy rate (22% compared to 19% in FY2006) and the number of autopsies performed (189 compared to 175 in FY2006). The autopsy service continues to emphasize timely completion of all reports in order to effectively communicate with both our clinical colleagues and families. Turnaround time continued to improve in each of the last six months, consistently meeting our goal of two weeks or less in the absence of extenuating circumstances.

The Department of Pathology continues to provide support for a subset of cases from the Washtenaw County Medical Examiner's office and is engaged in a process that would fully integrate our services.

RESEARCH ACTIVITIES

Anatomic Pathology faculty remain remarkably productive despite the demands of patient care and our educational programs as summarized above. Twenty-eight faculty reported an average of 6.1 (median of 5) peer-reviewed publications (ranging 1-16) for a total of 161 publications in the peer-reviewed literature. In addition, faculty reported the results of their work in abstract form on 77 different occasions. A total of 16 book chapters were contributed to various pathology textbooks. Twenty-two faculty served as invited lecturers, speakers or visiting professors on 92 occasions, for an overall average of 4.2 invited presentations per participant. Fifteen faculty currently serve on 26 different editorial boards including the most highly visible peer-reviewed pathology journals.

Seven different faculty participated as principle or co-investigators in projects accounting for expenditures of nearly $3 million ($2.1 million direct and $0.8 million indirect costs). This represents a nearly $1.4 million decrease compared to FY2006 driven in large part by the loss of Dr. Daniel Remick. Current funding levels accounted for 4.3 FTEs in recovered effort. The diverse list of projects reflects critical support for multidisciplinary collaborative translational research. Support for the Cancer Center includes tissue procurement and Dr. Thomas Giordano's role as Tissue Core Director.

An additional $150,000 was made available annually from departmentally allocated division resources to spark continued growth in peer-reviewed projects aligned with strategic priorities in translational research. This program was launched in April 2006 and administered by a newly formed AP Project Funding Committee chaired by Dr. Kathleen Cho. At its first year anniversary (March 2007), the committee had approved a total of 13 projects for which a total of $82,650 was allocated. Recipients represented broad participation including proponents with subspecialty interests in cytopathology (4), dermatopathology (3), breast pathology (2), genitourinary pathology (2), neuropathology (1) and endocrine pathology (1). Five additional projects were funded through the end of FY2007 with total allocated costs of $53,678, including projects in cytopathology (2), endocrine pathology (1), soft tissue pathology (1) and atherosclerosis (1).

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 pathology and cytopathology, as well as required and elective rotations in various subspecialties. New rotations were established in neuropathology and renal pathology. Fellowships in breast pathology (1), cytopathology (2), gastrointestinal pathology (1), dermatopathology (1) and surgical pathology (3) were filled by competitive candidates in the 2006-2007 and 2007-2008 academic years. Our fellowship in genitourinary pathology (1) recruited outstanding candidates for the 2007-2008 and 2008-2009 academic years, and the pulmonary pathology fellowship (1) filled for July 2008 with an equally outstanding internal candidate. Trainees actively participated in various research projects during the course of the year, serving as authors or co-authors for multiple abstracts presented at the 2007 spring USCAP meeting.

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, David Lucas and Robert Ruiz. 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), genitourinary (weekly), gynecologic (monthly), liver (monthly), pediatric (semimonthly), and lung (weekly) tumors. Faculty also regularly participate in various other conferences including brain cutting (weekly), 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 (semimonthly). 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 semimonthly cytology conference (every other Thursday), and a monthly "extended" gross conference.

Our first annual, on-campus CME workshop entitled, "New Frontiers in Diagnostic Pathology," will be presented in collaboration with the A. James French Society on September 27-29, 2007. This will provide opportunities for broad participation, including faculty from outside the Division of Anatomic Pathology. Tom Colby, an internationally recognized authority in pulmonary pathology and an alumnus of the University of Michigan Medical School, will serve as guest faculty and the A. James French lecturer for this inaugural course.

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 Clinical Laboratories again provided excellent, full-spectrum service as the University of Michigan Health System continued to expand both its clinical volume and scope. Overall laboratory volume increased by 9.9%. In 2006-07 the Clinical Laboratories performed more than 4.2 million billable analyses (10.5 million individual measurements), supported a wide array of clinical and research programs, and added or replaced more than 25 testing methods. There was a 10.1% increase in inpatient-derived laboratory activity and a 9.6% increase in outpatient-derived activity. Gross laboratory (CP and AP) revenue neared $316 million in 2006-07. Particularly brisk growth was observed in the hematopoietic stem cell transplantation programs, in selected surgical subspecialty procedures, in the solid organ transplantation program, and in Oncology. The new Cardiovascular Center conducted its grand opening celebration on June 7, 2007. The first phases of the UMHS CareLink order entry initiative were successfully deployed. Lead by Dr. Steven Mandell, the Department's first large-scale Lean initiative was begun in March, 2007. This project, which encompasses Phlebotomy, Central Distribution, Chemistry and Hematology, should provide improvements in laboratory logistics and selected test turnaround times, lay the groundwork for future Lean initiatives, and increase available space. A new Quality Assurance Coordinator portion was established, and there was great progress in the development of a comprehensive online Laboratory Safety Manual. Plans to expand the Clinical Cytogenetics and Molecular Diagnostics Laboratories were initiated. Substantial effort has been directed towards the implementation of more robust specimen labeling requirements, improved coordination of specimen procurement, utilization of phlebotomists to access central venous ports, and the implementation of many new assays. The Department of Pathology Clinical Test Catalog was upgraded and reformatted in a manner merged by UMHS and MLabs components. The maintenance of high-quality services by the clinical laboratories, in the face of increasing complexity and breadth of demands, is again testimony to the professionalism of the staff and the management capabilities of the laboratory directors and senior laboratory personnel. The Clinical Laboratories successfully completed the biannual College of American Pathologists (CAP) inspection in May, 2007. The 2007 CAP inspection marked our first unannounced inspection. Maintenance of the delicate balance among quality service, cost-effective testing, utilization control, research and development will be a continuing challenge.

The Clinical Laboratories have continued to respond to the change in scope and organization of UMHS patient care activities. In contrast to the early 1990s when 70% of laboratory testing volume came from inpatient services and 30% from ambulatory patients, the distribution is now 45:55. The laboratories currently support more than 25 UMHS-owned regional satellite facilities, our regional outreach program (MLabs), and many patients who are M-Care (now Blue Cross/Blue Shield) subscribers. The department has been successful in the recruitment of several new faculty who will participate in various aspects of clinical laboratory service. These individuals include Drs. Megan Lim (Director, Hematopathology Section), Kojo Elenitoba-Johnson (Hematopathology; Director, Molecular Diagnostics; and Director, Division of Translational Research), Douglas Smith (Director, Histocompatibility Laboratory), Ulysses Balis (Director, Clinical Informatics), Pan Zheng (Clinical Immunology), and Steven Pipe (Associate Professor of Pediatrics; Director, Coagulation Laboratory).

Faculty and laboratory staff participated in a wide variety of intramural and extramural educational programs during 2006-07. An online system for tracking staff continuing education was implemented. The UMHS again hosted the annual update in Transfusion Medicine and Blood Banking, a program with a nearly thirty-year tradition. These programs, along with M-Labs educational programs, are prominent examples of educational outreach activities.

The clinical pathology residency training format, which organizes pathology residents into teams that rotate through five blocks of clinical laboratories grouped according to "relatedness of discipline," was again successful. The high quality of trainees in the programs of Hematopathology Fellowship, the Blood Bank/Transfusion Medicine Fellowship, and the Molecular Diagnostics Fellowship, has enhanced the service, educational, and academic missions of these areas and the department.

The academic achievements of faculty members within the Clinical Pathology Division have been excellent. As a group, the CP faculty had nearly 80 articles published in peer-reviewed journals. Many faculty members played highly visible leadership roles in national organizations, courses, symposia, editorial boards, examining committees, and research review study sections; an illustration of their high levels of recognition throughout the United States (see individual reports). Several faculty members received extramural funding that supported a variety of scholarly activities (see individual reports).

The Clinical Pathology Division will continue to face challenges. In addition to its ongoing academic enterprises, educational goals, leadership and development in quality assurance, and laboratory resource utilization in the context of the hospital cost-efficiency program, the division plans to focus on robust expansion in the areas of hematopathology, molecular diagnostics, and molecular cytogenetics. Clinical Informatics has been accorded divisional status. This re-structure promises to markedly enhance both service and academic initiatives in these areas. It is anticipated that there will be continued emphasis on the recruitment of faculty who will successfully contribute to both the service and scholarly activities of the department. Achievement of these objectives will require the continued commitment, professionalism, and hard work of the faculty, laboratory staff, administration, and house officers.

Additional information on each of the sections within the Division of Clinical Pathology follows: Bank and Transfusion Services, Chemical Pathology, Clinical Immunology Laboratory, Clinical Mirobiology/Virology Laboratories, Combined Hematology Services, Histocompatibility and Immunogenetics Laboraotry, and Molecular Diagnostics Laboratory.

BLOOD BANK

The Blood Bank and Transfusion Service is headed by Dr. Robertson D. Davenport, with Drs. Laura Cooling and W. John Judd serving as faculty on the team. Both the faculty and the staff on the Blood Bank and Transfusion Service team are highly trained and maintain numerous memberships in national and regional professional organizations.

Overall blood component utilization was 2.6% lower than the previous year. Increases in red cell and platelet utilization were compensated by an 18% decrease in plasma usage. Type and screen volume was 17% greater than the previous year. This was accommodated without increase in staff due to automation of pretransfusion testing. Hematopoietic progenitor cell processing and transplantation activity was equivalent to the previous year. The Transfusion and Apheresis Service activity increased with growth in all areas. Notably there was a 23% increase in HPC collections and an 84% increase in LDL apheresis. Reference laboratory activity experienced an 8% overall decline, but a 17% increase in antibody identifications. The complexity of antibody identifications has perceptibly increased.

Patient care and safety continue to be a primary focus of the Blood Bank and Transfusion Service. Initiatives this year included pre-thawing of plasma, institution of trauma packs for the Emergency Department, and generation of most product code labels via on-demand printing. With the initiation of CareLink, Type and Screen specimens are received with positive patient ID and bedside label printing. A significant technological advance was the implementation of red cell antigen typing by molecular methods. Renovation of the Hematopoietic Progenitor Cell laboratory has begun. This will improve laboratory operations and improve compliance with FDA regulations.

This year marks the retirement of W. John Judd after 32 years of service to the University of Michigan. John is an internationally recognized immunohematologist and has contributed greatly to teaching and patient care.

CHEMICAL PATHOLOGY LABORATORY

The past year was once again marked by a steady increase in laboratory workload. The chemistry section experienced an approximate 8.4% increase in overall testing volume this year, performing over 6.7 million individual tests. Certain areas of the laboratory, such as Immunology and Point of Care testing, experienced even larger increases in testing volume.

Automated Chemistry

The major focus of the chemistry section this past year was on the implementation and operation of new Bayer Advia 2400 chemistry systems, along with a lab automation track system. The laboratory went fully live with all testing moved to the Bayer LabCell system in mid-July 2006. This new lab automation system allows the loading of all samples for chemistry/immunoassay testing at one sample manager on the automation line. Previously, these samples had to be delivered to one of five chemistry analyzers and/or one of four immunoassay analyzers. The workload has increased to 3200-3500 samples per weekday with the use of the automation line. Using middleware capabilities of the automation system, the lab has been increasing the number of assay results that automatically verify without technologist

review in order to enhance turnaround time. An additional benefit has been the reduction in the number of sample tubes and volume of blood needed to perform testing. Combinations of chemistry and immunoassay tests now require only a single tube of blood. Another positive feature from the system has been the ability to measure serum indices (hemolysis, lipemia, icterus) on every serum sample being analyzed on the Bayer Advia 2400 chemistry systems. This allows for more consistent detection of potential interferences in assays. In addition, the lab also phased in automated centrifuge workstations on the Labcell line. Currently, 1200-1500 samples per day are being centrifuged and decapped by the system.

The automation section of the chemistry lab was heavily involved in Lean process analysis for the past six months. Workflow was examined, and 5S analysis was applied to workstations. The lab has participated in several trials of new workflow proposals for central distribution and has been actively working with CD staff to streamline and improve sample handling and delivery processes. A Lean committee of bench technologists with representation from all three shifts of the lab has been formed and is starting to standardize work processes in the automation area of the lab.

New Testing/Instrumentation

The lab continues its efforts to bring in-house testing that was previously sent out to reference laboratories. In February 2007, the special chemistry section began performing 25 hydroxy Vitamin D testing. In March 2007, the immunology section began performing assays for free kappa and lambda light chains. A number of other tests were set up in the laboratory over this past year. An ELISA assay for tuberculosis screening was validated and offered effective September 2007. At the request of the pediatric surgery and GI services, stool tests for reducing substances and pH were validated and offered beginning in January 2007. HIV antibody testing was moved to the Bayer Centaur platforms, allowing this testing to be available six days per week, sixteen hours per day. Urine metanephrines testing was moved to an HPLC-MS system that allows the assay to be performed more frequently. In the toxicology section, an immunoassay screening test for Oxycodone was added to the routine urine drug screen panel. As a service to the addiction treatment center clinics, a panel of tests to screen for urine adulterants was validated and offered in June 2007.

The laboratory has also continued its efforts to acquire new instrumentation and automate manual testing. The immunology section acquired a new higher throughput automated nephelometer from Dade Behring that will allow the lab to better handle the significantly increasing volume of testing. The immunology section also did an evaluation of a new multiplexing immunoassay analyzer, the Bio-Rad BioPlex 2200. This system will be initially used to automate the screening assays for antinuclear antibodies (ANA) and extractable nuclear antigens (ENA). The multiple potential future applications of this technology make it an exciting addition to the laboratory. The special chemistry section evaluated and acquired a chemiluminescent immunoassay system, the Liason, from Diasorin, Inc. This analyzer currently performs Vitamin D testing, but a planned menu expansion for the upcoming year includes PTH, plasma renin, and aldosterone assays. The special chemistry section acquired two Roche 9180 ionized calcium analyzers. This allows for faster turnaround time and a more streamlined workflow for the rapidly growing volume of this test. The automated chemistry section upgraded its analyzers for therapeutic drug monitoring and drugs of abuse testing to Roche Cobas Integra 800 analyzers, which allows for easier sample handling and enhanced clot detection capabilities. A third HPLC-MSMS system for the toxicology section was negotiated, with its acquisition now in progress.

Point of Care Testing

The Chemistry Laboratory continued its leadership role in Point of Care (POC) testing both within the hospitals and at the off-site health care centers. Testing for Hemoglobin A1c and microalbuminuria in diabetics and prothrombin time in patients on coumadin has continued to expand. Limited testing of cholesterol, triglycerides, and HDL in some cardiology clinics has been implemented. Chemistry personnel were responsible for the evaluation and implementation of new Roche PT meters throughout the healthcare system. Intraoperative testing for PTH at both University Hospital and East Ann Arbor Surgery Center continues to be supported and performed by chemistry personnel. A lab committee carried out a search for and evaluation of replacement options for the blood gas electrolyte analyzers currently supported in the Emergency Department and operating rooms of University Hospital, Mott Hospital, and the Cardiovascular Center (CVC). Gem Premier analyzers from Instrumentation Laboratories, Inc were selected and validated, and are in the process of being installed in those locations. These easy-to-use, low-maintenance, LIS connectivity capable analyzers will greatly simplify the management of the POC application. Staff from Chemistry were responsible for the validation, testing, and deployment of multiple POC analyzers throughout the CVC in June 2007, as well as aiding with the performance of frozen sections in the CVC operating room.

The lab has continued its active role in the supervision of bedside blood glucose monitoring programs at University Hospital. The growth of tight glycemic control protocols continues to increase the volume of testing and number of glucose meters placed throughout patient care units. The lab maintains quality control, linearity, and proficiency testing records on more than 150 whole blood glucose meters stationed throughout the institution, with the potential for more meters being added in the upcoming year. Laboratory POC personnel have been involved in the search for better software to manage results in patients on tight glycemic control protocols, as well as searching for new glucose testing options.

CLINICAL IMMUNOPATHOLOGY LABORATORY

The Immunopathology Laboratory, under the direction of Dr. Jeffrey Warren, performed more than 81,000 analyses in FY2007. Dr. Don Giacherio provided outstanding leadership in the area of laboratory logistics and operations and contributed immensely in new assay deployment. Dr. Pan Zheng provided invaluable service to the laboratory in the interpretation of protein electrophoresis studies. Drs. Kent Johnson and Paul Killen also provided invaluable coverage of anti-neutrophil cytoplasmic antibody (ANCA) and anti-GBM studies. New procedures were implemented in the quantitative urine Bence Jones electrophoresis area, the analysis of antibodies to extractable nuclear antigens, the measurement of several individual analytes previously measured by nephelometry, and the free immunoglobulin light chain assay. Additional new assays deployed in early FY2007, including the anti-cyclic citrullinated peptide, the quantitative free clonal immunoglobulin light chain assay, the anti-endomysial antibody assay, and the anti-beta 2 glycoprotein I assay.

In the research arena, the Immunopathology Laboratory supported clinical studies in the areas of multiple myeloma and systemic lupus erythematosus. Several commercially-financed methods and instrument evaluations were also carried out. These studies involved new systems for detection of antibodies to extractable nuclear antigens and antineutrophil cytoplasmic antibodies.

A total of 37 residents, M4 medical students, and medical technology students rotated through the Immunopathology Laboratory in FY2007. Clinical Pathology Grand Rounds included immunopathology presentations by Dr. David Keren (Warde Medical Laboratory, Ann Arbor), and Dr. Jeffrey Warren (see individual faculty report). Drs. Keren and Warren continued a weekly series of didactic sessions entitled "Current Topics in Immunopathology." Other professional activities of faculty and staff in the laboratory are summarized under individual reports.

CLINICAL MICROBIOLOGY/VIROLOGY LABORATORIES

The Clinical Microbiology/Virology (CMV) Laboratory continued to experience significant increases in test volume with an overall 7.8% increase compared to that of FY 2005, with a total testing volume of over 390,000 tests. While this increase is being seen relatively equally across all areas of the laboratory, we are continuing to see higher increases in our most complex testing areas, specifically in Molecular Diagnostics.

Molecular Diagnostics continues to be a major growth area of the laboratory. While the rate of growth for other molecular tests increased at the same rate as our overall volume increases, CMV viral load testing continues to grow at a higher rate, showing a 21% increase over volumes from FY2006. This increase is due to enhanced CMV screening by the BMT program, which we have accommodated by increasing our testing frequency and generating a mechanism for direct electronic reporting of results via e-mail to the clinicians. This has allowed for a more rapid recognition of patients with CMV, and anecdotally resulting in a significant reduction in CMV-associated morbidity and mortality in their patients. We have also increased our level of automation, in order to handle testing volume increases, through the acquisition of additional instrumentation for specimen processing of viral load specimens for CMV, HIV, HBV, and HCV testing, and have converted virtually all of our nucleic acid extractions for the rest of our molecular test menu to these instruments. Finally, we have completed validations and are currently live with assays for Enterovirus and *Bordetella pertussis*, and will soon be live with an EBV viral load assay, which will eliminate a significant contributor to the microbiology-related send-out budget.

The laboratory has fully implemented instrumentation for automated identification and susceptibility testing of bacterial isolates. This instrumentation has reduced hands-on time for culture work-up and significantly reduced time spent on reporting identification and susceptibility results to clinicians for approximately 75% of the bacteriology work that is performed in the lab. Physicians have commented they have noticed quicker results, which has allowed for more rapid implementation of therapeutic changes if necessary.

In addition, significant contributors to the laboratory's testing volume included the implementation of active surveillance for MRSA and VRE in the surgical ICU (volume increases of 200% and 400%, respectively). This program was established in conjunction with Infection Control & Epidemiology in order to identify and isolate patients with these drug-resistant 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 current testing volume is approximately 500 tests/month for both, which we expect to increase as this screening is implemented in other units with high-risk patients (BICU, CCMU, BMT, etc.).

We continue to exert a great deal of effort in expanding the depth of activity performed by our afternoon shift. Through the addition of personnel and cross-training, we are transitioning our activities on this shift from primarily specimen processing and test ordering to one which includes a large amount of diagnostic testing. This has been undertaken to both maximize the efficiencies that can be realized with the new automated instrumentation, as well as to alleviate the compression (both physical space and test volume) caused by the increased workload on the day shift. We have significantly increased the amount of work that is performed in a continuous flow, and will be implementing more molecular diagnostic testing on this shift over the next year.

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.

COMBINED HEMATOLOGY LABORATORY (HEMATOLOGY, BONE MARROW, FLOW CYTOMETRY, COAGULATION)

Hematopathology

The direction of the hematopathology section was assumed by Dr. Megan Lim in September 2006. New hematopathology faculty, Dr. Lauren Smith, was recruited to the section for July 2007. After providing service in the hematopathology section for the last year, Dr. Kojo Elenitoba-Johnson will be assuming the Directorship of the Molecular Diagnostics laboratory. He will continue contributing to the teaching of the hematopathology fellows by participating in a monthly slide conference. A job posting for an additional clinical track hematopathologist is currently being advertised.

The hematopathology laboratory continues to offer an extended menu of tests in hematology, coagulation, and flow cytometry, with more than 1,000,000 test orders in FY2007. There was a marked increase in the number of bone marrow aspirate and biopsy samples, up over 14% from last year (from approximately 1,840 biopsy procedures to over 2,100). Routine high-throughput testing also increased markedly. At the time of this writing, the laboratory is on pace to perform over 482,000 complete blood counts (an increase of nearly 7% over FY2006), over 281,000 differential leukocyte counts (roughly even with last year), over 165,000 prothrombin times (16% increase), and almost 129,000 activated partial thromboplastin times (10% increase).

A planned renovation of the hematopathologist sign-out areas is scheduled to begin in the summer of 2007. This will transform current pathologist 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 clinical hematology laboratory participated in the Ortho Clinical Diagnostics Lean consultancy. For several months, Mary Jane Liu, MT(ASCP), our specialist in quality assurance and compliance, worked full time for the "Lean team," formally assessing laboratory operations, performing value stream mapping, and creating present a future-state maps for transforming the lab to Lean design. This project took place in cooperation with Central Distribution and the Clinical Chemistry Laboratory. The project resulted in detailed future-state plans that are designed to improve laboratory operations and to make optimal use of laboratory space. As of this writing, the plan was scheduled to be presented to hospital leadership in the near future,

with the hope of obtaining support and funding for the necessary physical renovations for taking "Lean" to the next level.

Hematology and Bone Marrow Laboratories
The hematology laboratory deployed a system known as "Silent Hawk," which captures images of printouts generated by hematology analyzers and enables the electronic review, transport, and storage of these printouts. We are currently working in conjunction with Freedom Software Imaging on a software application that will allow optimum utilization of the captured images for incorporation into the laboratory workflow. If the project proceeds as planned, it will save the laboratory (and hospital) the cost of over 400,000 printed sheets of paper each year, and will eliminate the need to physically transport printouts to and from areas of the laboratory. Reports will instead be indexed to the queue of individual technologists assigned to each case. We hope this will substantially increase efficiency in lab operations and have a positive impact on commodities' expenditures.

The laboratory completed its first full year of a new systematic program of competency assessment for laboratory staff. It has also successfully completed a CAP accreditation inspection with total lab participation in the preparation and success of the inspection process.

A new procedure was deployed for erythrocyte sedimentation rates, which lowers the number of steps and cost of materials needed to perform this test.

The bone marrow laboratory moved from temporary space in the histology area to space in the main hematology lab, freed up by changes in platelet function study methods. We have begun validating a system of transporting bone marrow aspirate samples in anticoagulant tubes with the hope of decreasing the need for technologist attendance of bone marrow aspirate and biopsy procedures.

We have begun validating the use of AZF (a mercury-free fixative) for bone marrow biopsy samples with the goal of replacing B5 fixative with AZF.

Flow Cytometry Laboratory
The flow cytometry laboratory performed 2,450 leukemia/lymphoma analyses. In addition, 3,450 routine tests were performed, including stem cell counts B and/or T cell subset quantitation assays.

The flow cytometry lab began a pilot program of 5-color high event-capture triage panels for initial analysis of known leukemia/ lymphoma patients. We anticipate that this will optimize the application of flow cytometry resources and allow us to analyze more patient samples, while still being able to detect minimal residual disease in patients with known histories of hematologic malignancy.

The flow cytometry laboratory introduced a fully "paperless" online procedure and training manual that allows for electronic signature and approval of lab procedures by medical directors. This manual was featured in a lecture by Dr. Ulysses Balis at the Annual Meeting of the International Society for Laboratory Hematology in May 2007. The entire consolidated hematology lab is working toward a completely online procedure manual.

Coagulation Laboratory
Dr. Steven Pipe was named permanent Medical Director of the Coagulation Laboratory. Sara Gay, MT(ASCP), joined us as Senior Clinical Technologist and will be in charge of coagulation.

The general workload included over 165,000 prothrombin times (16% increase) and almost 129,000 activated partial thomboplastin intem (10% increase).

The coagulation deployed the next generation of Dade Behring automated coagulation analyzers (BCS-XP). Several upgrades to coagulation testing procedures were deployed, including a switch to lumiaggregometry for platelet function testing (saving space and cost compared to the previous method), a new point-of-care method for assessment of aspirin resistance, the validation of singlet testing of several assays previously run in duplicate, extension of reporting range for factor assays on the low end, and the validation of pneumatic tube transport of most of the special coagulation testing samples (among many other improvements). These enhancements provided considerable improvements in laboratory operation efficiencies and in patient care.

HISTOCOMPATIBILITY AND IMMUNOGENETICS LABORATORY

The Histocompatibility and Immunogenetics Laboratory is under new direction this year with the addition of Dr. Douglas Smith to the laboratory last August. The transplant programs continue to grow, and there are national initiatives to improve the sharing of organs over wide areas of the country, which will rely on recent improvements in technologies to identify HLA antibody specificities in transplant candidates. The laboratory has worked on a number of projects to improve our capabilities.

The laboratory introduced new technology for anti-HLA antibody detection and specificity determination in October 2006. This "Luminex" technology uses HLA antigen coated micro-beads and a specialized flow cytometer to test patients' serum against 100 HLA class I and 100 HLA class II antigens. This method is more sensitive than previous methods and allows much better determination of HLA specificity.

We have also worked to make more effective use of flow cytometric crossmatching. We have established policies on the use of flow cytometric crossmatching in collaboration with our transplant programs, and worked with the Gift of Life Histocompatibility laboratory to improve the sensitivity of flow crossmatching.

The laboratory director has also worked with the transplant physicians to revise and document histocompatibility testing policies and make clinical consultation more available and routine.

We have begun and plan to continue to reorganize the laboratory staffing in the next year, improve turnaround times and utilization of expensive equipment, and improve our laboratory information systems to better facilitate our workload and improve our reporting. We would also like to bring flow cytometric testing "in house" during the next year.

The laboratory is proud to support the excellent and busy transplant programs at the University of Michigan. We constantly strive to improve our service to these programs and their patients.

MOLECULAR DIAGNOSTIC LABORATORY

In July 2006, Dr. John Thorson, previous director of the Molecular Diagnostics Laboratory, announced he had accepted the position of Director of Clinical Laboratories at St. John's Hospital and Clinic in Springfield, MO. Effective October 1, 2006, Dr. Thomas Wilson became Interim Director of the Molecular Diagnostics Laboratory while a search for a new permanent director was executed. During this time, Dr. Wilson oversaw continued development of new testing, served as medical administrator, and assumed clinical service duties with assistance by Dr. Jeffrey Warren. After a thorough national search, it was determined in March 2007 that the ideal candidate for directorship of the laboratory was Dr. Kojo Elenitoba-Johnson, who had recently joined the faculty of the Department of Pathology to serve in areas of hematopathology and as Director of the Division of Translational Research. Dr. Elenitoba-Johnson is board certified in Molecular Genetic Pathology and internationally recognized for his work in this field, having directed test development for many years at ARUP Laboratories in Salt Lake City, UT. He became Director of the Molecular Diagnostics Laboratory effective July 1, 2007, when service coverage in Hematopathology allowed the transition of his clinical efforts. Dr. Wilson will continue with an active role as Associate Director.

In the 2006 calendar year, the Molecular Diagnostics Laboratory completed and interpreted molecular testing on 8,955 specimens, an increase of approximately 3% over testing volumes from the previous year. At the end of FY2007, specimen volumes are on pace for a similar or greater increase in the 2007 calendar year, even without further increases anticipated from incremental new test development. Increased specimen volumes were accounted for primarily by implementation (for the first full year) of quantitative BCR-ABL testing for patients with CML, increased utilization of this test by continually increasing activity on the bone marrow transplant service and attendant molecular chimerism analysis, and increased utilization of germline testing for factor V Leiden, prothrombin, MTHFR and cystic fibrosis mutations. Molecular genetic testing for cystic fibrosis and predisposition to thrombosis retain the highest volumes, accounting for approximately 70% of all tests, with BCR-ABL and bone marrow engraftment analysis accounting for most of the remainder. However, lower volume testing such as T and B cell gene rearrangements by PCR and cancer-specific chromosomal aberrations play a critical role in management of specific patients. Turnaround times were improved from the previous year, decreasing from an average of 5 to 4 days for all tests, due mainly to continued transition to simplified testing platforms and more frequent testing runs allowed by increased specimen volumes.

In May 2007, the Molecular Diagnostics Laboratory underwent inspection by the College of American Pathologists. Overall the laboratory was highly regarded, recognized for its efficiency and attention to quality and specifically praised for certain laboratory-developed tests. Two specific violations were recorded by the inspector. The first was clerical and promptly remedied; the second reflected an opinion regarding the extent of inter-laboratory validation of the BCR-ABL test. We presented in rebuttal our argument for the adequacy of our extensive validation procedure.

In the past fiscal year, despite the temporary disruption in permanent leadership, the laboratory was continually active in test development with two new tests successfully implemented. With cooperation from the GI anatomic pathologists (Dr. Joel Greenson) and the Cancer Genetics Clinic (Dr. Stephen Gruber), the laboratory established a procedure for screening of high-risk colon cancer patients for the microsatellite instability phenotype, an important indicator for

further genetic counseling and the possibility of the familial Lynch syndrome. Working in conjunction with the blood bank, a commercial microarray-based procedure for genotyping of human erythrocyte antigens was established to assist in management of multiply transfused and other complicated patients. Each of these represents new modes of cooperation between the Molecular Diagnostics Laboratory and other divisions within Pathology and the institution. In addition, several new assays are currently in development. Cell lineage-specific chimerism testing for improved monitoring of bone marrow engraftment in patients with reduced intensity preparative regimens and qualitative and quantitative assessment of the JAK2 V617F mutation in myelodysplastic syndromes will be implemented very soon. Other development activities include the following: detection of c-kit mutations in systemic mastocytosis and gastrointestinal stromal tumors, monitoring of ABL kinase mutations causing imatinib resistance in CML patients, integration with the Cytogenetics Laboratory to implement increased FISH testing (including HER2/neu), UroVysion and the potential of many other cancer gene rearrangements, and others. In addition to increasing the breadth of the test menu and anticipated specimen volume, these new tests will bring new technologies into the laboratory including automated FISH and clinical sequencing, techniques which will position the laboratory for continued expansion in the future. Further microarray testing will also be a target for development in the near future. Another priority for the coming years is an increase in the utilization of the Molecular Diagnostics Laboratory by clients of the MLabs outreach program.

Many organizational changes are underway that will help the Molecular Diagnostics Laboratory achieve these ambitious goals, all in recognition of the increasing importance that molecular pathology will play in the future of medicine. In addition to the changes in medical directorship discussed above, Dr. Bryan Betz will soon join the laboratory as Technical Director. Dr. Betz's Ph.D. training in molecular biology and primary focus on test development will position him to act as the primary force behind technology expansion. He will be assisted by Jenny Howard, laboratory supervisor, Helmut Weigelin, our current development technologist, and incremental development staff (to be announced). Increased coordination between the Molecular Diagnostics and Cytogenetics Laboratories will be further facilitated by Dr. Sharon Betz, who will act as Assistant Director of both laboratories with a focus on microarray technologies. Also noteworthy was the opening in May 2007 of the Pediatric Metabolic Genetics Laboratory in the Department of Pediatrics, under the license and supervision of the Department of Pathology. This laboratory will have a focus on less common constitutional genetic testing, including standardized sequencing platforms which will expand our institutional capabilities in this area. In the training area, our proposed fellowship program in Molecular Genetic Pathology appears on track for accreditation in the coming fiscal year. In terms of physical infrastructure, the Cytogenetics Laboratory and the newly created Michigan Center for Translational Pathology, with a component focused on translational research and development in molecular pathology, will soon locate to the Traverwood building complex that already houses the Molecular Diagnostics Laboratory. Moreover, planning is underway for the new Pathology building, including a vision for an integrated state-of-the-art molecular pathology space. When these changes are considered in the context of the many research advances being made in the wake of sequencing the human genome, it is clearly an exciting time for the University of Michigan Molecular Diagnostics Laboratory.

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, 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 Rackham School of Graduate Studies. This involves formal lecture and laboratory exercises, senior clinical clerkships, and research training for undergraduate, graduate, and 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 class rotating through the department. These experiences are individualized based on student career interests, 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 (16 students) with a focus on providing excellent training in preparation for careers as scientific investigators. Four new students joined the program this past year and one student graduated from the program and is continuing post-doctoral training at the University of Michigan. 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 Michgan 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 inside 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 and Blood Bank/Transfusion Medicine. A new Molecular Genetic Pathology fellowship received initial accreditation from the ACGME. Additional fellowship opportunities include training in the specialty areas of surgical pathology, breast pathology, pulmonary pathology, urologic pathology, GI pathology and informatics. Our department gained 7 new residents this year, and approximately 36 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. There were 14 house officers and fellows who completed training this past year. Graduates found desirable fellowships (8), faculty positions at academic health centers (3) and employment in private practice (3).

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 at 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 A.J. French Society meeting continues to be a focal point for CME, especially for graduates of our resident training programs and pathologists within the Midwest.

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

PATHOLOGY INFORMATICS

Division of Pathology Informatics

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

Arul M. Chinnaiyan, M.D., Ph.D.
S. P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director of Pathology Research Informatics

Clinical Informatics Unit (CIU)

Introduction:
The Clinical Informatics Unit (CIU) is one of two units within the Division of Pathology Informatics at the University of Michigan Health System. This unit is responsible for maintaining all clinical servers and related aspects of clinical lab IT infrastructure. The current laboratory information system is Cerner's PathNet Classic, currently running Classic 306, Rev 147 on the HP AlphaServer GS140 platform. This platform has been in operation since 1988 with uptimes exceeding 99.996%. The division has responsible for maintenance of all laboratory workstations, laboratory printers, expedite printers in clinical areas, inquiry devices in clinical areas, and remote printers with modems, greater than 10 remote site interfaces, and a large plurality of point of care laboratory instruments. The division generates approximately 750 database queries every week which in turn generate management reports required for routine laboratory operations.

The Applications and Data management group performs data integrity testing and validation, sets up and maintains daily operations and billing, supports PathNet and MLabs users, and sets up and maintains interfaces from PathNet to foreign systems. The support team consists of medical technologists who are closely integrated with the laboratory staff.

The Systems and Hardware group does performance tuning and system monitoring, OS enhancements and upgrades, PathNet software upgrades, and supports and maintains the interface engine. The systems team understands the critical nature of the laboratory information system and all its "feeds".

The PCNS (Personal Computer and Networking Systems) group manages the Pathology network and servers, manages and maintains workstations and Citrix, supports Point of Care

testing, and carries out special projects. Many staff in the PCNS group have prior experience as medical technologists and are further qualified with advanced training in HL7 and interface programming.

All staff are involved in the development of innovative solutions targeting clinical informatics operational needs.

The Clinical Informatics Unit is closely integrated into the clinical laboratories, working as one team, often with other hospital units and/or outside entities, to ensure that data housed in the unit's myriad of laboratory information system is transmitted and displayed correctly at local and remote sites.

Major Clinical Informatics Thrusts, 2006-2007

Integration of Electronic Order Entry Capabilities with the SCM-CareLink Hospital Application

Over the preceding year, CIU has worked closely with MCIT developers in the Orders Management Project (OMP) Division, to implement a seamless electronic order entry solution for UMHS inpatient and inpatient-like venues. Initially going live in Women's Hospital and the Holden area, this functionality demonstrated successful integration of the Eclipsys Sunrise Clinical Manager application suite and the PathNet Laboratory Information system, via custom interface programming on the DataGate Hub. Later extended to the Mott Children's Hospital Intensive Care Unit, the CIU has extended operational knowledge of both best practices for implementing electronic orders interfaces, as well as optimal workflow patterns. Facilitating this iterative process has been a close and working relationship with member of the OMP team and nursing, where operational problems are addresses on a weekly basis. At present, the CareLink application is scheduled to go live for the remainder of University Hospital in late Q2, 2008 (April 28) and the CIU has fully accounted for incremental resources and change control requirements that will be required, in support of this major deployment date.

Sentinel Server and Bar Coded Wrist Band project

Barcode-annotated inpatient wristbands have been identified as one of the single most effective information technology solutions that can be deployed to reduce or even eliminate patient identity and specimen identity mismatches, which tend to result from manual clerical identification steps. To address this need, the CIU selected the Sentinel Server "middleware" application as the intended service application, and coupled this with a portfolio of thermal printer wristband media manufactured by General Data Corporation. The Sentinel application was successfully integrated with outbound data interfaces from the institutional patient identity management application (HQPM) and subsequently piloted at a number of inpatient venues, thus confirming the ability to generate barcode-labeled wristbands. With this functionality in place by Q3 2006, it was possible to proceed with projects that were dependent upon the availability of positive patient identification as described subsequently (Bridge Positive Patient ID for phlebotomy, Wireless phlebotomy cart activation).

Bridge Positive Patient ID

A significant cause for incorrect laboratory results has traditionally been associated with incorrect patient and sample identification at the time of phlebotomy. With the advent of the hospital incrementally adopting electronic order entry, there was compelling motivation to explore the use of barcode-based positive patient identification in concert with use of electronic

orders to allow for the creation of real-time bedside specimen label printing, thus reducing or eliminating the possibility of mislabeled patient specimens. To accomplish this, two distinct areas of functionality needed to be set in place: 1) global adoption of barcoded wristbands for all inpatients and 2) integration of electronic orders such that the LIS would be fully aware of the labels that required printing. The Bridge Positive Patient Identification tool was identified as a suitable "Middleware" solution to augment our existing LIS capabilities. It was implemented on a relatively aggressive 8 week time schedule in Q3 2006 such that it could be in place for deployment at the same time as the initial CareLink deployment (already discussed above). To enable the automated patient identification component of this project, the barcode-annotated wristbands made possible by the Sentinel project were utilized as the identity source. Consequently, at the time of initial Carelink activation, the Bridge Project also commenced, with operational results confirming that barcode identification and subsequent bedside printing of specimen labels does indeed simplify workflow and at the same time reduce labeling identity errors. As use of this application has continued, the CIU has gained further insight in optimal practices for optimized bedside automated label generation. At present, there is high confidence that this infrastructure will be ready to address the added high volume represented by the anticipated hospital-wide deployment of CareLink on April 28, 2008.

Phlebotomy Cart activation

With the newly gained availability of technology that allows phlebotomists to generate specimen labels in real time, using wireless technology coupled with barcode-based wristband technology, it became desirable to construct a mobile platform that could concurrently serve as a computational platform and as a phlebotomy supplies cart. The solution was to modify an exiting mobile nursing dispensary cart such that it also contained a fixed mount display with integrated computer and necessary connectivity with hospital's secure WiFi network and to a wireless barcode scanner and wireless label printer, for deployment of the Bridge positive patient ID application. After several prototype platforms were assembled and tested, the division agreed upon a final configuration and 27 such units were constructed. They have been in service continuously since their deployment in Q3 2006 and have allowed our phlebotomy staff, under the direction of Harry Neusius, to provide for comprehensively identified specimens to our central laboratory, thus greatly reducing the typical wasted effort associated with the identifying of source/identity of improperly labeled containers.

Atlas Web Portal

MLabs, the department's reference laboratory service division, already makes use of a significant number of information technology solutions and platforms that are services by the Clinical Informatics Division. A new effort under joint development by the Clinical Informatics and MLabs divisions holds the promise to provide for a new level of customer service, in the form of client-specific Web Distributed Services. After a lengthy search process, the Atlas Medical Labworks® platform was selected. Implementation has so far centered upon integration of patient identity and accession workflow electronic information with our established HealthQuest Patient Management (HQPM) and Cerner Pathnet solutions. An initial unidirectional (results only) client was brought live in Q1 2007 followed by a bidirectional (electronic order entry/results) client in Q2 2007, confirming that the application suite was a realistic platform for scalable use in our complex, multi client reference services environment. At present, it is anticipated that upward of six new clients will be live upon this application in 2007, and potentially upwards of 15 more by the close of 2008.

Development of this platform has allowed the division to break new technical ground in two ways: 1) the application suite makes use of remote hosting of services for the order entry component, with key functionality being provided by Atlas Medical from their servers in California and 2) the local shadow repositories are running on virtual servers (VMWare), thus allowing significant consolidation and simplification of this N-tier architecture (reducing upwards of nine physical servers to a single hardware abstraction layer hosting the majority of services as virtualized applications). Collectively, this approach have the concurrent effect of increasing reliability and reducing operational complexity, with an example being that all elements of the N-tier architecture can be backed up via a single backup process.

External Laboratory Results Management and Integration

Background

For U of M outpatients with chronic illnesses or with conditions that require periodic monitoring of particular drug levels or physiologic indices, there is compelling motivation to engineer laboratory information resulting systems by which all tests (both those performed within the U of M network and those performed externally) are properly stewarded to the Clinical Data Repository. At present, not all results successfully make their way back to the Hospital's repository and this inconsistency represents a very real threat to the consistency with which our staff can provide quality patient care.

The current reality is that many patients within our overall healthcare enterprise are followed both locally and remotely, often with clinical management carried out without the patient being required to travel away from their community. This creates a duality, due to geography, for the nature and source of incoming lab results. While this affords our long-term outpatients a level of convenience with respect to minimizing travel for both clinic visits and blood draws, as they are encouraged to use laboratory resources that are nearby to their place of residence, it also creates inconsistent circumstances by which results may or may not return to University physicians. Given that University of Michigan Laboratory blood draw offices are not always the most convenient venues for patients who are in areas of the state remote to Michigan sites, many patients choose to have their periodic laboratory tests carried out by outside clinical testing laboratories (Quest Diagnostics, etc.). In such instances, the results to tests ordered by University of Michigan staff return to the hospital in printed form or by fax, and are received by a multitude of destinations, creating inconsistency in the rigor with which matching of patient identification can be carried out prior to the insertion of data into patient charts. Moreover, as current practices are primarily based upon paper-based records, there is a small subset of data, at best, that is presently transcribed into the electronic medical record, making such data available for easy retrieval and simplified longitudinal charting.

Condition prior to project commencement:

At present, there is no standard protocol by which outside laboratory data is ultimately integrated into the University of Michigan Electronic Health Record (EHR). Some clinics have adopted the use of shadow charts to house local paper-based or electronic information to complement patient data already in CDR/Careweb. Some Clinics have deployed vendor-provided portals to external electronic laboratory results review systems (e.g. Quest Diagnostics). Still, other clinics have created custom integration databases that allow for local transcription of incoming paper-based and fax-based results data into local ancillary repositories. All these ad hoc solutions share a common property in that they force clinicians to use more than one source of laboratory information to fully assess a patent's clinical status. This creates added effort and introduces both process variance and associated risk, in that

many of these ad hoc processes do not allow for automated notification when new information is available for review. Such risk has been investigated, confirmed and reported by such groups as the Leapfrog Initiative. Consequently, there is reasonable concern that our current collective institutional practices are creating conditions whereby a critical incoming laboratory report might not be reviewed in a timely manner or might not be distributed to all parties that medically would be required to be informed of such results. Moreover, the current lack of consistent practices with respect to confirmation of patient identity (match and tag logic) increases risk that clinically actionable results could be attributed to the wrong patient. Finally, besides adding risk to the carrying out of quality patient care and adding risk to our institution, the collective above practices immediately place the hospital in the very undesirable position of being in violation of several regulatory standards for stewardship of laboratory data, thus placing our laboratory's accreditation at peril.

Root Cause Analysis:
The institution at large, in it current failing to date to provide a rigorous, consistent and centralized solution to this unambiguous need for charting of outside laboratory results, has created a vacuum of service which has been filled by a heterogeneous amalgam of solutions, with these solutions exhibiting the common themes that they are: 1) not universally integrated into the EHR and 2) not subject to a consistent validation process. Moreover, some inbound data remains in paper form only, in the setting of a shadow chart insertion, thus making such data unavailable to any who do not have access to the specific physical file or chart.

Target Condition:
Recognizing the unambiguous need to create an intuitionally-wide solution for the receipt and entry of outside laboratory results, towards the goal of providing our clinicians with a single seamless view of patient information, it is incumbent upon pathology, as the institutionally-charted stewards of such data, to create necessary infrastructure, working with the hospital at large.

Such a solution has a number of distinct and individually verifiable components. Together, these collectively will allow for a consistent, reliable and centralized process by which outside laboratory data will be correctly vectored to the appropriated EHR. Key components of the solution that have already been unit tested as a proof-of-concept demonstration include:

- Patents are provided with a laboratory request form, at the time of their clinic visits, which can be taken to any laboratory for testing. This form will provide the outside laboratory with all information needed for them to be able to fax results back to the University Hospital (to a newly created inbound fax receiver in the Laboratory Sendouts division)
- Outside results will be faxed to the aforementioned dedicated outside results fax number.
- Received faxes of outside laboratory data will be reviewed by dedicated laboratory personnel to confirm patient identity, by standardized match and tag logic (working with HQPM as our single source of truth).
- Once correctly identified, results will be entered as a scanned document into the document management section of CareWeb.

- A notification "placeholder result" will be charted into Pathnet, which will subsequently post to the CDR, Careweb and UM-Carelink, thus notifying clinicians of the availability of such new data.
- The inbound fax specialist will then review the report to identify test categories that are to be additionally charted to PathNet as outside results. Such entries will in turn propagate to CDR, Careweb and UM-Carelink as results that are no different than any other charted laboratory results.
- Such charted results, in turn, will activate all clinician inbox notifications as is currently the case with our existing charted laboratory results.

Implementation Plan:
Internal unit testing of the above schema has been carried out with the assessment being that such a process can be effectively implemented in our current laboratory setting. Following the demonstration of this process to the existing Short-Term Internal Integration Initiative (I3), it is anticipated that the hospital will allocate funding for a minimum of two specialists who will serve in the capacity of outside laboratory data stewards, ensuring that data will be properly matched and vectored to the correct patient. The pathology department will take on the responsibility of training these individuals and properly equipping them with workstations to carry out their primary tasks. Concurrently with this effort, the Pathology Department will work with any and all clinics that are sources of outside laboratory orders, to ensure that current requisition forms are amended to include the added information that will seamlessly allow data to return to our dedicated Fax system. Finally, the Pathology Department will work in concert with the Short-Term Internal Integration Initiative (I3) to craft and disseminate and content that is deemed appropriate to both train and inform possible users of this system (clinic staff, etc.).

Follow-up Plan:
Once placed into operation, the Pathology Department will actively monitor activity and volume of the inbound Fax system and will perform validity checking on data to see that the three primary conditions are met:

- Images of inbound results are available for review in the documents section of Careweb, for the correct patient
- A generic notification result is created for every inbound result
- Fully charted results are successfully stewarded from Pathnet to the CDR, Careweb and UM-Carelink, with appropriate creation of clinician inbox notifications, for those tests that are deemed to be of sufficient importance for charting.

Based upon the findings of ongoing monitoring, operational practices will be tuned and amended as needed to ensure 100% capture of inbound data.

Transition to a Long-Term Solution:
With the completion of the above short term solution in Q4 of 2006, the working committee redirected its efforts at setting in place a plurality of bidirectional electronic interfaces, whereby the University Hospital would be able to receive real-time feeds from originating sources of outside laboratory results, thus allowing for automated electronic transfer of data into CDR, Careweb and UM-Carelink. This revised workflow, which is no longer dependent upon manually transcribed data from paper or fax sources, is highly reliable, in terms of patient matching logic and charting consistency.

To date, the working group has been successful in completing a number of critical important enabling tasks needed to realize the final goal: 1) a candidate laboratory data provider has been selected (Quest Laboratories, Inc.) and contract negotiations have resulted in a redlined document that has been approved by the pathology department and the Faculty group practice, and returned to Quest for final approval, 2) the working group has been able to secure four full time employees from MCIT that will serve in support of interface development and maintenance, 3) the working group has worked interactively with the CareWeb Clinical Advisory Committee (CCAC) to generate a needs document for outside lab results trending which in turn has been assigned to a development team for delivery in Q1, 2008, and finally, the working group has sought and received consultation from the Faculty Group Practice on a number of operational issues that will better guarantee that the resulting solution is well-aligned with the actual clinical need. At present, the first electronic interface (Quest) for inbound external laboratory results is schedules to go live in Q2 of 2008.

Radiance Interface

With the delivery of new models of blood gas analyzers, in concert with the need to provide for an added level of bi-directional connectivity in support of Carelink order entry features, Clinical Pathology Informatics developed, tested and implemented an interface via the DataGate Information Hub, that allowed for real-time bidirectional loading of patient data for LIS worklists and then allowed for automated return of instrument data. This project was also an opportunity for the division to showcase its responsiveness to changing clinical needs, as the instrument interface request was received on a Friday from the OMP team as an emergent increment in project scope with our division having it completed, tested and implemented by the following Monday -- essentially a fully interface implementation of less than 48 hours.

LIS Replacement Project

2006-2007 was an important year in the life cycle of our laboratory information system, as this interval was the completion of a number of key steps in the process leading up to deployment of a new system. With the completion of on-site demonstrations by the two finalists (Cerner and Soft Computer Corporation) in Spring of 2006, enough product information was available to warrant site visits to two locations: Virginia Commonwealth University for Cerner and Methodist Hospital in Houston for SCC. These visits were instrumental in providing substantiating information, in concert with our extant detailed gap analysis, that the SCC SoftLab solution was the more suitable replacement LIS solution for our complex academic environment. With the completion of vendor selection in Q1 of 2007, efforts immediately shifted to contract negotiations, which are ongoing as of Q2.

Machine Room Renovation

In Q2 of 2006, there was reasonable expectation that the Clinical Informatics Division would be required to relocate the current machine room from the University Hospital to the fourth floor of Medical Sciences Building 1. After a detailed analysis of required infrastructure resources and incremental connectivity relocation costs associated with such a move, the division, working in concert with departmental leadership was able to make a compelling argument to the hospital in support of leaving the Machine Room in its current location. Concurrently with this decision, it was similarly decided that the Informatics office and lobby area surrounding the machine room would be converted to laboratory space to be utilized in support of the Good Tissue Practices laboratory initiative sponsored by the Blood Bank, with informatics staff to be relocated to new space under construction in the Medical Sciences Building.

As this project required some degree of physical modification of the Machine Room infrastructure, it was optimal to petition the Hospital to consider upgrading key elements that were deemed as being antiquated: uninterruptible power and fire suppression. After significant investigation, solutions for both areas were identified and submitted to the project as incremental proposals with both being approved. The key aspects of the new Machine Room infrastructure that is expected to be in place and operational by Q4 2007 include the following:

- New dedicated three-phase 125 KVA / 208 Volt power feed to room from the Hospital's main buss, thus minimizing likelihood of transient power anomalies
- In-room 80KVA uninterruptible power supply (American Power Conversion) with full power conditioning and in-room emergency bypass
- Overhead tray system for power and data, thus removing all cabling and associated cross-airflow obstructions from the subfloor space
- New datacenter-grade deep racks as replacements for all existing rack frames
- Active backplane heat convection doors with venting to plenum and active environmental monitoring.
- Rack-level redundant data switching with fiber interconnects
- Installation of a secondary network for infrastructure monitoring of temperature, power demand, battery status and site security.
- Sub-millisecond cross-over to locally-generated backup power.
- Battery backup capable of powering all servers for at least 12 minutes, allowing adequate time to power down all systems in the unlikely event of an extended power failure.
- Repositioning of all sprinkler heads to comply with row-based irrigation requirements
- Modification of the fire suppression system to a delayed-action system, thus allowing for preservation of the room in settings where sprinkler activation is deemed unnecessary
- Grounding of all perimeter stanchion posts in the subfloor
- Correction of existing subfloor framing defects, thus allowing full weight-bearing capability in all areas of the room.

Collectively, the above modifications and enhancements will bring this datacenter to the level of extreme fault-tolerance as typically required for a clinical computing facility. Concurrently with this effort, redundant mission critical servers that were previously co-located in this location were relocated to other locations in the hospital, thus allowing for multi-site redundancy of operation, in the unlikely event of total loss of this room.

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

Research Informatics Unit

I. OVERVIEW:

Bioinformatics, which is the convergence of biology, information science, and computation, plays a critical role in the future of cancer biology and translational science. The Department of Pathology in collaboration with the University of Michigan Comprehensive Cancer Center (UMCCC) have multiple informatics and data resources that support clinical and basic research. Many of these resources were developed to meet the specific needs of individuals and were not designed to share data or integrate with other information systems. In the past, informatics efforts have been spread across the Cancer Center without a unifying organizational structure. The presence of such an organizational structure allows for easier access to available resources and domain expertise. A robust informatics infrastructure is vital so that investigators can continue to focus on their work without being mired in the technical details necessary to run a data-intensive research operation. Recognizing this, the Cancer Center leadership established the UMCCC Bioinformatics Core in July of 2004. The recently established Division of Pathology Informatics (which incorporated the Pathology Bioinformatics group formed in 2001) has served as the host for the Cancer Center Core for mutual integration and leveraging of assets and expertise.

The mission of the Core is to support the informatics needs of both clinical and basic science investigators by providing the technological infrastructure and informatics / regulatory (e.g., security, HIPAA) expertise to ensure the reliable and secure acquisition, storage, analysis, and application of biomedical data from both patients and biospecimens in order to promote the quality of peer-reviewed publications as well as faster translational (i.e., bench to bedside) medicine that will ultimately lead to novel discoveries and improved patient care.

The foundation of the Core is built upon UMCCC-developed bioinformatics assets including Oncomine, a cancer microarray compendium and data mining platform, BankAdmin and the database infrastructure for the Tissue Core, caTissueCore the tissue-banking system from the caBIG initiative, and EMERSE, a web-based free-text search engine for the UM electronic medical record. In addition, the Core has supported the Clinical Outcomes Database/Registry (COD/R) which is an institutionally supported clinical research database system that now involves collaborative efforts with industry. Oncomine, BankAdmin, caTC, EMERSE, and the COD/R are applications already actively being used by UMCCC investigators. Tools and Services provided by this Core include 1. support, integration and further development of Oncomine (e.g., myOncomine, HiMap, MCM), BankAdmin, EMERSE, and COD/R, 2. participation in and interface with the Cancer Biomedical Informatics Grid (caBIG) initiative, 3. education/consulting with regards to bioinformatics applications, and 4. data integration and annotation. As data-intensive research increases at the Department of Pathology and the Cancer Center, the Bioinformatics Core will continue to work towards expanding its capabilities and services in order to meet the growing demands of the investigators and also establish the Department and the UMCCC as a national leader in the field of cancer bioinformatics and its application to patient care.

II. RESEARCH AND DEVELOPMENT:

The Bioinformatics Core has worked to support all of the initiatives as outlined above. A summary follows:

Oncomine/myOncomine

Oncomine (www.oncomine.org) is an internationally recognized and utilized bioinformatics infrastructure for cancer genomics research developed at the UMCCC using developmental funds from the UMCCC, the Department of Pathology and the Dean's Office. A biologist can come to the Oncomine website and ask basic questions such as: 1. In what cancer or cancer subtypes is my gene of interest dysregulated? 2. What are the top genes that distinguish metastatic cancer from clinically localized disease? or 3. What genes may serve as biomarkers for a particular cancer or cancer sub-type? Results are generated with primary analytical methods such as hierachical clustering and statistically-based differential expression analysis, usually with careful consideration for multiple-hypothesis testing. The lead developer of this project is Daniel Rhodes who received his PhD in May 2006.

Oncomine has continued to add innovative and powerful features such as pathway analysis, interactome analysis and transcriptional motif and chromosomal region enrichment analysis. Oncomine has also continued to add new datasets to its compendium, now with over 140 datasets and 16,000 profiled tissue samples representing 49 distinct cancer types. The Oncomine programming team has also developed myOncomine, which contains all of the functionality of the regular version but adds additional value for UMCCC investigators. It contains facilities for users to output their data in formats suitable for further statistical analyses in other software. This version allows for the private uploading, viewing, linking, and analysis of their own data and this highly automated process is being coordinated with the UMCCC Microarray Core Facility so that once it is up and running, gene expression data will be transferred seamlessly from the Microarray Core to myOncomine.

The public oncomine project is outsourced to Compendia Bioscience. Currently there is a running database and interface that is internal and usable by Pathology and UMCCC. MyOncomine can still be used to load personal data of UMCCC members.

Molecular Concept Maps

Molecular concept maps (MCM) absorbs gene lists from current literature and determined their relatedness by baysian analysis. The gene lists are primarly derived from high throughput gene microarray studies and their cluster analysis. Gene lists are also sourced from annotation efforts like the Gene Ontology, TRANSFAC promoter analysis, Interpro domain analysis, and other efforts. Gene lists are also created from the analysis of high throughput protein analysis efforts like PATLAS and HPRD. Over the last year IBAB has been contracted to acquire gene lists from the current literature. Currently there are over 3000 gene lists incorporated and analyzed in MCM. The IBAB team has been training and growing during the year and changes have been incorporated in to the datapipeline to streamline their efforts. Now that this building phase is complete they should be fully operational for the coming year. Current estimates for the IBAB group's productivity are between 50 to 100 papers a week for the coming year.

BankAdmin
Support for the Tissue Core includes tissue bank administration applications which are supported by Oracle Forms and an Oracle 9i database. BankAdmin functionality will be replaced by the caTissueCore implementation as the transition is made to the caBIG module.

caTissueCore
Support for the Tissue Core includes tissue bank administration applications which are supported by Oracle Forms and an Oracle 9i database. BankAdmin functionality will be replaced by the caTissueCore implementation as the transition is made to the caBIG module.

As part of IPBS we are implementing caTissueCore (caTC) which is a component of the TBPT. Currently we have a development tree of servers for the application built on virtual machines running windows in the VMWare environment. The rational for this is that the development on caTC is actively continuing in the caBIG community and we require the ability to implement, test, migrate data and release to production the changing codebase. The Prostate Spore Tissue Core is currently reorganizing specimen and annotating specimen data to migrate to the caTC application. The application is expected to be in production use this year. This project was started in January. Needs for this project are the VMWare tree which allows us to run the multiple servers and provide HA for the production service, the database tree which handles the tissue core data and supports the development changes and the migration needs, the production database and its back up and change control procedures to keep the data safe. Personnel that run the databases, personnel that run the servers, personnel to manage the data.

Clinical Outcomes Database / Registry (COD/R) Systems
COD/R (currently known as Velos and the Cancer Registry) is an institutionally supported database system which will serve as a common platform for clinical research. In March 2005, the University made a strategic decision to end development of its own clinical outcomes database system (BioDBx) and purchase one provided by the commercial vendor Velos. Velos *eResearch* is a commercially available web-based application for managing clinical trials and outcomes research

Using this product should allow for data to be better shared between the COD/R and other Bioinformatics Core components, such as Profiler and myOncomine. Efforts are also underway to develop a standardized specimen inventory management system to better track the flow of samples. This effort also includes a barcoding initiative

Although currently contained in a separate database, the University of Michigan's hospital-based cancer registry is being enhanced by the Bioinformatics Core to move it from a simple database used for reporting to one that serves Cancer Center members for clinical outcomes research as well.

The registry is being brought up-to-date by replacing the paper-based abstracting method with a highly efficient informatics tool for case identification and data abstraction, known as the Registry Case Finding Engine (CaFE). This will have several benefits. First, it will speed up the process of case identification dramatically. Second, it will free up time for the abstracters to focus more on data collection instead of patient identification. Third, it will remove the need for a person to read through all pathology reports unrelated to cancer, lessening the privacy

concerns raised by HIPAA. We have gained programmatic access to our clinical data repository for this purpose. The ultimate goal is transform the registry from one that has mainly served the UMCCC for the purposes of reporting to one that will provide reporting as well as data abstraction services for IRB-approved UMCCC investigator studies.

The Registry CaFE application has been used successfully by the registrars for nearly a year and the results have been promising. Use of the CaFE has caused a 20% increase in the number of cases being found per month. This has resulted in a registry database which is both more up to date and more complete, providing research investigators with a more trustworthy database with which to extract clinical data about cancer patients treated at the UMCCC.

EMERSE (Electronic Medical Record Search Engine)

The Electronic Medical Record Search Engine (EMERSE) was built in order to address the need for searching the medical record for research and data abstraction. EMERSE is secure, maintains an audit trail, and has been approved for use by our Health System Privacy and Compliance Office. EMERSE provides an easy-to-use, intuitive user interface for constructing complex search queries and scanning context-sensitive search results. Results are displayed in a manner consistent with the structure of the medical record, including separate categories for the problem summary list, patient notes, and pathology and radiology reports. It offers powerful features, such as the ability to look for potential spelling errors in the documents as well as the ability to perform batch searches across multiple patients at once. Additionally, EMERSE has potential applicability in the direct patient care environment where clinicians are increasingly pressed for time, and a rapid method for reviewing a patient's history for notable events of interest would be welcome.

In the 19 months since EMERSE was first introduced, over 250 users have been registered and searches have been conducted on over 61,000 unique patients in our health system. Nearly 30,000 searches are recoded in the search logs and users have logged in almost 7,000 times to use EMERSE. Feedback from EMERSE users has been overwhelmingly positive. Users have estimated a 3- to 10-fold increase in productivity. The user base draws from a wide range of Health System members representing over 30 groups including Pediatric Hematology/Oncology, Pediatric neurology, Urology, The Clinical Trials Office, ENT, Pulmonary, Rheumatology, Emergency Medicine, Family Medicine, Risk Management, and Infection Control.

PubMed Query Search Tool (QUEST)

PubMed Quest is an application that provides a simple, efficient, and standard way in which to track publications generated by the various cores at the Cancer Center. This tool, available from our website, allows for bulk searching of publications based on a list of investigators provided to the system. Features include the ability to restrict the searched base on location (such as Ann Arbor), dates of publication, and journal titles, as well as topics. It can also automatically mark all publications that represent either intra- or inter-programmatic collaborations (or both) as well as highlighting the names of all Cancer Center members in each citation.

caBIG (Cancer Biomedical Informatics Grid)

The Cancer Biomedical Informatics Grid (caBIG) initiative seeks to provide the integration of data from Cancer Centers throughout the country. The Bioinformatics Core has been involved

in the caBIG initiative in order to represent and promote the interest of investigators at the UMCCC. As the caBIG community develops new systems and tools, the Bioinformatics Core will become ever more needed to ensure the broad dissemination of this knowledge to the Cancer Center as well as planning UMCCC's strategic direction as future informatics initiatives should unfold in order to maintain caBIG compliance. In the near future caBIG compliance may not only be an asset to research but may also be required in order to receive funding from the NIH.

Dr. Hanauer had been representing the UMCCC in caBIG for the first two years of the caBIG program, and had participated in both the Integrated Cancer Research (ICR) General Workspace and the Clinical Trials Management System (CTMS) Workspace meetings. He served as the liaison from the CTMS to the ICR workspaces in order to facilitate greater knowledge transfer and collaboration across caBIG workspaces.

Data Pipeline:

A new project in pathbio is the pipelining of HT data from the multiple machines in the lab. With the additional drive space offered by the upgrade of the Rdrive we can now systematize the collection of data. The project is to add meta data to the raw result data at the collection point and at each data transformation to provide parentage and the ability to use specimen facts and assay facts to facilitate data analysis and tracking. This will require the application tree, the database tree, data stores, network connecting multiple data sources and control over access to the sources and stores. Personnel requirements are the database dba, application developers in data parsing and in web application programming, bioinformatician, biostatistician and project management.

Database, Hardware and Network Support:

- Pathology Bioinformatics supports the computing needs of 52 departmental faculty and their research labs. This includes building, configuring and supporting over 200 Wintel/PC workstations (both Core and non-Core) and over 75 macs. This number includes over three dozen instrument interfaces (which require time-consuming custom-builds). We also provide centralized file services and backup for 36 of the afore-mentioned faculty labs.

- Pathology Bioinformatics built, operates, and manages 19 servers (and another 11 workstation-grade servers) with a combined total of over 21 terabytes of space with over 14 terabytes of active data. This year we consolidated by migrating an additional 24 machines into the VMware cluster, including 8 workstations that support the collaboration with the Institute for Bioinformatics and Applied Biotechnology in India. This is entirely separate and in addition to the PDS infrastructure, which we co-manage.

- The research Oracle database tree was upgraded allow direct RMAN backup to a new 48-tape LTO3 backup system.

- The R: drive was expanded to 4 TB on clustered SAN storage.

- The Aperio Scanscope has arrived and significant work has resulted in a model system that will be scaled up this fall to utilize JPEG2000 images in place of glass slides for all of the M1 and M2 Pathology courses.

Publications

The following is a list of publications in 2005-2006 that have utilized at least one aspect of the tools provided by the Bioinformatics Core:

Tomlins SA, Rhodes DR, Perner S, Dhanasekaran SM, Mehra R, Sun XW, Varambally S, Cao X, Tchinda J, Kuefer R, Lee C, Montie JE, Shah RB, Pienta KJ, Rubin MA, Chinnaiyan AM. Recurrent fusion of TMPRSS2 and ETS transcription factor genes in prostate cancer. *Science*. 2005 Oct 28;310(5748):644-8.

Hanauer DA, Chinnaiyan AM. PubMed QUEST: The PubMed Query Search Tool. An informatics tool to aid cancer centers and cancer investigators in searching the PubMed databases. *Cancer Informatics*. 2006 (2): 79-82.

Dhanasekaran SM, Dash A, Yu J, Maine IP, Laxman B, Tomlins SA, Creighton CJ, Menon A, Rubin MA, Chinnaiyan AM. Molecular profiling of human prostate tissues: insights into gene expression patterns of prostate development during puberty. *FASEB J* 19(2):243-5, 2005.

Ghosh D, Chinnaiyan AM. Covariate adjustment in the analysis of microarray data from clinical studies. *Funct Integr Genomics* 5(1):18-27, 2005.

Chinnaiyan A.M. ONCOMINE and caBIG Advance Cancer Bioinformatics. *The Scientist.* April 13, 2005, 19:6.

Rhodes DR, Kalyana-Sundaram S, Mahavisno V, Barrette TR, Ghosh D, Chinnaiyan AM. Mining for regulatory programs in the cancer transcriptome*. Nature Genetics*. 2005 Jun;37(6):579-83.

Rhodes DR, Chinnaiyan AM. Integrative analysis of the cancer transcriptome. *Nature Genetics*. 2005 Jun;37 Suppl:S31-7.

Loberg RD, Wojno KJ, Day LL, Pienta KJ. Analysis of membrane-bound complement regulatory proteins in prostate cancer. *Urology*. 2005 Dec;66(6):1321-6.

Rhodes DR, Tomlins SA, Varambally S, Mahavisno V, Barrette T, Kalyana-Sundaram S, Ghosh D, Pandey A, Chinnaiyan AM. Probabilistic model of the human protein-protein interaction network. *Nature Biotechnology.* 2005 Aug;23(8):951-9.

Hanauer DA, Rhodes DR, Sinha-Kumar C, Chinnaiyan AM. Bioinformatics Approaches in the Study of Cancer. Current Molecular Medicine. 2007 Feb; 7(1):133-41

Hanauer DA, Miela G, Chinniayn AM, Chang AE, Blayney DW. The Registry Case Finding Engine (CaFE): An automated tool to identify cancer cases from unstructured, free-text pathology reports and clinical notes. Journal of the American College of Surgeons. In Press..

Grant Applications

Cancer Center Support Grant (PI, M.Wicha) , P30 CA46592, $3,434,955 direct costs, UMCCC Bioinformatics Core, $250K/direct costs/ yr (Director, A. Chinnaiyan).

caBIG, Funded in the Integrated Cancer Research Workspace and the Clinical Trial Management Workspace as well as the Tissue Banking and Pathology Tools Workspace.

Co-I (0.6 cal), National Center for Integrative Biomedical Informatics, 1 U54 DA021519-01A1 (PI: Athey), NIH, 9/25/05-7/31/10, $2,543,758 annual direct costs.

III. FUTURE GOALS:

The goals of the Bioinformatics Core in the following year include:

1. Continuing to support the current applications offered through the core.
2. Continuing to enhance the existing applications such as:
   a. Oncomine/myOncomine:
      i. Continuing to enhance the functionality of the myOncomine application
      ii. Working with the DNA Microarray core to ensure rapid transfer of data files from the core directly into Oncomine
      iii. The addition of more public datasets
      iv. Further education sessions to increase awareness and use of Oncomine/myOnomine
   b. BankAdmin and caTissueCore:
      i. Transition our home-grown system to the caBIG compatible caTC application
      ii. Improving the application with features such as bar-coding.

   c. COD/R
      i. Developing “hooks” in the CDR database to directly import data into the Velos database system
      ii. Develop an infrastructure and business model to assist the deployment of databases for Cancer Center investigators
      iii. Enhance the timeliness and functionality of the cancer registry and transform it to a valuable data repository of clinical information that could be used by investigators
   d. EMERSE
      i. Continuing to raise awareness about this new resource
      ii. Working with MCIT to have better integration between EMERSE and the CareWeb electronic medical record
      iii. Adding new functionality to improve the efficiency and efficacy of the tool.
3. Continue participation in caBIG to ensure that the University of Michigan is aware of the ongoing developments and to allow for the rapid adoption of tools and services provided by caBIG when they are ready for distribution/adoption.
4. Become the central resource for Cancer Center and Pathology investigators who have informatics needs that they are unable to manage on their own.
5. Integrate UMCCC Bioinformatics Core Activities into the Division of Pathology Informatics.
6. Develop informatics expertise in the area of proteomics

In summary, we have leveraged our resources to make remarkable gains in all three areas of our mission: We have made OS and infrastructure upgrades to keep pace with future need, especially in the computational analysis realm and our core systems provide security, efficiency and speed. Through collaboration and co-management, we have facilitated the building of useful applications and analysis tools that provide material benefit to the research and education aims of the department and the research community at large, once again demonstrating that great savings can be achieved by pooling resources into a central group for the support of research and education.

IV. TEACHING/PROFESSIONAL:

Education

Providing education for the use of the tools and services provided is another goal of the Bioinformatics Core. The Core has held numerous demonstrations about EMERSE for multiple UMHS groups in the last year including Bone Marrow Transplantation (6/27/2006), Risk Management (7/14/2006), UM Quality Improvement (7/25/2006), Internal medicine hospitalists (9/25/2006), Medical Center Information Technology (9/25/2006), VA/UM psychiatry (10/25/2006), Pediatric neurology (11/1/2006), Family medicine (11/7/2006), Child Health and Evaluation Research Unit (1/30/07), and the Breast Care Center Educational Forum (5/2/07).

Consulting

Drawing upon the expertise of Bioinformatics Core members, the core has been meeting with multiple individuals from the Cancer Center to discuss and analyze informatics needs including database design and support issues. Efforts have also been made to help investigators utilize the data already located in the cancer registry database to avoid duplication of effort. Dr. Hanauer was been working with Dr. Douglas Blayney, Medical Director for the Cancer Center, to provide support for several initiatives including the national Quality Oncology Practice Initiative (QOPI).

Arul M. Chinnaiyan, M.D., Ph.D.
Director, Pathology Research Informatics
Bioinformatics Core

David A. Hanauer, M.D., M.S.
Assistant Director, UMCCC Bioinformatics UMCCC Core

Douglas F. Gibbs, Ph.D.
Manager, Pathology Research Informatics

SPONSORED RESEARCH

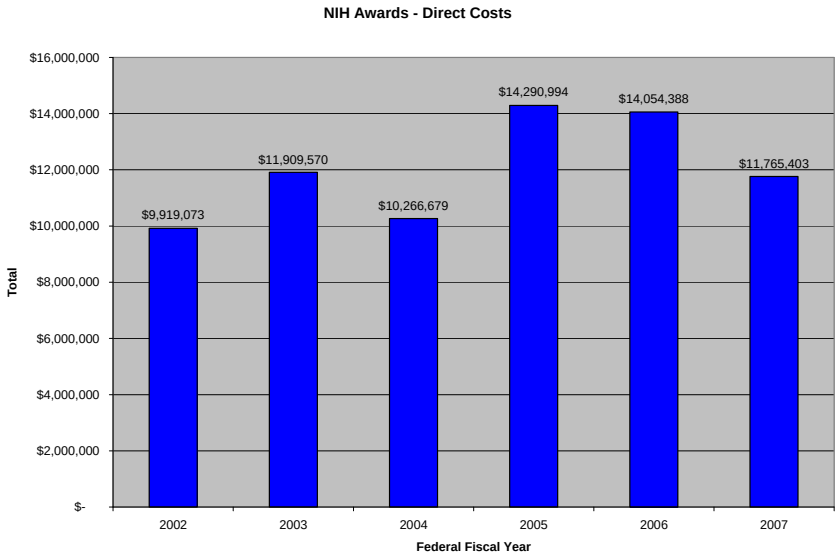
Division of Sponsored Programs

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

The Division of Sponsored Research

The most important metric assessing our research is not grant dollars, but the quality of our work. Still, successful competition for funding is essential for our research mission. As is well known, the current NIH paylines create great challenges to our investigators, who submitted 50% more grants this year than in the preceding year. Although our total direct cost funding continued to rise, NIH funding slipped. This was in large part due to the departure of Dr. Daniel Remick. The Department currently ranks 15th in NIH funding amongst all Pathology Departments.



We continue to focus effort on managing research space efficiently. We have 32 principal investigators occupying 62,253 square feet of research space. 90.6% of our faculty with research space have effort supported by Federal or non-Federal grants. As summarized in Table 1 below, the Department's metrics for indirect and total funding per sq. foot are comparable to that of our clinical cohorts and exceed that of the medical school overall.

Table 1: Expenditures Per Square Foot Comparisons:

	Direct/Sq. Ft.	Indirect/Sq. Ft.	Total/Sq. Ft.
Pathology Department	$224	$98	$322
Basic Science Departments	$191	$80	$271
Clinical Departments	$269	$100	$369
Medical School	$216	$82	$298

For the third time in six years, a faculty member in the Department won the Dean's award for Basic Science Research, which went to Dr. Gregory Dressler. Dr. Arul Chinnaiyan won the United States and Canadian Academy of Pathology (USCAP) Ramzi Cotran Young Investigator award for his many research accomplishments including the discovery of chromosomal translocations in prostate cancer. A team of scientists, including Dr. Chinnaiyan and others in Pathology, Urology and Medicine, won the American Association for Cancer Research (AACR) Team Science Award. Dr. Peter Ward received the Distinguished Service Award from the Federation of American Societies for Experimental Pathology. Dr. Richard Miller was quoted extensively as an expert on aging in an October 31, 2006 New York Times article written by Michael Mason.

Last year, with the recruitment of Dr. Kojo-Elenitoba-Johnson, we established a state-of-the-art mass spectroscopy laboratory to augment the on campus facilities that are available. This year, we continued to build research infrastructure to enhance the research capabilities of our faculty, which are described in more detail in the section report for Translational Pathology. We established the Molecular Pathology Resource Laboratory, led by Dr. Thomas Giordano, to provide high-end technical and instrumentation support to Pathology faculty, including laser capture microdissection, FISH, immunohistochemistry and quantitative multiplexed antigen detection (AQUA). We established a high-end Analytic Flow Cytometry Resource Laboratory led by Dr. Lloyd Stoolman to enhance our research and development capabilities in flow cytometry, particularly in areas such as analysis of signal transduction pathways. Drs. Elenitoba-Johnson and Giordano are also working with Dr. Dan Clauw to launch a tissue

banking effort to support the CTSA.

We are progressing with our strategy to build up research programs in several key areas including Proteomics, Pathology Informatics and Molecular Oncology, with a particular emphasis on epigenetic dysregulation. While our initial focus has been on investigators pursuing epigenetic mechanisms in cancer, an increasing number of our investigators are exploring the role of epigenetics in other non-neoplastic, particularly inflammatory diseases. All of our efforts are strategically aligned with the NIH Road Map initiatives and, in addition, will enhance the strength of translational research and the CTSA at Michigan. One exciting initiative lead by the MCTP and supported in part by the Dean's office, has been the recruitment of Dr. Christopher Beecher to lead a metabolomic profiling laboratory. In addition, we intend to dramatically enhance UM capabilities in structural biology and the design of small molecule inhibitors as well as enhance UM capabilities in studying gene function in normal and neoplastic states using RNAi.

High quality, on campus research space remains highly limiting for future growth of department research programs. The Traverwood space allows for expansion of the MCTP programs, but is not viewed as a viable option for tenure track principle investigators. Therefore, we consider it essential for the future of our highly successful research programs to move ahead with the plan for research space in the new pathology building.

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

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

TRANSLATIONAL RESEARCH

Division of Translational Research

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

OVERVIEW

I assumed the position of the Director of the Division of Translational Research in September 2006. This division is charged with the responsibility of establishing core infrastructure to facilitate patient-oriented and disease-related research. Hence the long-term plans for the division include the acquisition and effective implementation of key qualitative and quantitative core research tools such as mass spectrometry and multiparameter single-cell flow cytometry. Additionally, the division includes the Tissue Procurement Resource, which is invaluable in the procurement and archiving of patient material for translational research.

Mass Spectrometry-Based Proteomics Laboratory

July 2006-JAN 2007

The Pathology Research Proteomics Laboratory was established in 2005 as part of the proteomics initiative at the Department of Pathology, under the leadership of Dr. Arul M Chinnaiyan. In 2007 the leadership of the facility was transferred to Dr. Kojo Elenitoba-Johnson. This initial portion of this report summarizes the work performed for the period of July 2006-Jan 2007.
The facility supported the mass spectrometry needs for the following investigators:

1. Dr. Jay Hess: Interactomes for ENL and HOX A9.
2. Dr. Gabriel Nunez: Interactomes for NOD1 and MDP.

The mass spectrometry results for both were sent to Dr. Nunez. The facility also did a proteomic profiling for tissues from Apaf-1 knockout mice using two-dimensional liquid phase fraction coupled to mass spectrometry.

1. Dr. Thomas Wilson: Interactome for Nej1 and identification of phosphorylation site on NeJ1. Data for the Interactome was collected on the LTQ and sent to Dr. Wilson. The phosphorylation data was generated on Agilent ETD trap. A previously unreported phosphorylation site was identified for NeJ1.
2. Kent Johnson: Identification of humoral targets using protein microarrays and mass spectrometry.

RESEARCH ACTIVITIES/GRANT SUPPORT

1. R01 CA106402 Protein Microarrays for the Humoral Response of Cancer
   PI: David Lubman

2. Proteomics Alliance for Cancer Research Michigan Technology
   Funding: Tri-Corridor Fund
   PI: Gil Omenn

3. Profiling Prostate Cancer Interactome using Protein Microarrays and Mass Spectrometry
   Funding: Spore grant from the University of Michigan Comprehensive Cancer Center
   PI: Arun Sreekumar

EDUCATIONAL ACTIVITIES

TEACHING/PROFESSIONAL

Arun Sreekumar, Research Assistant Professor in charge of the Proteomics Laboratory, has played an important role in setting up and running the facility. He is currently training Drs. Adaikkalam Vellaichamy and Thekkelnaycke Rajendiran on the various aspects of applying the technology to answer biologically relevant questions. Dr. Sreekumar has played a major role in training Barry Taylor, a bioinformatics Master of Science (MS) thesis student, who has since joined Memorial Sloan-Kettering Cancer Center to continue his doctoral work.

ABSTRACTS PRESENTED IN CONFERENCES

1. Slany RK, Mueller D, Bach C, Zeisig D, Garcia-Cuellar MP, Monroe S, Sreekumar A, Zhao R, Nesvizhskii A, Chinnaiyan A.
   Purification of an MLL partner associated complex (MPAC) suggests a common role for MLL fusion partners in transcriptional elongation. BLOOD 108 (11): 231A-231A 770 Part 1, NOV 16 2006.

2. Taylor BS, Sreekumar A, Pal M ,Yu J, Shen R, Zhao R, Wei JT, Ghosh D, Lubman DM, Chinnaiyan AM.
   Identification and analysis of differential humoral response targets in prostate cancer. MOLECULAR CELLULAR PROTEOMICS 5 (10): S306-S306 1110 Suppl. S, OCT 2006.

Mass Spectometry

The mass spectrometry-based proteomic resource facility is currently under the direction of the head of Translational Research, Dr. Kojo Elenitoba-Johnson.

Dr. Venkatesha Basrur was hired as full-time Laboratory Manager, reporting on duty starting January 2, 2007. Before his current appointment, Dr. Basrur was a Research Assistant Professor at the Department of Microbiology and Director of Proteomics Core laboratory at the University of Toledo Health Science Campus. His main responsibility is to maintain a state-of-

the-art Departmental Mass Spectrometry-Based Proteomics Resource Facility (PRF). This resource is intended to cater primarily to the needs of researchers at the Department of Pathology, although selected projects based on the discretion of the director may be taken on from non-departmental collaborators. His responsibilities also include the implementation of the latest sample preparation and mass spectrometry techniques and assistance/education to the users of PRF in appropriate preparation and delivery of samples for analysis. Since the hiring of Dr. Basrur, the mass spectrometry resource has acquired, revamped and maintained the existing linear-ion trap mass spectrometer (ThermoFisher Corporation). Thorough evaluations of four instruments with different capabilities and strengths were performed. These instruments were considered for their potential ability to complement one another and provide a broad functional capability for the laboratory. The following were evaluated in this regard: the MALDI-4800 TOF/TOF and QTRAP4000 (Applied Biosystems), and the LTQ-Orbitrap and TSQ Quantum Ultra Triple Quadrupole (ThermoFischer Scientific). Based on performance and the projected functionality for the resource, we will be upgrading the existing LTQ to an instrument with electron transfer dissociation capability and will acquire the LTQ-Orbitrap and TSQ Ultra instruments. Of these, the LTQ-Orbitrap has already been delivered in July 2007, and the LTQ upgrade and shipping of the TSQ triple quadrupole are being anticipated very shortly.

Drs. Elenitoba-Johnson and Basrur have been involved in the design of the new mass spectrometry space in room 4204 of the Medical Science I Building. The projected move date is slated for August 2007. Current considerations included electrical and cooling requirements to support the instruments being acquired.

Overall, the projected instrument acquisitions and the training of Dr. Basrur will arm us with state-of-the-art capabilities such as qualitative "shot-gun" proteomics analysis of complex mixtures from a variety of sources including in-gel and solution digested samples. The Core Resource will also perform Multi-dimensional Protein Identification Technology (MudPIT). The resource will also provide quantitative proteomic studies using stable isotope-tags such as isotope-coded affinity tags and stabile isotope-based labeling of amino acids of cells in culture (SILAC).

We recently hired Kevin Conlon from Pfizer as a Senior Laboratory Specialist on July 30, 2007. He has a strong background in mass spectrometry instrumentation and will provide support for the laboratory under the supervision of Dr. Basrur.

Mass Spectrometry Instruments

A. LTQ with Electron transfer dissociation

We have acquired ion-trap instrumentation that features a Electron Transfer Dissociation (ETD) fragmentation. ETD facilitates peptide sequence analysis by a combination of ion/ion chemistry and MS/MS. The approach exploits anthracene anions to transfer an electron to multiply protonated peptides in the ion trap instrument with induction of fragmentation of the peptide backbone along pathways that are analogous to those observed in electron transfer dissociation (ECD). Advantageously, collisional-induced dissociation and ETD modes of fragmentation can be combined to improve protein identification. Finally, ETD is particularly well suited for analysis of peptides containing post-translational modifications.

B. LTQ-Orbitrap

The LTQ-Orbitrap leverages the robustness and easy operability of the fast and highly sensitive Thermo Scientific LTQ XL™ linear ion trap, and the patented Orbitrap™ technology. The LTQ Orbitrap XL™ provides opportunities for a wide range of applications from routine protein identification identification to the most challenging analysis of low level components in complex mixtures. The instrument features exceptional mass accuracy and resolving power and permits high fidelity de novo sequencing analysis.

C. TSQ Quantum Ultra

This instrument is a triple quadrupole that will greatly facilitate multiple reaction monitoring and targeted quantification. This function is greatly aided by the rapid SRM transitions that are a feature of this instrument. The application of this approach is in the high sensitivity and quantitative monitoring of targeted peptides/post-translational modifications in a complex mixture background.

Proteome Informatics

The appropriate informatics infrastructure to support the mass spectrometry-driven proteomics resource has been recruited to the Department. We have recently hired Dr. Damian Fermin as an applications programmer and in conjunction with Dr. Alexey Nesvizhskii in the Division of Informatics, we have implemented post-analytical assessments and verification of fidelity of MS/MS data by assigning probability and false positive rates to "shot-gun" proteomic analysis datasets. This is achieved using the Peptide Prophet-INTERACT-Protein Prophet suite, which is incorporated into the TPP data reporting and display.

The trans-proteomic pipeline for standardized analysis and reporting proteomics data has also been implemented. With the assistance of Dr. Ulysses Balis, Director of Clinical Informatics, Dr. Damian Fermin is also working on deploying the multi-node computer cluster for high-throughput processing of mass spectral data. We have acquired multiple software with complementary strengths for the algorithmic interpretation of tandem mass spectra. This includes MASCOT and the cluster-compatible version of X!Tandem.

Details of the Proteome Informatics resources are provided below:

A. Hardware

The Proteome Informatics group in the Department of Pathology manages a dedicated computer cluster consisting of 40 processors and 2 terabytes of disk space for performing high-throughput proteomics analysis. Each node has 4 dual core AMD Opteron 64-bit processors and 8 gigabytes of memory to handle large-scale jobs. The cluster operating system is a Linux-based distribution using "Load Sharing Facility" (LSF) coupled with "Simple Linux Utility for Resource Management" (SLURM). These combined features facilitate job submission and monitoring. The cluster is primarily used for mass spectrometry (MS) database searching. A dedicated Windows server is set up to perform automated conversion of files from the instrument-specific file formats to an

open mzXML format prior to processing on the cluster. A separate Linux server is set up for post-database search processing and validation of MS data.

B. Software

The cluster currently runs a number of software packages for analyzing mass spectrometry data. The software tools we currently provide include X! Tandem/k-score. This is a fast protein sequence database search engine that is used to identify peptide sequences from acquired tandem mass spectrometry (MS/MS) spectra, including post-translational modified peptides and point mutations.

More information about X! Tandem can be found on the following website: http://www.thegpm.org/TANDEM/Trans-Proteomic Pipeline (TPP). This is an open source software suite for complete MS/MS data analysis following initial MS/MS database searches using X! Tandem. Its 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 on the following website: http://tools.proteomecenter.org/wiki/index.php?title=Software:TPP

All of these software packages have been integrated and are accessed through a simple web interface. The automated files conversion server is primarily used to convert Thermo Electron instrument's files such as those from LTQ and LTQ-Orbitrap (that require Xcalibur software installed). Converters for most other manufactures are also available. Users are able to upload their MS/MS data, select target protein sequence database, specify the search parameters, and perform their searches. An email is then sent to the user along with a secure web link informing them where to access their results (data is password protected). While the web interface is designed to accommodate the most common protein identification searches, users can submit highly customized searches, including quantitative (iTRAQ, SILAC, ICAT) searches and within custom databases.

In addition, the department has a limited number of licenses for another MS/MS database search engine Mascot, allowing searches on 4 dual core processors. The Mascot server is currently set up as a separate server with a separate data submission mechanism. We plan on moving Mascot to the cluster in the future, allowing more automated use of Mascot using the same pipeline as with X! Tandem.

More detailed instructions for submitting jobs to the cluster and for viewing the results are posted on the data submission website: http://141.214.8.34:1772/ (at present accessible from within the UMHS firewall only).

Mass Spectrometry Experiments and Clients

Since early January of 2007, the PRF has been involved in many projects as indicated below. Samples analyzed ranged from Coomassie or Silver stained gel slices to whole cell lysates labeled with cleavable ICAT reagents.

Mixed-Lineage Leukemia Interactome (Dr. Hess' Laboratory): Objective of these analyses was to identify proteins interacting with MLL gene. Towards this, Dr. Hess' lab has conducted several immunoprecipitation experiments using various truncated domains of MLL and HoxA9 as bait in relevant systems. Samples were run on SDS-PAGE. Whole lane analysis following trypsin digestion, using the LTQ linear ion trap mass spectrometer, confirmed several known new interacting partners.

ETS Transcription Factor interactome (Dr. Chinnaiyan's Laboratory): As above, immunoprecipitates of ERG, an ETS transcription factor family member, were analyzed to identify interacting partners.

Mapping of Methylation sites on Histone (Dr. Dou's Laboratory): We are involved in an on-going effort to characterize the methylation sites on histones by two different methyltransferases being studied by Dr. Dou's laboratory.

Differential proteome analysis (Dr. Lim Laboratory): Cleavable Isotope-Coded Affinity Tag (cICAT) approach was used to characterize the global consequences of TPM3/ALK chimeric fusion expression.

T Cell Leukemia 1 (TCL-1) interactome (Drs. Elenitoba-Johnson Laboratory): Classical immuniprecipitation approach was employed to identify TCL-1 interacting proteins which might shed light on the function of this proto-oncogene.

Identification of Cullin Ring Ligase substrates (Drs. Elenitoba-Johnson/Lim Laboratory): Recent studies from the Elenitoba-Johnson lab have identified a number of cullin ring ligases which are deregulated in lymphoma progression. To identify the substrates of these ligases, we have developed a series of complementary strategies with promising candidates as substrates.

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

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, 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 to M-Care through a network (or networks) of hospitals' laboratories.

Workforce

Faculty

Program Director: Steven H. Mandell, M.D., Assistant Professor
(75% effort of full-time appointment)

Associate Director: Rodolfo F. H. Rasche, M.D., Assistant Professor
(50% effort of 60% part-time appointment)

Staff

These individuals represent the University of Michigan Health System (UMHS) 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. Jackie Goodman, a former laboratory employee in Specimen Processing and clerical trainer in outpatient services at UM Hospital, has joined the team to bring her enthusiasm and expertise as a client-centric Application and Training Specialist for MLabs Connect, our branded laboratory web portal. Our division will add another training specialist this year to more rapidly facilitate the wider use of electronic order entry, resulting in efficiency that MLabs Connect offers to both our client community and internal UMHS users.

Program Manager	Susan Valliere, BS, MT (ASCP)	14 yrs with MLabs
Operations Supervisor	Deborah Moss, BS, MBA, MT (ASCP) SM	11 yrs with MLabs
Account Representative	Melissa Brown, MT (ASCP)	11 yrs with MLabs
Managed Care/Financial Analyst	Deirdre Fidler, MHSA, BS, MT (ASCP)	11 yrs with MLabs
Information Technology Support Specialist	Steve Goyette, BS, MT (ASCP) SC	2 yrs with MLabs
Customer Service Assistant, Senior	Steve Gregg	7 yrs with MLabs

Customer Service Assistant, Senior	Chanin Kelly	3 yrs with MLabs
Customer Service Assistant, Intermediate	Denise White	6 yrs with MLabs
Customer Service Assistant, Intermediate	Leesa Stanislovaitis	5 yrs with MLabs
Customer Service Assistant, Intermediate	Victoria Clark	2 yrs with MLabs
Training Specialist	Jackie Goodman	1 yr with MLabs

Sandi Larson, a senior customer service assistant in the division for 6 years, left the division for prospects outside the University.

Market Segments Served

The MLabs Program plays a significant role in providing reference laboratory services to the Michigan and northern Ohio regions.

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

Non-Hospital Market

10% of business based on actual CP Billings and 19% by Test Activity. Market representation includes Industry Health Services, Commercial Research Facilities and Independent Laboratories.

Hospital Market

42% of business based on actual CP Billings and 46% 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 in FY2006.

Physician Office Market

48% 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' third 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 1996, M-CARE and the Regents of the University of Michigan, through the Department of Pathology MLabs Program, established a capitated contract for the provision of outpatient laboratory services to M-CARE members. MLabs provides these services through a network of subcontracted laboratories throughout the State, as well as directly by MLabs for physician offices locally. The MLabs/M-CARE laboratory agreement has made a significant contribution to the MLabs Program, allowing MLabs personnel the opportunity to gain valuable experience running a statewide laboratory network, negotiating managed care capitated contracts, and maintaining visibility and standing in the managed care arena.

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 (Chief Department Administrator), 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

MLabs Program demonstrated a 12% increase in total gross billings and 5% increase in total number of tests.

Departmental Activities

Maintenance of the Department's Charge Master and MLabs Website

Managed by Deirdre Fidler

Client Enrichment and Education

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.

Client Services and Service Enhancements

Client retention was 100% this year. MLabs Client Services Office acts as liaison between Department and UMHS Health Center sites on all related lab issues. Client service assistants handled about 42,000 client calls this year. The evaluation, selection and implementation of ACT!/Wired Contact will be a web-based application and is designed to serve the needs of the entire department's support and service staff.

Medical Directorship

Via MLabs contracts, Dr. Rasche serves as medical director and Dr. Mandell as his backup for both the University of Michigan Health Service and Forest Health Medical Center.

Outside Research/Community Testing/Health Fair Portal

Requests for this work come through the MLabs office, and we facilitate the entire process from phone inquiry to specimen transport to result communication and account resolution.

Rockwell Phones

Client service calls are handled in many areas of the department but expertise for phone data management for handling a call center resides in MLabs. Knowledge of where Rockwell reports are deficient for our needs also resides in MLabs.

Support Informatics Conversions Affecting Client Workflows

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

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 operations is dependent on many individuals in administration, the faculty, Pathology Informatics, the clinical labs, health care center sites and central distribution, who are too numerous to list here but without whose contribution we would not succeed. Special mention, however, must be given to 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 (Ulysses Balis, Kathy Davis, William Hubbard, Stephen Marshall, Alan Machcinski, 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 VA Healthcare System (VAAAHS) is a University of Michigan affilated 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 maintains a close relationship with the University Department of Pathology at every level. 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. Two and 1/2 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 was retains full accreditation by the College of American Pathologists. The VAAAHS satellite laboratory at the Toledo Oupatient Clinic has been inspected by the JCAHO and is currently fully accredited. The medical center's Decentralized Hospital Computer System (***V**ist**A***) is recognized as the most fully integrated medical information system. It combines all of the clinical management of the patient and has shifted to a computerized patient record system (CPRS) in year 2000. Data storage for all components of pathology and the clinical laboratories contains full patient information for 2 decades. Digital images of selected patient surgical, cytopathology, autopsy and ultrastructural specimen are stored as part of the patient medical record 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 Pathology and Laboratory Medicine Service (PALMS) provides specimen testing for these 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 8 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 nonVA clinical labs and an increase in the workload in VAAAHS's anatomic pathology and the clinical labs. Due to overall testing volume, laboratory equipment standardization with blanket contracting promises to allow for substantial savings in laboratory costs. Microbiology and Hematology equipment standardization was completed in fiscal year 2007.

Ann Arbor PALMS is currently performing all surgical pathology for the Battle Creek/Grand Rapid facilities. The Ann Arbor PALMS also performs all gynecologic cytopathology for Battle Creek, Detroit, Toledo, and affiliated CBOCs.

The laboratory continues to move toward expanding automation and informatics. Computer generated tissue examination requests are to be implemented in FY08. In Spring 2007, the VHA issued an initiative to institute a monitoring and eradication program for methicillin-resistance *S. aureus*. Real time polymerase chain reaction equipment has been obtained and the programs is expected to be fully initiated by 2008.

CLINICAL ACTIVITIES

ANATOMICAL PATHOLOGY:

Surgical Pathology: 7,257 surgical cases were accessioned and reported during 2006. Greater than 95% of case diagnoses were reported in under 48 hr. 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. 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.

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 comprehesive quality assurance review with analyses of frozen section accuracy, amended diagnoses, surgical appropriateness, turnaround times, report quality, random restropective review, and follow-up of positive cancer diagnoses. In addition, the VAAAHS PALMS has taken the lead with regard to patient safety by implementing preop second review of pathology for patients about to undergo major resections or excisions.

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 purposes. These are particularly useful in presentations to clinical teams reviewing specimens from their patients with the pathology staff and residents.

Autopsy Pathology: 14 autopsies were performed during this year that is a rate of approximately 12.2% of in-patient deaths. Assigned residents perform the autopsies, prepare the pathologic diagnosis, and present interesting cases for extended gross conferences. The resident cuts and otherwise prepares the tissue for the preparation of slides and then reviews them and makes a microscopic diagnosis. These steps are supervised by staff pathologists who permit a gradual increase in independence for the resident with increased experience. As noted, several autopsies performed at the VAAAHS may also be presented at the extended Gross Conference at the University. 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.

Cytology: 3,744 cases were examined and diagnosed during this period. This is a 9 % increase over 2005. Most of the cytology specimens are of diagnostic type, however the VAAAHS performs all PAP screening cytologies for the northern tier of VISN 11. Although there is not a formal rotation in cytology within the VAAAHS the cytological material is readily available and is used as correlative information for surgical and autopsy pathology. This laboratory is a VA "Center of Excellence" in cytology.

Electron Microscopy: 28 electron microscopy cases were processed in 2006. Ultrastructural diagnosis is provided through sharing agreements with several Michigan hospitals. Some of the University of Michigan pathology specimens are processed and reported. The unit also serves several VAAAHS research investigators. An elective rotation is available for pathology residents in electron microscopy. In other rotations the electron microscope findings are used to complement surgical or cytopathology diagnoses. This VAAAHS is a "Center of Excellence" in electron microscopy and serves as consultant to other VA Medical Centers, to the University of Michigan Medical Center and to other hospitals by contract.

CLINICAL PATHOLOGY:

During the period of this report 1,530,232 clinical pathology tests were performed in the Ann Arbor and its affiliated Toledo outpatient laboratory. In Chemistry there were 1,158,739; in Hematology/Coagulation/Urinalysis 186,550, in Microbiology 40,626 and in Blood Bank 36,310; the Toledo unit performed 108,007 tests. A total of 87,862 phlebotomies were performed. 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.

RESEARCH ACTIVITIES

The specific research efforts of the VA pathology staff are included on individual reports. Dr. Stephen Chensue has ongoing funded research programs. He also participates in cooperative studies with other investigators at the University of Michigan. Dr. 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. The laboratory in general 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. Residents are invited to join in continuing 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 585 and 586). Both Drs. Chensue and Murphy have made presentations at 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 multiple other 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 as well as 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 in 2006 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 performance.

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 (CAP), Joint Commission for the Accreditation of Hospitals Organization (JCAHO) and the Food and Drug Administration (FDA). 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

Eugene J. Napolitan
Department Administrator

OVERVIEW

The Division of Finance and Administration, which is under the auspices of the Office of the Chairman and directed by Mr. Eugene J. Napolitan, Department Administrator, is comprised of five units as follows:

* ADMINISTRATIVE SUPPORT CENTER - PATHOLOGY LABORATORIES

* OFFICE OF ACADEMIC AND BUSINESS AFFAIRS - MEDICAL SCHOOL

* OFFICE OF THE CHAIRMAN

* PATHOLOGY PROFESSIONAL FEE BILLING OFFICE - KMS

* FACILITIES

This division and its sections are 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. Napolitan serves on various departmental health systems and university committees, several professional society committees, and several non-profit organizations as board director.

Leadership provided by the administrator for several new initiatives included planning for a new Pathology Building with Burt Hill-Mortland Consultants. Mr. Napolitan is a member of the lead team for this initiative. In addition, he is the lead for the activation of a leased building, Traverwood, which will be used for the relocation of the Clinical Cytogenetics Laboratory and a portion of the Michigan Center for Translational Pathology (MCTP) Program, including the successful recruitment of Neil Lobron as Administrator for the MCTP Program. Other projects completed this past fiscal year included the successful fund raising campaign to establish a collegiate professorship in the name of Harold A. Oberman, M.D., the successful recruitment of

Martin A. Lawlor as Director of Finance and Administration, replacing Eugene J. Napolitan (who will retire effective 31 July 2007), and renovation/remodeling of the fourth and fifth levels of the Medical Science I Building, the Blood Bank-Good Tissue Practices Unit, Pathology Informatics Machine Room, Pathology Informatics Division renovation and relocation, and Surgical Pathology and Hematology Laboratories in the Hospitals.

ADMINISTRATIVE SUPPORT CENTER

Administrative Support Center/Pathology Laboratories

Assistant Administrator: Mr. Thomas Morrow directs this unit and is responsible for the business, operational and fiscal affairs of the Anatomic and Clinical Pathology Laboratories. This includes preparation and monitoring of all Hospital laboratories' revenue, expense and capital budgets, and personnel and payroll systems. Gross revenue for FY2007 was $374,300,000, compared to $324,300,000 in FY2006, an increase of 15.4%. Approximately half of this increase can be attributed to price increases. During this period, total laboratory expenditures were $66,330,000. Attentiveness to cost containment in the face of incremental activity allowed the laboratories to enhance the operating margin of the hospital. Additionally, we have continued collaboration with several area universities including Ferris State University, Eastern Michigan University, Wayne State University, providing "on-site" internships for medical technology students. This program also serves as a "pre-recruitment" period for this group of students. Mr. Morrow served as the lead administrative representative in the implementation of a digital dictation system for the Department of Pathology. The new system is in place and is used by approximately 90% of our pathologists and surgical transcriptionists. Final implementation will be completed in this next fiscal year. In addition, he and his group have been active in positive patient identification necessary for the success of Care Link, MLabs portal initiative, and selection of a new laboratory information system.

Administrative Coordinator: Mr. Craig Newman assists with the coordination of intra- and inter-laboratory activities for the anatomic and clinical pathology laboratories including coordination of required proficiency tests, coordination of inspections required for continuing certification or licensure by the JCAH, CAP and MDPH, serving as departmental representative on the Safety Committee, Disaster Committee, and serving as chairperson at United Way. 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. Mr. Newman also manages the Surgical Transcription Unit, the Faculty Office Suite in the Hospitals, and the accessioning function in the Medical Science I Building.

Billing Coordinator: Ms. Nancy Coray is responsible for processing and auditing all laboratory charges (gross charges of approximately $374,300,000, 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. With the implementation of APC, timeliness of charges has improved dramatically.

Human Resources Generalist: Mrs. Beverly Smith oversees the clerical support staff assigned to the Administrative Support Center and coordinates the Human Resources functions for Pathology Laboratories' non-instructional staff (approximately 575 FTEs). She 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 Neil Lobron as Administrator for the Michigan Center for Translational Pathology and continues to oversee his 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 FY2007 amounted to approximately $23,542,261. This was accomplished using our automated UDS/UMS financial system with Mr. Harris and his staff, Courtney Kennedy and Jeff Green, playing key roles.

Administrative Specialist: Mrs. Catherine Bearman is responsible for Human Resource issues for staff in the Medical School (approximately 192 FTEs) including our House Officer Program (38 FTEs), Postdoctoral Fellows (42 FTEs), and graduate students (17). She also provides administrative oversight for staff in the Pathology Education Office and the faculty support staff in the Medical Science I Building.

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 four and five, and the pathology laboratories. In addition, he is responsible for building maintenance and minor renovation.

Office of the Chairman

Executive Assistant: Mrs. 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 FY2007, searches were initiated for the Director of Finance and Administration and several key faculty positions.

Administrative Specialist: Mrs. Laura Blythe provides staff support to the Administrator, Mr. Eugene J. Napolitan. She also serves as the human resource specialist for faculty affairs including processing of new faculty appointments, posting positions, re-appointments, credentialing, payroll, effort reporting, Continuing Medical Education expenses for faculty and

house officers, and other human resource functions. In addition, she is an editor for the department's website and supervises staff in the Office of the Chairman.

Pathology Professional Fee Billing Office

The combined Pathology/Radiology Billing Office is managed by Mrs. Janice Taylor. She oversees 26 FTE staff and is responsible for the coding, accounts receivable management, and collections of professional fees for services provided in the Department of Pathology faculty.

SUMMARY OF FINANCIAL DATA FOR FY2007

Grants and Contracts and Other Accounts

361 active grants, contracts and other accounts
*Includes General Fund, Extramural Funds, FGP Professional Fee Income, Gift, etc.

Total Extramural Direct Expenditures: $16,877,310

Indirect Extramural Research Expenditures: $ 6,664,951

Total Sponsored Projects: $23,542,261

Faculty Group Practice Plan–Pathology Associates

Number of charge entries: 204,844

Gross Billings–Anatomic and Clinical Pathology: $ 31,744,972

Net (FGP): $ 12,280,570

Part A Payment–Laboratory & Administrative Supervision: $ 2,883,040

All Fund Expenditures–Medical School

Compensation & Benefits: $ 28,020,991

Commodities & Other Costs: $ 12,944,103

Total: $ 40,965,095

Number of Funded Faculty: 96.4

Number of Funded Residents & Clinical Fellows: 38

Number of Funded FTE Research Staff: 154 (17 graduate students, 42 post-doctoral fellows)

Pathology Laboratories

Number of billed tests reported by CDM : 4,808,000

Total Gross Revenue–Pathology Laboratories: $374,295,878

Total Direct Expenses–Pathology Laboratories: $ 66,330,642

Number of FTE Staff: 575

Eugene J. Napolitan
Department Administrator

INDIVIDUAL FACULTY REPORTS

Gerald D. Abrams, M.D.

Professor Emeritus of Pathology

I. Clinical Activities

A. Pathologist, Cardiac Transplant Team. Transplant biopsies-3 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
1. Freshman Medical Class
   a) Co-director, Lecturer, General Pathology/Basic Concepts of Disease in Patients and Populations Sequence and Cardiovascular-respiratory Sequence 8 lecture hours.
   b) Multidisciplinary Conferences-2 contact hours.
   c) Co-director, Lecturer, Lab Instructor, Histopathology Sequence- 28 contact hours (4 lectures, 24 lab hours).
2. Sophomore Class
   a) Pathology Lab Instructor- all sequences, 50 contact hours
3. Hospital Conferences
   a) Cardiovascular Case Conference (with Cardiology Staff) – monthly
4. Community
   a) Organizer and Director of "Mini Med School", a 6-week course for the public, April-May, 2007
5. Production of Teaching Materials
   a) Syllabus and Website to accompany M-1 Pathology Lectures
   b) Syllabus and Website to accompany Histopathology Lab

B. LECTURES - See above

III. Research Activities

A. PROJECTS UNDER STUDY
1. Protection afforded by tetrathiomolybdate in toxic and immunologic injury, with G.J Brewer, Human Genetics
2. Pathogenesis of aortic aneurysms and aortic dissections, with D. Williams, Radiology

I. Administrative Activities

A. INSTITUTIONAL
1. Member, Component I Committee

II. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board, *Modern Pathology*
2. Reviewer, *J Neuro-ophthalmology*

B. INVITED LECTURES/SEMINARS
1. Learning in Retirement, May 8, 2007 Life on Man; Our Microbial Friends

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. AAAS
2. USCAP
3. Gastrointestinal Pathology Society
4. Michigan Society of Pathologists

III. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Kamath SH, Deeb GM, **Abrams GD**, Williams DM. Granulomatous aortitis with type A dissection and abdominal malperfusion; combined treatment with aortic fenestration and surgery. J Intervent Radiol 17(12); 1885-1889, 2006.
2. McCubbin MD, Hou G, **Abrams GD**, Dick R, Zhang Z, Brewer GJ. Tetrathiomolybdate is effective in a mouse model of arthritis. J Rheumatol 33(120) 2501-2506, 2006.

Thomas M. Annesley, Ph.D.

Professor of Pathology

I. Clinical Activities

A. Biochemistry Section, Clinical Pathology Laboratories.

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

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

D. Laboratory Director, Briarwood Family Practice Facility.

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

II. Teaching Activities

A. MEDICAL STUDENTS - None.

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 Pathology Grand Rounds
2. Clinical Pathology Didactic Lecture Series

F. OTHER - None.

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. Biochemistry Section, Clinical Pathology Laboratories.
2. Coordinator, Pathology Laboratory CME Program.

B. INSTITUTIONAL - None.

C. REGIONAL/NATIONAL/INTERNATIONAL
1. President, National Academy of Clinical Biochemistry.
2. Board of Directors, National Academy of Clinical Biochemistry.
3. Board of Directors, American Association for Clinical Chemistry.
4. Chair, Michigan Section, American Association for Clinical Chemistry
5. Executive Committee/Journal Management Group, Clinical Chemistry Journal.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. JOURNAL EDITORSHIPS
   a) Associate Editor, *Clinical Chemistry.*
2. EDITORIAL BOARDS
   a) *Clinical Chemistry*
   b) *Therapeutic Drug Monitoring*
   c) *Clinical Chemistry and Laboratory Medicine*
   d) *Clinical Biochemistry*
3. EDITORIAL REVIEW ACTIVITIES
   a) *Clinical Chemistry*
   b) *Therapeutic Drug Monitoring*
   c) *Clinical Biochemistry*
   d) *Clinical Chemistry and Laboratory Medicine*
   e) *Archives of Pathology and Laboratory Medicine*
   f) *Journal of Chromatography Biomedical Applications*

B. INVITED LECTURES/SEMINARS
1. "Clinical Mass Spectrometry: Interfacing of Mass Spectrometers with GC and HPLC Systems", University of Virginia, Charlottesville, Virginia, September 2006.
2. "Interfacing Mass Spectrometry with Gas Chromatography and High Performance Liquid Chromatography", Gustavus Adolphus College, Saint Peter, Minnesota, October 2006.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, American Association for Clinical Chemistry.
2. Member, Council of Scientific Editors.
3. Member, World Association of Medical Editors.
4. Member, National Academy of Clinical Biochemistry
5. Member, American Society for Mass Spectrometry.

6. Member, International Association of Therapeutic Drug Monitoring and Clinical Toxicology.

D. HONORS AND AWARDS
1. Appointed Deputy Editor, Clinical Chemistry, beginning October 2007.
2. Dubin Service Award, National Academy of Clinical Biochemistry.
3. Awardee, Marquis Who's Who in Science and Engineering.

VI. Publications

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

B. BOOKS/CHAPTERS IN BOOKS
None.

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

Henry Appelman, M.D.

M.R. Abell Professor of Pathology

I. 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 and laboratory 2 hours.
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

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. *Modern Pathology*, Editorial Board
2. *American Journal of Surgical Pathology*, Editorial Board
3. Reviewer for
   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?, Neoplastic and non-neoplastic lesions of the gastroesophageal junction, The role of the pathologist in the diagnosis and management of colitides. Pathology Update for Practicing Pathologists, American Society for Clinical Pathology, Vancouver, BC, Canada, July, 2006
2. "What are the minimal criteria for the diagnosis of high-grade dysplasia in Barrett's mucosa?", 8th Congress, OESO, Avignon, France, September 6, 2006
3. "Just Another Day on the GI Biopsy Service", with B.J McKenna, Annual Meeting, American Society for Clinical Pathology, Las Vegas, NE, Oct 20, 2006

4. "Mundane Cases in GI Pathology--Even the Non-Interesting Can Be Exciting. Microscopic tutorial, Annual Fall Meeting, American Society of Clinical Pathologists, Las Vegas, NE, October, 2006;
5. "Trendy and Unusual Gastrointestinal Biopsy Problems and Non-Problems", 56th Annual Slide Seminar, New Jersey Society of Pathologists, Holmdel, NJ, November 18, 2006
6. "Trendy and Unusual Gastrointestinal Biopsy Problems and Non-Problems" and slide seminar on problem cases from Israel and the University of Michigan, Institute of Pathology, Tel Aviv Medical Center, Tel Aviv, Israel, December 20, 2006
7. "A whirlwind review of colorectal carcinoma: a pathologist's perspective.", Surviving colorectal Cancer Symposium, The Cancer Center at Battle Creek Health System, Battle Creek, MI, March 3, 2007
8. Neoplastic diseases of the intestine, sponsored by the American Society of Clinical Pathologists. Scottsdale, AZ, May 2, 2007
9. "Histology of fundic gland polyps: Benign or malignant? Presented at the AGA Institute Clinical Symposium: PPIs, Hypergastrinemia and the fundic gland polyp: a harbinger of neoplastic events?, Washington, DC, May 22, 2007
10. Lectures on chronic inflammatory bowel diseases, gastrointestinal stromal tumors and non-endocrine appendiceal and anal neoplasms and slide seminar on gastrointestinal biopsies, Surgical Pathology Update 2007, The Japanese Division of the International Academy of Pathology and the Japanese Society of Pathology, Shonan International Village Center, Japan, June 22-24, 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology, 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. October, 2006: H.P. Smith Award for Distinguished Pathology Educator from the American Society for Clinical Pathology
2. July, 2006. Visiting Professor, Department of Pathology and Laboratory Medicine, the University of Illinois, Chicago, IL

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. McHugh JB, **Appelman HD**, McKenna BJ. The diagnostic value of endoscopic terminal ileum biopsies. Am J Gastroenterol. 102:1-6, 2007

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Golembeski CP, McKenna BJ, **Appelman HD.** Advanced adenomas: pathologists don't agree. Mod Pathol. 20(Supplement):115A, 2007

2. Purdy JK, Golembeski CP, **Appelman HD**, McKenna BJ. Lymphocytic esophagitis: what it is and what it is not. Mod Pathol. 20(Supplement):128A, 2007
3. Owen SR, **Appelman HD**. Intense mid-zone gastritis: an impressive disease in search of a syndrome. Gastroenterol 132(Supple 2):A-408, 200

Ulysses G. J. Balis, M.D.

Director of Pathology Clinical Informatics, Associate Professor of Pathology

I. Clinical Activities

A. Operational oversight of all Clinical Services provided by Pathology Data Systems (now known as Clinical Informatics)

B. Liaison activities with numerous standing committees within the greater health center, in support of Pathology Informatics
1. Careweb Clinical Advisory Committee - member
2. Ambulatory Care Information Search Committee - member
3. Long Term Committee for Outside Laboratory Results - Chair
4. UMHS/BCBS All Payers Repository Task Force - founding member

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Limin Ye, M.D. - preparative activities and mentoring sessions in support of an anticipated rotation in Pathology Informatics. Project under development: "Rational deployment of barcoding technologies in support of enhanced workflow, specimen tracking and patient safety for Anatomic Pathology."

B. LECTURES
1. Introduction to Pathology Informatics: a one hour segment as part of the established management lecture series.

III. Research Activities

None

IV. Administrative Activities

A. DEPARTMENTAL
1. Administrative Director of Clinical Informatics in Pathology (for a complete overview, see section report for pathology informatics)

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Association for Pathology Informatics: President for the 2007 calendar year

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. *Archives of Pathology and Laboratory Medicine* - Section Editor for Pathology Informatics
2. *BMC Bioinformatics* - Ad hoc reviewer
3. *Clinical Chemistry* - Ad hoc reviewer
4. *Molecular Diagnostics* - Ad hoc reviewer

B. INVITED LECTURES/SEMINARS

1. AACC/ISCC International Meeting for Informatics Innovations in Clinical Chemistry, Cairnes, Australia - Informatics Innovations in Clinical Laboratory Information Systems
2. APIII 2006, Vancouver - Computational Advances in Histopathologic Region of Interest based Query
3. Lab InfoTech Summit, March 2007 - Searching with Images and not Words
4. Lab InfoTEch Summit, March 2007 - The Federated Electronic Health Record (FEHR)
5. International Society for Laboratory Hematology 2007 - Hematology as a model subspecialty for the use of highly integrated reporting I.T. approaches

VI. Publications

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

1. Interviews:
   a) Inside Healthcare Computing - Automated detection of failed clinical handoffs of critical AP results.
   b) CAP Today, June 2007 - Handing of Critical Results -- Before Results Become Critical
2. Patents:
   a) Methods for detecting fetal abnormality
      Patent number US2007059716
      Publication date: 2007-03-15
      Inventor: BALIS ULYSSES (US); TONER MEHMET (US); KAPUR RAVI (US); WALSH JOHN (US)
   b) SYSTEM FOR DELIVERING A DILUTED SOLUTION
      Patent number: EP1765503
      Publication date: 2007-03-28
      Inventor: COSMAN MAURY D (US); KAPUR RAVI (US); CARVALHO BRUCE L (US); BARBER TOM (US); BALIS ULYSSES J (US); TONER MEHMET (US); HUANG LOTIEN RICHARD (US); GRAY DARREN S (US)Applicant: GEN HOSPITAL CORP (US); LIVING MICROSYSTEMS INC (US)
   c) SYSTEMS AND METHODS FOR ENRICHMENT OF ANALYTES
      Patent number: WO2007035585
      Publication date: 2007-03-29
      Inventor: KAPUR RAVI (US); TONER MEHMET (US); HUANG LOTIEN RICHARD (US); BARBER TOM (US); CARVALHO BRUCE (US); GRAY DARREN (US); BALIS ULYSSES (US); WALSH JOHN (US); GRISHAM

MICHAEL (US); TOMPKINS RON (US); SCHMIDT MARTIN (US)
Applicant: LIVING MICROSYSTEMS INC (US); GEN HOSPITAL CORP (US); KAPUR RAVI (US); TONER MEHMET (US); HUANG LOTIEN RICHARD (US); BARBER TOM (US); CARVALHO BRUCE (US); GRAY DARREN (US); BALIS ULYSSES (US); WALSH JOHN (US); GRISHAM MICHAEL (US); TOMPKINS RON (US); SCHMIDT MARTIN (US)

d) MAGNETIC DEVICE FOR ISOLATION OF CELLS AND BIOMOLECULES IN A MICROFLUIDIC ENVIRONMENT
Patent number: EP1776449
Publication date: 2007-04-25
Inventor: COSMAN MAURY D (US); KAPUR RAVI (US); CARVALHO BRUCE L (US); BARBER TOM (US); BALIS ULYSSES J (US); TONER MEHMET (US); HUANG LOTIEN RICHARD (US)
Applicant: GEN HOSPITAL CORP (US); LIVING MICROSYSTEMS INC (US)

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

Associate Professor of Pathology

I. Clinical Activities

A. Surgical Neuropathology and on call Service – 19 weeks
B. Brain Tumor Board – weekly
C. Autopsy Service including weekend autopsy calls – 48 days
D. All muscle and nerve biopsies at the UMHS and referred by other hospitals in- and out-of-state throughout the year (345 muscle biopsies and 78 nerve biopsies). 10% of muscle biopsies with EM, nearly 100% of nerve biopsies with EM and 12 with teasing. About 43 cases were tested with antidystrophy antibody or screened by IPOX and several other additional new techniques.
E. Diagnostic EM on skin for CADASIL and other various rare disorders, including other tissues, 15 cases.
F. Consulting on brain, muscle and nerve pathology, intradepartmental cases, VAH and other hospitals in MI and other states. 111 personal consults.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Weekly and monthly conferences with medical students rotating through the service.

B. 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 through the service.
   7. Tutoring of four neurology residents and one pathology resident on Neuropathology
   8. Helping a number of residents, fellows and faculty, practically anyone walking in my office, with a wide variety of requests – clinical and research, regarding humans and animals.
   9. Personal training of Dr. Sindhu Ramchandren, Neurology Fellow in muscle and nerve biopsy interpretation 1-2 hours weekly, planned for 5.5 months (Sept. – Dec.).

10. Personal training of Dr. James Dowling, Neurology Lecturer in muscle pathology one hour weekly, for about four months.

III. Research Activities

A. SPONSORED SUPPORT

1. Protein Interactions with CADASIL –Mutants of Notch 3. Principal Investigator, Michael M. Wang, M.D. 1R21 NS052681-01 A1, National Institute of Health. 7-01-06 through 6-30-2008. Mila Blaivas, M.D., Ph.D., Co-Investigator with 10% money effort. Budget $161,700.00.
2. Nanoparticle-enabled Brain Tumor Surgery. Principal Investigator, Daniel Orringer. F32 CA126295. Funding agency NCI. Grant mechanism: R21. Proposed dates of support 07/01/07 through 06/30/09. Mila Blaivas, M.D., Ph.D., Consultant with no money effort assigned. Funding not finalized.
3. The Role of Mig-2 in Myogenesis, Muscle Maintenance and Childhood Myopathy., PA-05-051, Principal Investigator, James J. Dowling, Lecturer. Submitted to NIAMS. Dates of proposed support 12-01-06 through 11-30-11. Total budget costs $642,600.00. Mila Blaivas, M.D., Consultant with no money effort assigned. Resubmitted and received a score.

B. PENDING PROJECTS

1. The Department of Health and Human Service "Accelerated animal model of CADASIL", 10% of the $550,000 as Co-Investigator Michael Mei-Hwa Wang:11-05-10-07, Ro-1 Grant submitted to NIH and McKay (Internal UM funding).
2. 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. Funding agency NCI. Grant mechanism: R21/R33. Proposed dates of support 9-1-06 through 8-31-10. Proposed total budget, $2,453,808.00. Mila Blaivas, M.D., Consultant with no money effort assigned. (Is being resubmitted)

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/REVIEWS

1. Ad-hoc reviewer for:
   a) *Archives of Pathology and Laboratory Medicine*
   b) *Archives of Ophthalmology*
   c) *Journal of Neurophthalmology*
   d) *Journal of Neuropathology*
   e) *Experimental Neurology.*

B. INVITED LECTURES/SEMINARS

1. Invited lecture "Guideline on Processing and Evaluation of Sural Nerve Biopsies" at European Neuromuscular Centre International Workshop in The Netherlands, 15-17 December 2006, but had to decline due to on-call duties, work obligations and lack of funds.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Gruis, KL, Teener, JW, and **Blaivas, M**. Pediatric macrophagic myofasciitis associated with motor delay. Clinical Neuropathology, 2006 Jul-Aug;25(4):172-9. Review. PMID: 16866298.
2. Hirunwiwatkul, P, Trobe JD., and **Blaivas, M**. Lymphoplasmacyte-rich meningioma mimicking idiopathic hypertrophic pachymeningitis. Journal of Neuro-Ophthalmology, 27(2):pp. 91-4, June 2007.
3. Gruis KL, **Blaivas M.** Presenting Symptom(s): Difficulty getting out of a chair. American Academy of Physical Medicine and Rehabilitation OnlineSeries, Case #84, January 2007 (emg8406a.htm).
4. Bapuraj JR, Parmar HA, **Blaivas M,** Muraszko KM. Imaging features of clear cell ependymoma of the spinal cord. Pediatric Radiology 37(4):pp. 384-7, April 2007.
5. Shuman A, Heth J, Marentette L, Muraszko K, **Blaivas M**. Extracranial nasopharyngeal craniopharyngioma: case report. Neurosurgery 60(4):E780-1, discussion E781, April 2007.

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

1. Gruis K, Teener J, **Blaivas M,** Utility of needle muscle biopsy to diagnosis of inclusion body myositis. Presented at AAN Meeting, April 28, 2007, Boston, MA.

Priscilla Chamberlain, M.D.

Clinical Instructor/Lecturer

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. 2.5 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
2. Off Hours (on call) coverage for the VA – AP / CP
3. 13 weeks

II. Teaching Activities

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

B. GRADUATE STUDENTS
1. Pathology Graudate 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)

a) **Research Activities –** None

IV. Administrative Activities

A. DEPARTMENTAL

1. VA MEDICAL CENTER PATHOLOGY DEPARTMENT
   a) Director of Cytopathology for VA Hospital
   b) High Grade pap clinical follow-up reporting
   c) QA review of concurrent SP cases
   d) Atypical pap review reporting
   e) Annual Cytology Report
   f) Cytopathology CME for all pathologists
   g) Medical Director Chemistry Laboratory
   h) Medical Director Microbiology/Immuno Laboratory
   i) Medical Director Ancillary Testing
   j) Medical Director Toledo Outpatient Laboratory
   k) Medical Director of Central Receiving
   l) 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,
   1. Overall laboratory supervision and administration,
   2. Equipment and methodology evaluation, review
   3. Consultation regarding quality management programs
   4. Personnel evaluation, counseling and grievance procedures

B. Hematology
   1. 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
   1. Daily interpretation of protein electrophoreses and problem ligand studies (6/months/year), VA Ann Arbor Healthcare System.

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

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology 600 laboratory

B. DENTAL STUDENTS – None

C. GRADUATE STUDENTS
   a) Pathology 581 lectures

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

E. 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) Principal Investigator, Chemokine Determinants of Pulmonary Immunity, VHA Merit, (125,000 direct costs annually, 2006-2009) Coinvestigator, 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. Effect of aging on T regulatory cell function in the lung Role of chemokine receptors in dendritic cell recruitment and activation and in vivo migration during innate stages of granuloma formation and Mycobacteria infection. 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
   2. Member of graduate student thesis committees.
   3. 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*
c) *Inflammation Research, Section Editor*
d) *American Journal of Respiratory Cell and Molecular Biology*
e) *Journal of Clinical Investigation*
f) *Journal of Leukocyte Biology*
g) *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 Service Award, November 2006
2. Department of Veterans Affairs Performance Award, January 2007

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Hu, J.S., Freeman, C.M, Stolberg, V.R., Chiu, B.C., Bridger, G. J., Fricker, S.P., Lukacs, N.W. and **Chensue, S.W.** AMD3465, a novel CXCR4 receptor antagonist, abrogates Schistosomal antigen-elicited (Type-2) pulmonary granuloma formation. Am. J. Pathol. 2006, 169:424-32.
2. Freeman, C.M, Stolberg, V.R., Chiu, B., Lukacs, N.K., Kunkel, S. L., and **Chensue, S.W.** CC chemokine receptor 4 (CCR4) participation in Th1 (Mycobacterial) and Th2 (Schistosomal) anamnestic pulmonary granulomatous responses J. Immunol. 2006, 177:4149-4158. (Cover Article).
3. Furtado, G.C., Pina, B., Tacke, F., Gaupp, S., van Rooijen, N., Moran, T.M., Randolph, G.J., Ransohoff, R.M., **Chensue, S.W.**, Raine, C.S., Lira, S.A. A novel model of demyelinating encephalomyelitis induced by monocytes and dendritic cells. J Immunol. 2006 177:6871-9.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Freeman, C.M., Curtis, J. L. and **Chensue, S. W.** CCR5, CXCR3, and CXCR6 Expression on Lung CD8+ T Cells and Corresponding Chemokine Production by Dendritic Cells Correlates With COPD Severity. American Thoracic Society, May 18-23, 2007, San Francisco, CA.
2. Chiu, B., Stolberg, V., and **Chensue, S.W**. Foxp3+ Treg Cell Activity increases in Secondary Lymphoid Organs of Aged Mice. American Association of Immunologists 9th annual meeting, Miami, FL published abstract J. Immunol., Apr 2007; 178: 88.25.

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

S.P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director of Research Informatics

I. Clinical Activities

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

II. Teaching Activities

A. MEDICAL STUDENTS

1. Mentor, Graduate/Medical Students: Scott Tomlins (MSTP, Pathology), Qi Cao (Pathology), Jianjun Yu (Bioinformatics), Julie Kim (Bioinformatics), Ronglai Shen (Biostatistics Masters Student), Laila Poisson (Biostatistics Masters Student) C.
2. Mentor, Undergraduate Students: Nicole Kasper, CMB Student, Benjamin Briggs, Honors Math Major, Mithel Pandi, Kalamazoo College, Beth Helgeson, Biology

B. GRADUATE STUDENTS

1. Pre-lim Committees, Bioinformatics Graduate Student, Lan Dai
2. Thesis Committees:
   a) Scott Tomlins, Pathology Graduate Program (Co-Chair)
   b) Qi Cao, Pathology Graduate Program (Chair)
   c) Julie Kim, Bioinformatics Graduate Program (Chair)
   d) Jianjun Yu, Bioinformatics Graduate Program (Chair)
   e) Meghan Brennan, Pathology Graduate Program
   f) Lei Wang, Biochemistry Graduate Program
   g) Dawei Liu, Biostatistics Graduate Program
   h) Greg Gurda, Physiology Graduate Program
   i) Jun Ma, Molecular Cellular and Developmental Biology Graduate Program

C. HOUSE OFFICERS AND FELLOWS

1. Mentor, Postdoctoral Fellows: Jindan Yu, Adaikkalam Vellaichamy, Xiaosong Wang, Nameeta Shah, T. Rajendrian, Ram Shankar
2. Mentor, Clinical Fellows: Tim Bradford, MD (Urology), David Morris, M.D.(Urology)

D. LECTURES

1. Instructor, Integrative Genomics, Physiol/Pharmacol/HumGen 555
2. Instructor, SBUR Science Course, AUA Meeting
3. Instructor, Cancer Biology 553

4. April 2007, Instructor, Special Course, "Advanced Molecular Pathology," USCAP 2007 Annual Meeting, San Diego, CA

E. OTHER
1. Mentor, Junior Faculty: David Hanauer, MD, MS (Pediatrics, Instructor), Sami Malek, MD (Assistant Professor, Internal Medicine), Soory Varmabally (Research Assistant Professor, Pathology), Arun Sreekumar (Research Assistant Professor, Pathology), Mohan Dhanasekaran (Research Investigator, Pathology), Daniel Rhodes (Research Investigator, Pathology), Rohit Mehra (Research Investigator, Pathology), Bharathi Laxman (Research Investigator)
2. Mentor, High School Students (Research Rotation): Pavan Ravipati (Novi High School), Rachel Sobel (Greenhills School), Santosh Shanmugam (Plymouth Canton High School)
3. Interviewed prospective MSTP, PIBS, and Bioinformatics students

III. Research Activities

A. SPONSORED SUPPORT
1. PI (2.4 cal), "The Role of Polycomb Group Proteins in Prostate Cancer", National Institute of Health, R01 CA97063, 07/01/02 – 06/30/07, $173,817 annual direct costs
2. Co-I (0.6 cal), "Protective Effects of Anti-C5a in Sepsis", National Institute of Health, GM61656 (PI: Ward), 12/01/01-11/30/06, $225,000 annual direct costs
3. Co-I (1.2 cal), "Functional Genomics Approach to Lethal Metastatic Prostate Cancer", P50 CA69568 (PI: Pienta), 5/01/03 - 05/31/08, $87,791 annual direct costs, S.P.O.R.E. in Prostate Cancer, Project 3 (PI Chinnaiyan)
4. Co-I (0.3 cal), Tissue/Informatics Core of the UM Prostate SPORE, NCI, SPORE in Prostate Cancer, A69568 (PI: Pienta), 07/01/03 - 05/30/08, 2.5%, $251,954 annual direct costs
5. Co-Investigator (1.2 cal), "Molecular Changes Associated with Prostate Carcinoma (PCa) Bone Metastases", R01 CA102872-01, NIH, (PI: Pienta), 09/24/03-08/31/07, 10%, $217,271 annual direct costs
6. PI (1.2 cal), "Epitomic Biomarkers of Prostate Cancer, U01 CA111275, 09/30/04-09/29/09, NIH, $404,077 annual direct costs
7. Co-Investigator (0.3 cal), "Protein Microarrays for the Humoral Response of Cancer", R01 CA106402 (PI: Lubman), NIH/NCI, 06/15/04-05/31/09, $83,694/yr
8. PI, Clinical Scientist in Translational Research, Burroughs Welcome Foundation 6/01/06- 6/01/11, $150,000 annual direct costs,
9. PI (0 cal), 2006 Prostate Cancer Foundation Award, "The Role of Gene Fusions in Prostate Cancer", $100,000 1/01/06- 1/01/07
10. PI, Supplement to U01 CA111275, $95,666 direct costs, 9/01/05 - 8/31/06
11. PI, Supplement to U01 CA111275, $660,000 direct costs, 11/01/05 - 0/31/06
12. PI (1.2 cal), "Integrative Proteomic Genomic Analysis of Prostate Cancer Progression", Department of Defense W81XWH-06-1-0224, $627,451 Total Costs
13. Co-I (0.12 cal), "Tissue microarray assessment of prostate cancer biomarkers MACR and EZH2 and immunologic response to them in African-American and Caucasian men", W81XWH-05-1-0173, Department of Defense, 3/7/05-3/6/08, $70,618 annual direct costs.
14. Co-I (0.24 cal), "Statistical Methods for the Analysis of Functional Genomics Data", 5 RO1 GM072007 (PI: Ghosh), NIH, 9/1/04-8/31/09, $146,473 annual direct costs.

15. Co-I (0.6 cal), National Center for Integrative Biomedical Informatics, 1 U54 DA021519-01A1 (PI: Athey), NIH, 9/25/05-7/31/10, $2,543,758 annual direct costs.
16. PI (0.18 cal), Gen-Probe Sponsored Research Agreement, Development of a Gene-fusion based urine test for prostate cancer. $2,000,000 total costs for 5 years.
17. PI (0 cal), 2007 Prostate Cancer Foundation Award, "The Role of Gene Fusions in Prostate Cancer", $100,000 2/01/07- 1/31/08

B. PENDING PROJECTS
1. PI, R01 CA097063 EZH2 Renewal, $1,250,000 total direct costs
2. PI, 2R01CA097063-06, $1,250,000 total direct costs
3. PI, R01 1R01CA132874-01, $1,250,000 total direct costs
4. PI, DOD IDEA Award, $375,000 total direct costs
5. PI, DOD BCRP Award, $500,000 total direct costs
6. Howard Hughes Medical Institute (HHMI) 2007 Investigator Competition in Patient-Oriented Research
7. SPORE Renewal Project and Tissue Core, $242,015 total direct costs
8. Department of Defense (DOD) Breast Cancer Research Program (BCRP) of Hope Scholar Award Semi-finalist, $2,500,000 total direct costs

C. PROJECTS UNDER STUDY
1. Gene Fusions/Translocations in Cancer
2. EZH2 and Cancer Epitgentics
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
4. Director of the Pathology Microarray Research Lab
5. Director, Pathology Proteomics Initiative

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
5. Committee, 2005
6. External Advisory Board Member, UCSF Breast SPORE (PI Joe Gray)
7. External Advisory Board Member, MD Anderson Ovarian SPORE (PI, G. Mills)
8. External Advisory Board Member, Johns Hopkins Prostate Cancer SPORE

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board for the following Journals: *Cancer Genomics and Proteomics, Cancer Informatics, Cancer Research*
2. Ad hoc reviewer for the following Journals: *Nature*, *PNAS*, *Nature Genetics, Nature Cancer Reviews, Nature Medicine, American Journal of Pathology, Journal of Biomedical Informatics*, *Cancer Research, Oncogene, Neoplasia, Cell Death & Differentiation*, *Cytokine, Clinical Cancer Research, Molecular Diagnosis, BMC Cancer, Urology, Cancer Cell,* and the *Journal of Biological Chemistry.*

B. INVITED LECTURES/SEMINARS
1. Progress in Cytogenetics: 50 Years and 46 chromosomes, Invited Speaker, NIH, Bethesda, MD, July 20, 2006.
2. Evanston Northwestern Healthcare, Medical Grand Rounds, Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer." Evanston, IL, August 11, 2006.
3. RSNA/SMI Pre-Conference Symposium, Invited Speaker, "Molecular Biomarkers." Waikoloa, HI, August 30, 2006.
4. AACR Molecular Diagnostic Conference. Invited Speaker, "Recurrent Gene Fusions in Prostate Cancer." Chicago, IL, September 12, 2006.
5. Prostate Cancer Foundation 13th Annual Scientific Retreat. Invited Speaker, "Recurrent Gene Fusions in Prostate Cancer." Scottsdale, AZ, October 19, 2006.
6. GTCbio 3rd Annual Tumor Progression and Therapeutic Resistance Conference. Invited Speaker, "Bioinformatics as an Engine for Oncology Discovery." Baltimore, MD, October 24, 2006.
7. Yale University Grand Rounds. Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer Using Bioinformatics." New Haven, CT, November 2, 2006.
8. Huntsman Cancer Institute Seminar Series, University of Utah. Invited Speaker, "Integrative Molecular Approaches to Study Cancer." Salt Lake City, UT, November 15, 2006.
9. Stanford University School of Medicine Cancer/Tumor Biology Seminar Series. Invited Speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer." Stanford, CA, December 5, 2006.

10. AACR Special Conference in Cancer Research, Innovations in Prostate Cancer Research. Invited Speaker, "Recurrent Gene Fusions in Prostate Cancer." San Francisco, CA, December 7, 2006.
11. Case Comprehensive Cancer Center Blood Club Seminar, Case Western Reserve University School of Medicine. Invited Speaker, "Recurrent Fusion of TMPRSS2 and ETS Transcription Factor Genes in Prostate Cancer." Cleveland, OH, January 5, 2007.
12. University of California San Francisco, Department of Urology Conference, Active Surveillance for Early State Prostate Cancer. Invited Speaker, "Recurrent Gene Fusions in Prostate Cancer." San Francisco, CA, January 12, 2007.
13. Gordon Research Conference, New Frontiers in Cancer Detection and Diagnosis. Session Co-leader and Speaker, "Genomic Biomarkers of Prostate Cancer." Ventura, CA, January 23, 2007.
14. The Michigan Difference Seminars in Florida. Faculty Presenter, "Zeroing in on the Cause of Prostate Cancer." West Palm Beach, FL, February 6, 2007 and Naples, Florida, February 8, 2007.
15. AAAS Annual Meeting. Invited speaker "Autoantibodies as Predictors of Cancer." San Francisco, CA, February 17, 2007.
16. ASCO Prostate Cancer Symposium. Invited speaker, "Molecular Markers: Diagnosis and Prognosis." Orlando, FL, February 22, 2007.
17. USCAP 2007 Annual Meeting. Invited speaker and Ramzi Cotran Young Investigator Award recipient "Recurrent Gene Fusions in Prostate Cancer." San Diego, CA, March 27, 2007.
18. Memorial Sloan-Kettering Cancer Center Seminar Series, Invited speaker, "Discovery of Recurrent Gene Fusions in Prostate Cancer", Boston, MA, April 11, 2007.
19. AACR 2007 Annual Meeting. Invited speaker, Education Session “Plasma Biomarkers for Early Detection: Realities and Dreams", presentation "New Markers for Early Detection of Prostate Cancer Based on Auto-Antibodies and Auto-Antigens in Serum of Prostate Cancer Patients", Los Angeles, CA, April 14, 2007.
20. AACR 2007 Annual Meeting. Invited speaker, "Molecular Classification for Understanding and Treating Cancer", Los Angeles, CA, April 15, 2007.
21. AACR 2007 Annual Meeting. Invited speaker, Major Symposia "Oncogenomics", presentation "Bioinformatics as a Discovery Engine for Oncology", Los Angeles, CA, April 16, 2007.
22. AUA Annual Meeting, Luminary Dinner. Dinner presentation on the TMPRSS2 gene translocations, Anaheim, CA, May 21, 2007.
23. Memorial Sloan Kettering Cancer Center, New York, New York, Invited Speaker, "Bioinformatics as an Engine for Cancer Gene Discovery", May 23, 2007.
24. Days of Molecular Medicine, Boston, Maine, Invited speaker, "Bioinformatics as an Engine for Oncology Discovery", May 24, 2007.
25. Endocrine Society's 89th Annual Meeting, Invited Speaker, New Technology lecture: "Comparative Oncogenomics for Gene Discovery", Toronto, Canada, June 2, 2007.
26. 19th Pezcoller Symposium, Invited Speaker, Session V: New Opportunities, “Bioinformatics as an Engine for Oncology Discovery", Verona, Italy, July 16, 2007.

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)2004 – present Member, United States and Canadian Academy of Pathology (USCAP)
15. 2004 – present Member, Michigan Society of Pathologists (MSP)
16. 2005 – present Member, Association for Pathology Informatics (API)
17. 2005 – present Affiliate Member, American Urological Association (AUA)
18. 2006 – present Member, American Society of Clinical Investigation (ASCI)

D. HONORS AND AWARDS

1. United States and Canadian Academy of Pathology (USCAP) Ramzi Cotran Young Investigator Award, April 2007
2. Society of American Asian Scientists in Cancer Research Award, April 2007
3. Inaugural American Association for Cancer Research (AACR) Team Science Award, April 2007
4. D. Wayne Calloway Visiting Lecturer Award, Memorial Sloan-Kettering Cancer Center, May 2007
5. 2007 National Cancer Institute SPORE Outstanding Investigator Award, July 2007

E. PATENTS

1. U.S. Provisional Application Serial no. 60/309,581 filed 8/02/01 and U.S. Provisional Application Serial no. 60/334,468 filed 11/15/01, "Prostate Cancer Biomarkers"
2. U.S. Patent Application No. 09/734,628 COMPOSITIONS AND METHODS FOR IN SITU AND IN VIVO IMAGING OF CELLS AND TISSUES; Filing Date: December 11, 2000; Attorney Docket No.: UM 07825 University of Michigan Filing No.: 1850
3. U.S. Patent Application . University of Michigan, Using High-density Phage Epitope Microarray to Profile the Humoral Immune Response to Human Disease (filed June 9, 2004): PCT/US2005/20107
4. U.S. Patent Application. University of Michigan, Identification of Recurrent Gene fusions in prostate cancer (filed September, 2005)
5. U.S. Patent Application. University of Michigan, Protein MicroArrays Using a Liquid Phase Fractionation of Cell Lysates (filed January, 2003): PCT/US04/00774
6. U.S. Patent Application. University of Michigan, Differential Phosphoprotein Mapping in Cancer Cells Using Protein Microarrays Produced From 2-D Liquid Fractionation (filed March, 2005)
7. U.S. Patent Application. University of Michigan, Methods of Diagnosing Breast Cancer (filed June, 2005): PA 60/687,764
8. U.S. Patent Application. University of Michigan, Urine Biomarker for Prostate Cancer (filed July, 2004): PCT/US05/27223

F. COMMERCIALIZATION ACTIVITIES
1. Co-Founder of the University of Michigan spin-off company, Compendia Biosciences, Inc.
2. In collaboration with U of M Technology Transfer licensed prostate gene fusion technology to Gen-Probe, Inc. to develop a prostate cancer diagnostic.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Taylor BS, Varambally S. **Chinnaiyan AM.** A Systems Approach to Model Metastatic Progression. *Cancer Research* 2006 Jun 1;66(11):5537-9.
2. Haas CS, Creighton CJ, PI X, Maine I, Koch AE, Haines GK III, Ling S, **Chinnaiyan AM**, Holoshitz J. Identification of genes modulated in rheumatoid arthritis using complementary DNA microarray analysis of lymphoblastoid B cell lines from disease-discordant monozygotic twins. *Arthritis Rheum*. 2006 Jun 27;54(7):2047-2060.
3. Tomlins SA, **Chinnaiyan AM.** Of Mice and Men: Cancer gene discovery using comparative oncogenomics. *Cancer Cell.* 2006 Jul;10(1):2-4.
4. Shen R, Ghosh D, **Chinnaiyan AM**, Meng Z. Eigengene Based Linear Discriminant Model for Tumor Classification Using Gene Expression Microarray Data. *Bioinformatics.* 2006 Aug.
5. Taylor BS, Varambally S, **Chinnaiyan AM**. Differential proteomic alterations between localised and metastatic prostate cancer. *Br J Cancer*. 2006 Aug 21;95(4):425-30. Aug 1. Review.
6. Perner S, Demichelis F, Beroukhim R, Schmidt FH, Mosquera JM, Setlur S, Tchinda J, Tomlins SA, Hofer MD, Pienta KG, Kuefer R, Vessella R, Sun XW, Meyerson M, Lee C, Sellers WR, **Chinnaiyan AM**, Rubin MA. TMPRSS2:ERG Fusion-Associated Deletions Provide Insight into the Heterogeneity of Prostate Cancer. *Cancer Res*. 2006 Sep 1;66(17):8337-41.
7. Rubin MA, **Chinnaiyan AM**. Bioinformatics approach leads to the discovery of the TMPRSS2:ETS gene fusion in prostate cancer. *Lab Invest*. 2006 Nov;86(11):1099-102.
8. Kumar-Sinha C, Tomlins SA, **Chinnaiyan AM**. Evidence of recurrent gene fusions in common epithelial tumors. *Trends Mol Med*. 2006 Nov;12(11):529-36. Epub 2006 Sep 29.
9. Laxman B, Tomlins SA, Mehra R, Morris DS, Wang L, Helgeson BE, Shah RB, Rubin MA, Wei JT, **Chinnaiyan AM**. Noninvasive detection of TMPRSS2:ERG fusion transcripts in the urine of men with prostate cancer. *Neoplasia*. 2006 Oct;8(10):885-8.
10. Nyati MK, Feng FY, Maheshwari D, Varambally S, Zielske SP, Ahsan A, Chun PY, Arora VA, Davis MA, Jung M, Ljungman M, Canman CE, **Chinnaiyan AM**, Lawrence TS.. Ataxia telangiectasia mutated down-regulates phospho-extracellular signal-regulated kinase 1/2 via activation of MKP-1 in response to radiation. *Cancer Res.* 2006 Dec15;66(24):11554-9.
11. Tomlins SA, Mehra R, Rhodes DR, Cao X, Wang L, Dhanasekaran SM, Kalyana-Sundaram S, Wei JT, Rubin MA, Pienta KJ, Shah RB, **Chinnaiyan AM**. Integrative molecular concept modeling of prostate cancer progression. *Nat Genet.* 2007 Jan;39(1):41-51.
12. Fiskus W, Pranpat M, Balasis M, Herger B, Rao R, **Chinnaiyan AM**, Atadja P, Bhalla K. Histone deacetylase inhibitors deplete enhancer of zeste 2 and associated

polycomb repressive complex 2 proteins in human acute leukemia cells. *Mol Cancer Ther.* 2006 Dec;5(12):3096-104.
13. Feng FY, Varambally S, Tomlins SA, Chun PY, Lopez CA, Li X, Davis MA, **Chinnaiyan AM**, Lawrence TS, Nyati MK. Role of epidermal growth factor receptor degradation in gemcitabine-mediated cytotoxicity. *Oncogene*. 2006 Dec 4; [Epub ahead of print]
14. Molinaro RJ, Jha BK, Malathi K, Varambally S, **Chinnaiyan AM**, Silverman RH. Selection and cloning of poly(rC)-binding protein 2 and Raf kinase inhibitor protein RNA activators of 2',5'-oligoadenylate synthetase from prostate cancer cells. *Nucleic Acids Res*. 2006;34(22):6684-95.
15. Bradford TJ, Tomlins SA, Wang X, **Chinnaiyan AM**. Molecular markers of prostate cancer. *Urol Oncol*. 2006 Nov-Dec;24(6):538-51.
16. Mathew, P, Taylor BS, Bader GD, Pyarajan S, Antoniotti M, **Chinnaiyan AM**, Sander S, Burakoff SJ, Mishra B. From Bytes to Bedside: Data Integration and Computational Biology for Translational Cancer Research. *PLoS Comput Biol*. 2007 Feb, 3(2).
17. Rhodes DR, Kalyana-Sundaram S, Mahavisno V, Varambally R, Yu J, Briggs BB, Barrette TR, Anstet M, Kincead-Beal C, Kulkarni P, Varambally S, Ghosh D, **Chinnaiyan AM**. Oncomine 3.0: Genes, Pathways and Networks in a Collection of 18,000+ Cancer Gene Expression Profiles. *Neoplasia*, 2007 Feb;9(2):166-80.
18. Demichelis F, Fall K, Perner S, O Andre´ Schmidt F, Setlur SR, Hoshida Y, Mosquera J-M, Pawitan Lee C., Adami H-O, Mucci LA, Kantoff PW, , Andersson SO, **Chinnaiyan AM**, Johansson J-E and Rubin MA. TMPRSS2:ERG gene fusion associated with lethal prostate cancer in a watchful waiting cohort, *Oncogene*, 2007, Jan 22;1-4. [Epub ahead of print]
19. Perner S, Mosquera JM, Demichelis F, Hofer MD, Paris PL, Simko S, Collins C, Bismar TA, **Chinnaiyan AM**, De Marzo A, and Rubin MA. TMPRSS2-ERG Fusion Prostate Cancer: an early molecular event associated with invasion. *Am J Surg Pathol.* 2007 Jun;31(6):882-888.
20. Ghosh D, **Chinnaiyan AM**. Empirical Bayes identification of tumor progression genes from microarray data. *Biom J,* 2007 Feb.; 49(1):68-77.
21. Mehra R, Tomlins SA, Shen R, Nadeem O, Wang L, Wei JT, Pienta KJ, Ghosh D, Rubin MA, **Chinnaiyan AM**, Shah RB. Comprehensive assessment of TMPRSS2 and ETS family gene aberrations in clinically localized prostate cancer. *Mod Pathol.* 2007 Mar 2. [Epub ahead of print]
22. Hanauer DA, Rhodes DR, Sinha-Kumar C, **Chinnaiyan AM**. Bioinformatics approaches in the study of cancer. *Curr Mol Med.* 2007 Feb;7(1):133-41.
23. Mosquera JM, Perner S, Demichelis F, Kim R, Hofer M, Mertz K, Paris P, Simko J, Collins C, Bismar T, **Chinnaiyan AM**, Rubin M. Morphological features of TMPRSS2-ERG gene fusion prostate cancer. *J Pathol.* 2007 Mar 23. [Epub ahead of print]
24. 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 Research, 2007*. (In Press.)
25. 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*. (In Press.)

26. Morris DS, Tomlins SA, Rhodes DR, Mehra R, Shah RB, **Chinnaiyan AM**. Integrating biomedical knowledge to model pathways of prostate cancer progression. *Cell Cycle*. 2007 May;6(10):1177-87.
27. Rhodes DR, Kalyana-Sundaram S, Tomlins SA, Mahavisno V, Kasper N, Varambally R, Barrette TR, Ghosh D, Varambally S, **Chinnaiyan AM**. Molecular concepts analysis links tumors, pathways, mechanisms, and drugs. *Neoplasia*. 2007 May;9(5):443-54.
28. Yu J, Yu J, Almal AA, Dhanasekaran SM, Ghosh D, Worzel WP, **Chinnaiyan AM**. Feature selection and molecular classification of cancer using genetic programming. *Neoplasia*. 2007 Apr;9(4):292-303.
29. Chen G, Wang X, Yu J, Varambally S, Yu J, Thomas DG, Lin MY, Vishnu P, Wang Z, Wang R, Fielhauer J, Ghosh D, Giordano TJ, Giacherio D, Chang AC, Orringer MB, El-Hefnawy T, Bigbee WL, Beer DG, **Chinnaiyan AM**. Autoantibody profiles reveal ubiquilin 1 as a humoral immune response target in lung adenocarcinoma. *Cancer Res.* 2007 Apr 1;67(7):3461-7.
30. Mehra R, Tomlins SA, Shen R, Nadeem O, Wang L, Wei JT, Pienta KJ, Ghosh D, Rubin MA, Chinnaiyan AM, Shah RB. Comprehensive assessment of TMPRSS2 and ETS family gene aberrations in clinically localized prostate cancer. *Mod Pathol.* 2007 May;20(5):538-44. Epub 2007 Mar 2.

B. 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.

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. Laboratory mentor and dissertation committee chair for Neali Hendrix-Lucas (PIBS, Cho laboratory). Ms. Hendrix-Lucas successfully defended her thesis in 04/07; Ph.D. in Molecular and Cellular Pathology to be awarded 08/07.
2. Co-mentor and dissertation committee chair for Scott Tomlins (MSTP, Chinnaiyan laboratory). Thesis defense scheduled for 08/21/07.
3. Dissertation committee member for Karolyn Oetjen (MSTP, Duckett laboratory)

B. HOUSE OFFICERS AND FELLOWS

1. Gynecological pathology case sign-out (11 weeks)
2. Two staff consult conferences (one hour each)
3. Didactic conference - review of endometrial pathology (one hour)
4. Supervised one month elective in gynecological pathology for Chris Przybycin (PGY4)
5. Research mentor for Navneet Sangha, Ph.D., postdoctoral fellow, Cho laboratory

C. LECTURES

1. Molecular Mechanisms of Disease Program, UM Medical School, "Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinoma", October 2006
2. Pathology Research Seminar, "Of Mice and (Wo)men: Tales of Ovarian Cancer Pathogenesis", December 2006
3. AP Grand Rounds, Endometrial Pathology Review, March 2007

4. Cancer Genetics Program Seminar, UM Comprehensive Cancer Center, "Mouse Models of Ovarian Cancer", March 2007.

D. OTHER
1. Research/laboratory supervisor for the following UM undergraduate students:
   a) Kit Yuen, UROP student - part time research assistant, Cho laboratory, 2006-07 academic year; full time research assistant, summer 2007
   b) Diane Fiander, recent UM graduate - part time research assistant, Cho laboratory, 2006-07 academic year; full time research assistant, summer 2007

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NCI RO1 CA 94172 (Cho: PI) , 02/01/02 – 01/31/07 (02/01/07 – 01/31/08 is one year NO COST extension) 2.4 calendar (20% effort) Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)
2. NIH/NCI RO1 CA10010 (Lubman: PI, Cho: Co-I) 04/15/03 – 04/14/08 .36 calendar (3% 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 ß-catenin/Tcf Pathway Defects in Cancer
7. University of Michigan Biomedical Research Council (Cho: PI), 02/01/07 – 01/31/08, $80,000 direct costs, Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinoma The purpose of this grant is to provide bridge funding for laboratory personnel and studies related to RO1 CA94172 during the six-month funding lapse. Funds include $40,000 from the BMRC and a requisite $40,000 departmental match.

B. PENDING PROJECTS
1. NIH/NCI RO1 CA 94172A1 (Cho: PI) 07/01/07 – 06/30/12 2.4 calendar (20% effort requested) $225,000 annual direct costs requested Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs) * This proposal received a priority score of 111 (0.6 percentile) at the CAMP study section 01/07.
2. ARMY, Department of the Defense (DoD) Ovarian Cancer Research Program (OCRP) Concept Award, W81XWH-07-OCRP-CA KAD,074573 (Cho: PI) 04/01/08 – 03/31/09 0.6 calendar (5% effort requested) $75,000 direct costs requested Developing histologic type-specific mouse models of ovarian cancer - Role of p53 and NF1 in the pathogenesis of ovarian serous carcinoma
3. ARMY, Department of Defense (DoD) OC073443 (Cho: PI) Ovarian Cancer Research Program (OCRP) Translational Research Partnership Award – invited to

submit full proposal due 08/09/07 XX/XX/08 – XX/XX/11 1.8 calendar (15% effort to be requested) $250,000 direct costs to be requested Development of Mouse Models of Ovarian Cancer for Studying Tumor Biology and Testing Novel Molecularly Targeted Therapeutic Strategies

4. University of Michigan New Pilot and Collaborative Grant Program for Translational and Clinical Research (Cho: PI) $100,000 direct costs requested Role of p53 and NF1 in the pathogenesis of ovarian serous carcinoma – development of mouse models for preclinical testing of novel therapeutics

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/ß-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; alternate member 2007 - present.
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

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a) 1996-present *International Journal of Gynecological Pathology*
   b) 1996-present *Human Pathology*
   c) 1999-present *Clinical Cancer Research (Associate Editor)*
   d) 2000-present *Cancer Research (Associate Editor)*

e) 2000-present *Diagnostic Molecular Pathology*
f) 2007-present *Clinical and Translational Science*

B. INVITED LECTURES/SEMINARS
1. Department of Pathology Grand Rounds, Invited Speaker, "Ovarian Cancer: Insights from Molecular Profiling", Stanford University, Palo Alto, California, January, 2006.
2. 5th Spring Seminar of the Korean Pathologists Association of North American, Invited Speaker, "Molecular Analysis of Gynecological Cancers", Atlanta, Georgia, February, 2006.
3. Vanderbilt-Ingram Cancer Center Seminar Series, Invited Speaker, "Of Mice and (Wo)men: Tales of Ovarian Cancer Pathogenesis", Vanderbilt University, Nashville, Tennessee, May, 2006.
4. Department of Pathology, Molecular Pathology Seminar Series, "Of Mice and (Wo)men: Tales of Ovarian Cancer Pathogenesis", The Johns Hopkins Medical Institutions, Baltimore, Maryland, June, 2006.
5. Annual Symposium of the International Society of Gynecological Pathologists, "Molecular Biology of Ovarian Cancer with Morphological Correlation", United States and Canadian Academy of Pathology, AnnualMeeting, San Diego, California, March, 2007.
6. 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.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. 1990 –present Member, USCAP
2. 1995 –present Member, International Society of Gynecological Pathologists
3. 2003 –present **Secretary**, International Society of Gynecological Pathologists
4. 1995 –present Member, American Association for Cancer Research
5. 1994 –present Member, American Society for Investigative Pathology
6. 2000 –present Member, American Society for Clinical Investigation
7. 2006 –present **Councilor**, American Society for Investigative Pathology (3 year term)
8. 2007 –present Michigan Society of Pathologists

D. HONORS AND AWARDS
1. Sponsor of 1st place abstract (submitted by pre-doctoral student Neali Hendrix), University of Michigan Comprehensive Cancer Center Annual Fall Symposium, November, 2006.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Wang Y, Wu R, **Cho KR,** Shedden KA, Barder TJ, and Lubman DM.Classification of cancer cell lines using an automated 2-D liquid mapping method with hierarchical clustering techniques. Molecular & Cellular Proteomics 5:43-52, 2006.
2. Hendrix, N, Wu R, Kuick R, Schwartz DR, Fearon ER, and **Cho KR.** FGF9 has oncogenic activity and is a downstream target of Wnt signaling in ovarian endometrioid adenocarcinomas. Cancer Research 66:1354-62, 2006.

3. Greer BE, Koh WJ, Abu-Rustum N, Bookman MA, Bristow RE, Campos S, **Cho KR**, Copeland L, Eifel P, Jaggernauth W, Jhingran A, Kapp DS, Kavanagh J, Lipscomb GH, Lurain JR 3rd, Morgan RJ Jr, Nag S, Partridge EE, Powell CB, Remmenga SW, Reynolds RK, Small W Jr, Soper J, Teng, N. Uterine cancers. Journal of the National Comprehensive Cancer Network, 4:438-62, 2006.
4. Zhu Y, Wu R, Sangha N, **Cho KR,** Shedden K, Katabuchi H, and Lubman DM. Classification of ovarian cancer tissues by proteomic patterns. Proteomics 6:584656, 2006.
5. 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/b-catenin/T-cell factor signaling in neoplastic transformation. Cancer Research 67:482-91, 2007.
6. 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/b-catenin and PI3K/Pten signaling pathways. Cancer Cell 11:321-33, 2007.
7. 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 (pending revision).

Laura L. W. Cooling, M.D.

Assistant Professor of Pathology
Associate Director, Blood Bank

I. Clinical Activities

A. Associate Medical Director, Transfusion Medicine
B. Blood Bank, clinical coverage and administration
C. Bone Marrow/Peripheral Stem Cell Collection and Processing
D. Clinical Consultation/Management, Special Product Requests
E. Clinical Coverage, Therapeutic Apheresis

II. Teaching Activities

A. MEDICAL STUDENTS - None
B. HOUSE OFFICERS AND FELLOWS
   1. Resident Education
      a) Responsible/Share didactic teaching activities for the following:
         (1) Blood Component Therapy
         (2) Transfusion Reaction Evaluation
         (3) Evaluation and management of platelet refractoriness
         (4) Fundamentals of Clinical Apheresis (with nursing staff)
         (5) Evaluation and Management of Therapeutic Apheresis Requests
         (6) Administrative Issues on-call
      b) Clinical Teaching
         (1) Supervision Resident/ Fellow Activities (6 mo/yr)
            (a) Morning Report
            (b) Transfusion reaction sign-out
            (c) Clinical apheresis requests/patient management
            (d) Special product request evaluation and clinical follow-up
            (e) Case-based informal teaching
         (2) Other Clinical Teaching: non-pathology housestaff
         (3) Resident Applicant Interviews.

C. 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 – None

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 and Apheresis Director, Stem Cell Processing

B. INSTITUTIONAL
1. Medical School Admissions Committee Hospital Transfusion Subcommittee Data Analysis Council

V. Other Relevant Activities

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

B. INVITED LECTURES/SEMINARS
1. 8/2006, AABB Audioconference Series: Transfusion When Nothing is Compatible: Evaluating and Managing Risk. Faculty.
2. 10/2006, American Association of Blood Banks Annual Meeting, Miami, FL. The b1,3 galactosyltransferase V promoter region contains several hematopoietic transcription factor binding sites and is species-specific.
3. 10/2006, Ask the Experts. American Association of Blood Banks Annual Meeting, Miami, FL. Faculty.
4. 3/2007, Molecular Biology for Dummies. Immunohematology Reference Laboratory Spring Conference, American Association of Blood Banks, San Diego, CA.
5. 3/2007, Transfusion when nothing is compatible. Immunohematology Reference Laboratory Spring Conference, American Association of Blood Banks, San Diego, CA.

6. 4/2007, Transfusion reactions: Complications and Toxicity of progenitor/stem cell infusions. Hospital Blood Bank Supervisor's Association (BBSA) Spring Symposium, New York, NY.
7. 4/2007, Transfusion when nothing is compatible. Ron Durbin Lecture, Hospital Blood Bank Supervisor's Association (BBSA) Spring Symposium, New York, NY.
8. 4/2007, Transfusing incompatible blood. Mid-Atlantic Blood Bank Association (MAABB), Williamsburg, VA.
9. 6/2007, The nuts and bolts of molecular biology: It will be our future. Current Topics in Blood Banking, University of Michigan, MI.

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

D. HONORS AND AWARDS
1. Ron Durbin Memorial Award, Hospital Blood Bank Supervisor's Association of New York

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Curtis RB, Aster RH, **Cooling LW**. Expression of ABH antigens on platelets. Blood 2006;107:842-843.
2. **Cooling L**. ABO and Platelet Transfusion Therapy. Immunohematology 2007;23:20-33.
3. Chao MM, Levine JE, Ferrara JM, **Cooling L**, Cooke KR, Hutchinson RJ, Yanik GA. Successful treatment of refractory immune hemolysis following unrelated cord blood transplant with Campath-1H. Ped Blood Cancer (in press).

B. BOOKS/CHAPTERS IN BOOKS
1. **Cooling L,** Gorlin J. Transfusion reactions associated with hematopoietic progenitor cell reinfusion. In Transfusion Reactions, 3rd edition, ed. M Popovosky. AABB Press, Bethesda, MD: 301-330.
2. **Cooling L.** Carbohydrate-based blood groups and collections. In Practical Guide to Transfusion Medicine, 2nd edition. AABB Press, Bethesda, MD: pp 59-91.
3. **Cooling L.** Polypeptide blood groups. In Practical Guide to Transfusion Medicine, 2nd edition. AABB Press, Bethesda, MD: pp 93-132.
4. **Cooling L**. ABO, H, Lewis, I and P blood groups. In Technical Manual, 16th edition. AABB Press, Bethesda, MD. 2008 (in press).

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

1. **Cooling L,** Hwang D, Shayman JA. The b1,3 galactosyltransferase V promoter region contains several hematopoietic transcription factor binding sites and is species-specific. Transfusion 2006;46(S):S86-040E.
2. 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. (submitted)
3. **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! (submitted)
4. **Cooling LW**, Thomas R, Mullis N, Shayman JA, Judd J. A LKE-negative phenotype due to an apparent weak P phenotype. (submitted)
5. **Cooling LW**, Butch S, downs T, Davenport R. Isoagglutinin titers in pooled group O platelets are comparable to apheresis platelets. (submitted)
6. **Cooling LW**, Smith M, Luoma T, Bahodori A, Koerner T, Shayman JA. Distinct platelet glycotypes in normal platelet donors: correlation with HLA B7. (submitted)
7. **Cooling LW**, Shayman JA. Expression of a LKE-related globo-glycosphingolipid in platelets is dependent on specific platelet glycotypes. (submitted) **Cooling LW**, Smith M, Shayman JA. Repeated plateletpheresis can alter platelet glycosphingolipid synthesis in some donors. (submitted).
8. Hoffman S, Herst M, Butch S**, Cooling LW.** Prestorage Leukocyte Reduced, CMV Untested Blood Components are Safe for Use in CMV Negative Allogeneic Bone Marrow Transplant Recipients. (submitted)

Robertson D. Davenport, M.D.

Associate Professor
Director of Blood Bank and Transfusion Services

I. Clinical Activities

A. Medical Director, Blood Bank and Transfusion Service.
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. Hematology fellows, blood transfusion.
   5. 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. Otsuka America Pharmaceutical, Inc. A Prospective, Randomized, Double-Blinded, Placebo (Sham)-Controlled Study to Evaluate the Safety and Effectiveness of the Adacolumn Apheresis System for the Treatment of Moderate to Severe Crohn's Disease. Co-Investigator, $37,500. 5/1/06 – present.

B. PROJECTS UNDER STUDY
   1. Apheresis in the treatment of inflammatory bowelPrediction of clinical significance of red cell antibodiesPrevalence of pre-operative anemia

IV. Administrative Activities

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

2. Medical Director, Blood Bank and Transfusion Service

B. INSTITUTIONAL
1. Chair, Transfusion Committee
2. Member, Institutional Review Board

C. REGIONAL/NATIONAL/INTERNATIONAL
1. National Institutes of Health, Erythrocyte and Leukocyte Biology Study Section, Ad hoc member
2. National Institutes of Health, Hematology Small Business Activities [SBIR/STTR] Special Emphasis Panel

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board, *Transfusion*
2.

B. INVITED LECTURES/SEMINARS
1. Clinically Adverse Transfusion Outcomes. AABB Annual Meeting, Maimi Beach, FL, October 21, 2006.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. AABB: Clinical Transfusion Medicine Committee

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**, Mintz PD. Transfusion Medicine. In: Hutchinson R (ed): Henry's Clinical Diagnosis and Management by Laboratory Methods, 21st Edition. Elsevier, Philadelphia, PA. 2007.
2. **Davenport RD**: Hemolytic reactions. In: Popovsky MD (ed.): Transfusion Reactions 3nd ed. AABB Press, Bethesda, MD. 2007
3. **Davenport RD**: Acute pain transfusion reactions. In: Popovsky MD (ed.): Transfusion Reactions 3nd ed. AABB Press, Bethesda, MD. 2007

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Yazer MH, **Davenport R**, Xu W, Berry B, Horsman D, Denomme G. Reduced RhD Expression in a Patient with a Progressive Myeloproliferative Disorder. Transfusion 2006 Supplement:46(9S):SP300

Yali Dou, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Supervise two rotation students
2. One graduate student, Elizabeth Townsend, joined the lab in June for thesis work

B. LECTURES
1. One lecture for BioChem 650

III. Research Activities

A. SPONSORED SUPPORT
1. Pilot funding by the Nathan Shock Center for the Biology of Aging

B. PENDING PROJECTS
1. NIH R01: Epigenetic regulation of transcription by mixed lineage leukemia protein MLL1
2. NIH DP2: Concerted functions of chromatin modifying enzymes in transcription controls

C. PROJECTS UNDER STUDY
1. Epigenetic regulation by MLL1 and MOF and their implications in disease

IV. Administrative Activities None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript reviews (journals and number of instance):
   a) *Proceeds of National Academy of Science (PNAS)*: one time
   b) *Molecular Biology of Cell*: one time

B. INVITED LECTURES/SEMINARS
1. University college of London, Institute of Child Health. January, 2007

2. Active Motif, Inc, San Diego. March, 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, AAAS 2006-
2. Member, American chemical Society 2006-
3. Member, American association for cancer research 2007-

D. HONORS AND AWARDS
1. Pilot Award for Nathan Shock Cencer for the Biology of Aging

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Y. Dou,** T.A. Milne, A. J. Ruthenburg, S. Lee, J. W. Lee, G. L. Verdine, C. D. Allis, R. G. Roeder (2006). Regulation of MLL1 H3K4 methyltransferase activity by its core components. Nat Struct Mol Biol. 13 (8), 713-719.
2. S., Lee, D. K. Lee, **Y. Dou**, J. Lee, B. Lee, E. Kwak, Y. Y. Kong, S. K., Lee, R. G., Roeder, J.W. Lee (2006). Coactivator as a target gene specificity determinant for histone H3 lysine 4 methyltransferases. Proc Natl Acad Sci U S A. 103 (42), 15392-15397.

Gregory R. Dressler, Ph.D.

Associate Professor of Pathology

I. Clinical Activities - None.

II. Teaching Activities

A. MEDICAL STUDENTS

1. First Year Medical Students- Embryology 2h.

B. GRADUATE STUDENTS

1. Pre-doctoras Students Supervised-Marc Prindle, CMB
2. Post-doctoral Trainees Supervised-Doyeob Kim, Ph.D., Ming Feng, Ph.D.,
3. Hong Xiao, M.D., Ph.D., Kristopher Schwab, Ph.D.
4. Ph.D. Theses Commitee Member-Jennifer Linn, CDB; Sara Monroe, Path., Neili Hendrix, Path.
5. Course Lectures-Path 582, Course Director, 21 hours
6. UROP, Undergraduate Student Supervised, Andria Hsu
7. KO8 mentor for Dr. Patrick Brophy, Dept. of Pediatrics

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator, Epigenetic Regulation of Kidney Development, NIH/NIDDK R01 DK073722 (30% effort) 7/01/06-3/04/11, Annual direct costs $205,000
2. Principal Investigator, "PAX2 Interacting Proteins in Development and Disease", NIH/ NIDDK 1 R01 DK54740-05 (22% effort), 1/1/03–3/31/07, Annual Direct Costs $174,000.
3. Principal Investigator, "Cell Signaling in Developing Epithelia", (22% effort) NIH/NIDDK R01 DK62914-01, 9/1/03–6/30/07, Annual Direct Costs $174,000.
4. Principal Investigator, "Differentiation of ES cells into renal epithelia", (10% effort)NIH/NIDDK 1R21 DK069689-01, 4/1/05–3/31/07, Annual Direct Costs $90,000.
5. Co-Investigator (5% effort), "Novel SAPK activating kinase in renal epithelial stress", Lawrence Holzman, PI NIH/NIDDK R01 DK52886, 8/1/98-7/31/07, Annual Direct Costs $225,000.
6. Co-Investigator (7.5% effort), "Molecular Genetics of Hox Genes and Kidney Development", Deneen Wellik, P.I.; NIH/NIDDK R01 DK071929, 5/1/06-4/30/11, Annual Direct Costs $208,000.

B. 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 PTP in histone methylation and differentiation.
4. The GDNF/RET signaling pathway in the developing kidney.
5. The role of nevel TGF-beta inhibitors in renal development and disease.

IV. Administrative Activities

A. DEPARTMENTAL
1. Dept. of Pathology-Curriculum Committee

B. INSTITUTIONAL
1. CMB preliminary Exam Coordinator
2. Center for Organogenesis-Interim Co-Director, Steering Committee
3. Training Grant Review Committee
4. Advisory Committee
5. Seminar Committee (Chair)

C. REGIONAL/NATIONAL/INTERNATIONAL
1. NIDDK, MAGUD Advisory Board NIDDK Special Emphasis Panel
2. PKD P30 Center for Scientific Review
3. UKGD, Ad-hoc American Society of Nephrology
4. Basic Science Committee NIDDK Conference on Kidney Development and Repair
5. Co-Organizer Developmental Dynamics, Editorial Board Journal of the American Society of Nephrology, Editorial Board

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a) *Developmental Dynamics*
   b) *Journal of the American Society of Nephrology*
2. Re*viewer*
   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 Pathology.*

B. INVITED LECTURES/SEMINARS
1. ICOS Corporation, Bothel, WA.
2. Maine Medical Center Research Institute, Portland, ME
3. Dep. of Pediatrics, Hospital for Sick Children, Toronto, Canada
4. Ottawa Health Research Institute, Ottawa, Canada
5. Plenary lecture, American Society of Nephrology
6. Annual meeting, San Diego, CA
7. International Nephrology Conference, Ann Arbor, MI
8. Columbus Children's Research Institute, Columbus, OH
9. Dept. of Pathology, Northwestern University, Chicago, Il
10. Dept. of Biology, Univ. of Kentucky, Lexington Kidney Development and Repair
11. NIDDK Conference, Alexandria, VA.
12. Co-organizer Forefront Symposium on Nephrogenetics
13. Nature Genetics Meeting, Danvers, MA
14. Dept. of Medicine, Vanderbilt University, Nashville, TN
15. California National Primate Research Center, UC Davis, CA

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

VI. HONORS AND AWARDS

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

VII. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Lin, J., Patel, S. R., Wang, M. and **Dressler, G.R**. (2006) The cysteine rich domain protein KCP suppresses TGF-b/Activin signaling in renal epithelia. Mol.Cell. Biol., 26, 4577-4585.
2. **Dressler, G. R.** (2006) The cellular basis of kidney development. Ann. Rev. Cell Dev. Biol. 22, 509-529. Self, M., Lagutin, O., Bowling, B., Hendrix, J., Cai, Y., Dressler, G. R. and Oliver, G. (2006) The Six2 gene is required for suppression of inductive signals and progenitor cell renewal in the developing kidney. EMBO J, 25, 5214-5228. Clarke, J.C., Patel, S. R., Raymond, R. M., Andrew, S., Robinson, B. G., Dressler, G.R. and Brophy, P. D. (2006) Pax2 regulates the expression of c-Ret during branching morphogenesis in the mammalian kidney. Hum. Mol. Genetics, 15, 3420-3428.
3. 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.
4. Kim, D. and **Dressler, G. R.** (2007) PTEN modulates GDNF/RET mediated
5. Chemotaxis and branching morphogenesis in the developing kidney. Dev. Biol., in press.

6. 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 4methyltransferase complex. J. Biol Chem. in press.
7. Gong, K.Q., Yallowitz, A.R., Sun, H., **Dressler, G.R.** and Wellik, D.M. (2007) Physical association of a Hox-Eya-Pax complex at enhancer sequences regulates expression of early patterning genes in the developing kidney. Mol. Cell Biol. in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Dressler, G. R.** (2006) Cell lineages and stem cells in the embryonic kidney. In: Essentials of Stem Cell Biology (R. Lanza, ed.) Elsevier Science, San Diego, CA, p227-236.
2. **Dressler, G.R.** (2007) Stem cells in kidney development and regeneration. In: Prog. Tissue Eng., in press.

Colin S. Duckett, Ph.D.

Assistant Professor of Pathology

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. John Wilkinson, Ph.D., Postdoctoral Fellow
3. Casey Wright, Ph.D., Postdoctoral Fellow
4. Arjmand Mufti, M.D., Fellow, Department of Internal Medicine
5. Stefanie Galban, Postdoctoral Fellow

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

III. Research Activities

A. SPONSORED SUPPORT
1. 2005 - 2010 "Control of Apoptosis and Signaling by XIAP," R01 GM067827-01 (NIGMS). (PI) (30%). $175,770 per annum, $883,080 total direct costs.
2. 2007 - 2010 "IAP Proteins as Novel Molecular Targets for the Treatment of Asthmatic Diseases," (0%). Early Excellence Award from the Sandler Program for Asthma Research. (PI). $150,000 per annum, $450,000 total direct costs.
3. 2004 - 2007 "XIAP as a molecular target for therapeutic intervention in prostate cancer." (15%). USARMC Prostate Cancer IDEA Award (PI). $124,832 per annum, $374,499 total direct costs.

4. 2004 - 2007 "Prostate cancer aggressiveness genes in hereditary prostate cancer," (15%). USARMC Prostate Cancer IDEA Award (Co-PI with K. Cooney). $92,961 per annum, $278,884 total direct costs.
5. 2003 - 2008 "Prevention of Mammary Cancer in Her-2neu Transgenic Mice," (2.5%). R01 (Merajver PI). $183,582 per annum, $931,164 total direct costs.
6. 2004 - 2008 "SCF in eosinophilic airway inflammation, "R01 (15%)(NIAID). (Lukacs PI). $195,300 per annum, $790,600 total direct costs.
7. Fellowship awards serving as mentor
   a) "Role of the XIAP/AIF axis in the development and progression of prostate cancer." CDMRP Department of Defense Prostate Cancer Research Program, Postdoctoral Training Award to John Wilkinson, Ph.D. $58,565 per annum, $115,740 total direct costs.
   b) "Characterization of a novel interacting partner of XIAP." American Gastroenterological Association Research Scholar Award to Ezra Burstein, M.D. $65,000 per annum, $195,000 total direct costs.
   c) "CD30-mediated p100/NF-KB2 processing and activation." NHLBI Postdoctoral Training Grant to Casey Wright, Ph.D. $283,056 per annum, $1,458,972 total direct costs.
   d) "Research Training in experimental immunopathology." NIAID Immunology Training Grant to Julie Rumble. $353,775 per annum, $1,770,787 total direct costs.
   e) "Training for research in gastroenterology." NIDDK Postdoctoral Training Award to Arjmand Mufti, M.D. $258,270 per annum, $1,291,350 total direct costs.
   f) "Understanding the roles of IAPs and TRAFs in CD30 malignancies." NCI Cancer Biology Predoctoral Training Grant to Rebecca Csomos. $272,412 per annum.
   g) "The role of X-linked Inhibitor of Apoptosis in Breast Cancer." DOD Breast Cancer Predoctoral Traineeship Award BC051269 Predoctoral Award to Karolyn Oetjen. $30,000 per annum, $90,000 total direct costs.

B. PENDING PROJECTS
1. R01 Unassigned (Duckett), NCI/NIGMS (25% effort) "XIAP and copper interactions: a novel axis for antitumor therapy" Role: Principal Investigator
2. R01 HL079944-01 (Lukacs) NIH/NHLBI (15% effort) "TLR3-mediated immune mechanisms in RSV infection" Role: Co-investigator
3. R01 HL57243 (Standiford) NIH/NHLBI (5% effort) Role of TLR9 in Lung Antibacterial Host Defense" Role: Co-Investigator

C. 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. Co-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).

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board: *Journal of Biological Chemistry*, 2002 - 2006
2. Associate Editor: *Biochemical Journal*, 2003 - present
3. 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 Science*

B. INVITED LECTURES/SEMINARS
1. "Caspase-dependent and –independent roles for the X-linked inhibitor of apoptosis (XIAP) protein," Rutgers University.
2. "Anti-cancer strategies: how far have we come?" Institute for Defense Analyses/Defense Science Study Group, Arlington, VA.
3. "Caspase-dependent and –independent roles for the X-linked inhibitor of apoptosis (XIAP) protein," Case Western Reserve University, Cleveland.
4. "Inhibitor of Apoptosis (IAP) proteins as therapeutic targets," ExL Pharma conference on Apoptosis Research and Drug Development (meeting chair), La Jolla, CA.
5. "Altered Properties of XIAP in Copper Toxicosis Diseases." Gordon Research Conference on Metals in Biology.
6. "Altered Properties of XIAP in Copper Toxicosis Diseases." University of Utah Symposium on Metals in Biology (Keynote Address).
7. "Altered Properties of XIAP in Copper Toxicosis Diseases." 5th International Meeting on Copper and Interacting Metals in Biology, Sardinia.
8. "Anti-cancer strategies: how far have we come?" Wyeth Pharmaceuticals, Pearl River, NY.
9. "The secret life of the X-linked Inhibitor of Apoptosis protein," National Human Genome Research Institute/NIH, Bethesda, MD.
10. "Inhibitor of Apoptosis (IAP) proteins and their potential as anti-tumor targets." American Society of Clinical Oncology (ASCO) annual meeting, Chicago, IL.

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. A. James French Society of Pathologists
6. American Gastroenterological Association
7. Biochemical Society
8. Central Society for Clinical Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Xia, Y., Novak, Lewis, J., **Duckett, C.S.** and Phillips, A.C. Xaf1 can cooperate with TNF-α in the induction of apoptosis, independently of interaction with XIAP. Mol. Cell. Biochem., 286:67-76 (2006).
2. Mufti, A.R., Burstein, E., Csomos, R.A., Graf, P.C.F., Wilkinson, J.C., Dick, R.D., Challa., M., Son, J.-K., Bratton, S.B., Su, G.L., Brewer, G.J., Jakob., U. and **Duckett, C.S.** XIAP is a copper binding protein deregulated in Wilson's Disease and other copper toxicosis disorders. Mol. Cell 21:775-785 (2006).
3. de Bie, P., van de Sluis, B., Burstein, E., Duran, K. J., Berger, R., **Duckett, C.S.,** Wijmenga, C. and Klomp, L.W.J. Characterization of COMMD protein-protein interactions in NF-κB signaling. Biochem. J. 398:63-71 (2006).
4. Wright, C.W., Rumble, J.M. and **Duckett, C.S.** CD30 activates both the canonical and alternative NF-κB pathways in anaplastic large cell lymphoma cells. J. Biol. Chem. 282:10252-10262 (2007).

5. 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., in press (2007)
6. Mufti, A.R, Burstein, E. and **Duckett C.S.** XIAP: Cell death regulation meets copper homeostasis. Biochem. Biophys. Acta, in press (2007).

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 weekend call

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. Post-doctoral fellow: Rodney Miles, M.D., Ph.D.

B. LECTURES

1. Pathology Research Symposium, November 10, 2006, Ann Arbor, Michigan
2. HP didactic, Molecular Hematopathology I, November 14, 2006, Ann Arbor, Michigan
3. HP didactic, Molecular Hematopathology II, November 21, 2006, Ann Arbor, Michigan
4. Programs in Biomedical Sciences, Seminar, December 1, 2006, Ann Arbor, Michigan
5. Clinical Pathology Grand Rounds, Mass Spectrometry-based proteomics, January 9, 2007, Ann Arbor, Michigan
6. Hematopathology Education conference, "Research in Progress", May 15, 2007, Ann Arbor, Michigan

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL

1. Director of Molecular Diagnostics Laboratory

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. Clinical Proteomics: College of American Pathologists Workshop, September 11, 2006, San Diego, CA
2. Burrourgh-Wellcome Fund Finalist Interview, February 6, 2007, Raleigh, NC

3. Chicago Pathology Society, Invited Speaker, Lecture I: Mass Spectrometry as a Driver of Discovery in Pathology, February 13, 2007
4. Chicago Pathology Society, Invited Speaker , Lecture II: Molecular Diagnostics lecture, February 13, 2007

VI. Publications – None

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.

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 Course.

C. GRADUATE STUDENTS - None.

D. HOUSE OFFICERS AND FELLOWS

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

E. LECTURES – None

F. OTHER – None

III. Research Activities

A. SPONSORED SUPPORT

1. Co-Investigator, "University of Michigan Integrative Curriculum for Medicine and Allied Health." National Institutes of Health. R25-AT00812-01 (2001-2006).
2. Co-investigator, "Comprehensive Programs to Strengthen Physicians' Training in Geriatrics." The Donald Reynold's Foundation. (2001-2005).

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). Medical Student Basic Science Academic Review Board (Chair).
4. Medical Student Clinical Academic Review Board (Chair).
5. Medical School Academic Hearing Committee (Chair).
6. Faculty Group Practice, Finance Committee.

C. REGIONAL/NATIONAL/INTERNATIONAL
1. National Board of Medical Examiners: Member.
2. USMLE, Step 1 IRC Test Committee.
3. USMLE, Strategic Planning Committee.
4. ACGME: Pathology Residency Review Committee.: Consultant.
5. 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, Case Western Reserve University, Department of Pathology Residency Program, 2006.
2. Consultant, Touro University Medical School: Curriculum Development, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Pathologists
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 - None.

VI. Publications

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

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. Teaching – none
2. Medical School Interviews – Interviewed medical school applicants for incoming class of 2007 (2 Fridays X 6 applicants/Friday)
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. See above gra 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. 5 P30 CA46592-20; PI – Wicha, 6/1/06-5/31/11, 25%, NIH/NCI, $3,434,995 (Fearon - salary support only) "University of Michigan Comprehensive Cancer Center Core Grant"; Basic Sci Dir & Dep Dir.
2. 5 P30 CA46592-20; PI – Wicha, 6/1/06-5/31/11, 5% NIH/NCI, $3,434,995 (Fearon - salary support only)"University of Michigan Comprehensive Cancer Center Core Grant"; Program Co-Leader.
3. 1RO1 CA82223-09; PI- Fearon, 08/15/99-05/31/09, 25%, NIH/NCI, Year 8 direct costs - $197,741 "CDX-2 Tumor Suppressor Pathway Defects in Colon Cancer"

4. 1 RO1 CA85463-08; PI – Fearon, 06/01/00-05/31/10, 20%, NIH/NCI, Year 7 direct costs - $191,250 "The Role of b-catenin/Tcf Pathway Defects in Cancer"
5. R01 CA94172-05; PI – Cho, 02/01/02 – 01/31/07, 5%, NIH/NCI, Year 5 direct costs - $178,000 (Fearon – co-invest; salary support only) "Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)"
6. 1RO1 CAS1488-09;PI – Gruber, 01/01/99-03/31/09, 5%, NIH/NCI, $772,892 (direct annual) Fearon - co-invest; salary support only, "Molecular Epidemiology of Colorectal Cancer".
7. 1R01 C116516-01A1; PI – Weiss, 09/20/06 – 07/31/11, 10%, NIH/NCI, $159,750 (direct annual) Fearon – co-invest; salary support only, "Snail-Dependent Regulation of EMT in Cancer"

B. PENDING PROJECTS
1. R01 CA94172-06A1; PI – Cho, 07/01/07 – 06/30/12, 5%, NIH/NCI, (Fearon – co-invest; salary support only), "Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)"

IV. Administrative Activities

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

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Planning Committtee, 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. December 12, 2006, UT-MD Anderson Cancer Center, Department of Cancer Biology Cancer Metastasis Research Program Seminar Series, Houston, TX; "Role of b-catenin Defects in Cancer".
2. February 5, 2007, 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."
3. April 9, 2007, 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."

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. Todd Festerling (Toxicology) Qualified-3rd year
2. Ajay Prakash (MD/PhD program - 3 months)
3. Andrew Hanosh (Pathology)(1.5 months)
4. Diane Calinski (Pharmacology) (3 months).

B. HOUSE OFFICERS AND FELLOWS

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

B. PENDING PROJECTS

1. DOD BC045203 (Ferguson), 7/01/08 – 6/30/09, 0% (Lab support only), DOD, $75,000 direct, Roles of the Mre11 DNA repair protein in breast cancer. To investigate whether Mre11 plays roles in the development and progression of breast cancer.

C. PROJECTS UNDER STUDY

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

IV. Administrative Activities

A. DEPARTMENTAL

1. Member - 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. Member - Program Committee for Graduate Program in Cellular and Molecular Biology.
2. Member - Schembechler Adrenal Cancer Program Advisory Board.
3. Member, 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. Keystone Symposium on Genome Instability and Repair, Jan 17 - Jan 22, 2007. *Mre11 and TPP1: Two Tails of Genomic Instability*.

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):1991-8

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)

II. Teaching Activities

A. MEDICAL STUDENTS
1. M-2 Hematology Sequence: Section leader for laboratory sessions (12 hours)
2. M-2 Hematology sequence: "Pathology and Classification of Lymphoma" (Lecture) – 1 hour
3. Introduction to Clinical Flow Cytometry " Interdepartmental Leukemia Conference, February 21, 2007

B. DENTAL STUDENTS
1. Pathology 580/630: "Pathology of White Blood Cells" (Lecture) – 1 hour

C. GRADUATE STUDENTS
1. Pathology 580/630: "Pathology of White Blood Cells" (Lecture) – 1 hour

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. Clinical Pathology Grand Rounds
5. Clinical Pathology Case Conference/ weekly

E. LECTURES
1. "Proficiency Testing Programs for the Laboratories", CP Management Series, August 8, 2006
2. "Myelodysplastic syndromes", CP Grand Rounds, January 30, 2007 "Introduction to Clinical Flow Cytometry," Interdisciplinary Leukemia Conference, February 21, 2007

III. Research Activities

A. SPONSORED RESEARCH – None

B. PROJECTS UNDER STUDY
1. High dimensional shape recognition and dimensionality reduction strategies for clinical flow cytometry (collaboration with Prof. Al Hero, Dept. Electrical Engineering and Computer Science [EECS])
2. The effect of inflammatory disease states on growth, maturation, and gene expression patterns of bone marrow derived cells (collaboration with Dr. Steve Kunkel)

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 2004-2005

B. INSTITUTIONAL
1. Member, Hospital Credentialing Committee
2. Leadership Development Program, Health Care Leadership Institute, University of Michigan Ross School of Business

C. REGIONAL/NATIONAL/INTERNATIONAL
1. President, Michigan Society of Pathologists
2. Executive Committee, Society for Hematopathology
3. Board of Directors, International Society for Laboratory Hematology
4. American Society for Clinical Pathology Annual Meeting Committee.
5. American Society for Clinical Pathology Task Force on Facing the Future
6. American Society for Clinical Pathology, Check Path Planning Committee (Hematopathology).

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*, Blood, Human Pathology, Leukemia & Lymphoma, Archives of Pathology & Laboratory Medicine.*

B. INVITED LECTURES/SEMINARS

1. "Laboratory Medicine in the Age of 'Omics'." Keynote Address, 15th Annual William Beaumont Symposium on DNA Technology in the Clinical Laboratory. Royal Oak, Michigan, September 14, 2006.
2. "Non-Neoplastic Hematopathology of Bone Marrow for the Practicing Pathologist." Educational Course. American Society for Clinical Pathology Annual Meeting, Las Vegas, NV, October 20, 2006.
3. "Preparing Residents to Practice Clinical Pathology." ASCP Resident Council Breakfast. American Society for Clinical Pathology Annual Meeting, Las Vegas, NV, October 21, 2006.
4. "The Myeloproliferative Neoplasms." Moderator of companion meeting session. Society for Hematopathology companion meeting. United States and Canadian Academy of Pathology Annual Meeting, San Diego, CA.
5. "Practical Issues in the Diagnosis of Myeloproliferative/Myelo-dysplastic Overlap Syndromes." Society for Hematopathology companion meeting. United States and Canadian Academy of Pathology Annual Meeting, San Diego, CA, March 25, 2007.
6. Moderator of Industry-Sponsored Workshops. International Society Laboratory Hematology, XXth International Symposium on Technological Innovations in Laboratory Hematology. Miami, FL, May 9, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. 1990-present American Society of Clinical Pathologists
2. 1994-present Society for Hematopathology
3. 2006-2010 Executive Committee Member-at-Large
4. 1994-present United States and Canadian Academy of Pathology
5. 1995-present American Society of Hematology
6. 1998-present A. James French Society of Pathologists
7. 2004-present Member, Board of Directors
8. 2004-present Secretary/Treasurer
9. 1999-present University of Michigan Comprehensive Cancer Center
10. 2001-present College of American Pathologists
11. 2002-present Michigan Society of Pathologists
12. 2004-present Member, Board of Trustees
13. 2006 President-Elect
14. 2007 President
15. 2002-present International Society for Laboratory Hematology
16. 2005-present Member, Board of Directors
17. 2002-present International Society for Analytical Cytology (ISAC)
18. 2002-present Clinical Cytometry Society

D. HONORS AND AWARDS

1. Keynote Speaker, 15th Annual William Beaumont Symposium on DNA Technology in the Clinical laboratory

VI. Publications

A. A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Bakshi NA, **Finn WG**, Ross CW, Valdez R, Schnitzer B: Fascin expression in diffuse large B-cell lymphoma, anaplastic large cell l lymphoma, and classical Hodgkin lymphoma (CHL). Arch Pathol Lab Med 131:742-747, 2007.
2. Rawal J, Schnitzer B, **Finn WG**, Valdez R: Site-specific morphologic differences in extranodal marginal zone b-cell lymphomas. Arch Pathol Lab Med, in press.
3. **Finn WG:** Diagnostic pathology and laboratory medicine in the age of "omics." J Molec Diagn, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Finn WG,** Macon WR: Mature T-cell and NK cell leukemias. In: Hsi ED (ed.) *Foundations in Diagnostic Pathology: Hematopathology.*Churchill-Livingstone Elsevier, Philadelphia, 2007:383-395.

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

1. Kitchen S, **Finn WG:** Editorial. Int J Lab Hematol 29(1):3, 2007
2. Isaacson T, **Finn WG:** Monitoring of the graft vs leukemia (gvl) effect in chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL) after allogeneic hematopoietic stem cell transplant. Poster presentation, United States and Canadian Academy of Pathology Annual Meeting, San Diego, CA, 2007. Mod Pathol 2007; 20(suppl 2): 246A-247A.
3. **Finn WG**: President's perspective. Under the Microscope (an Official Publication of the Michigan Society of Pathologists), Winter, 2007.

Andrew Flint, M.D.

Professor of Pathology

I. Clinical Activities

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

B. Ophthalmic Pathology Service, 52 weeks/year

II. Teaching Activities

A. MEDICAL STUDENTS

1. Pathology 600:
2. Pulmonary Infections lecture – September 2006
3. Pulmonary Neoplasms lecture – September 2006
4. Cardiovascular Pathology Lab Review for Medical Students, September, 2006
5. Pulmonary Pathology Lab Review for Medical Students - September, 2006
6. Gastrointestinal Pathology Lab Review for Medical Students, February, 2007
7. Endocrine Pathology Lab Review for Medical Students, March, 2007
8. Reproductive Pathology Lab Review for Medical Students, March, 2007
9. Musculoskeletal Pathology Lab Review for Medical Students, November, 2006
10. Introduction to Musculoskeletal Pathology lecture - November, 2006
11. Medical Students Question and Answer sessions, August, 2006 - April, 2007
12. USMLE Pathology Review, March, 2007
13. Laboratory Instructor, August, 2006 - March, 2007
14. M4 Student elective mentor, July 2006-May 2007
15. Radiology-Pathology Correlation elective for M4 students, Course Co-Director, March 1, 2007
16. Course Director, M4 Student Pathology Clerkships, 2006-07

B. LECTURES

1. Consultant's Conferences (2)
2. "Designing Effective Group Activities and Assignments, Seminar, Center for Research on Teaching and Learning, the University of Michigan, February, 2007.
3. "How to create a Simple Podcast", Enriching Scholarship Seminar, Center for Research on Teaching and Learning, the University of Michigan, May, 2007.
4. "Laboratory Teaching using a Virtual Microscope", Enriching Scholarship Seminar, Center for Research on Teaching and Learning, University of Michigan, May, 2007

C. OTHER
1. Participant, Teaching with Technology Institute, May, 2007

III. Research Activities

A. SPONSORED SUPPORT
1. Murine Model of Graft-Vs-Host Disease Lacrimal Gland Inflammation and Destruction: Histopathology, Immunopathology, and Intervention (Midwest Eye-Banks and Transplantation Center), Victor M. Elner, MD, PhD (Principal Investigator), Andrew Flint, MD (Co-Investigator)
2. Consultant, Fibroproliferation in Bronchiolitis Obliterans Syndrome, Vibha Lama, MD, Principal Investigator. National Institutes of Health/NHLBI; K23HL077719-01

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.
3. Concept Maps as an assessment tool for learning.

IV. Administrative Activities

A. INSTITUTIONAL
1. Host, Health Sciences Scholars, the University of Michigan, 2006 – 2007

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
1. “Temporal arteritis", Ophthalmology Symposium, Kellogg Eye Center, the University of Michigan, January, 2007

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Lama VN, Murray S, Lorigan RJ, Toews GB, Chang A, Lau C, **Flint A**, Chan KM, Martinez FJ. Course of FEV1 after onset of bronchiolitis obliterans syndrome in lung transplant recipients. Am J Respir Crit Care Med (in press).
2. Lama VN, Smith L, Bodri L, **Flint A**, Andrei AC, Murray S, Wang Z, Liao H, Toews GB, Krebsbach PH, Peters-Golden M, Pinsky DJ, Martinez FJ, Thannickal VJ. Evidence for tissue-resident mesenchymal stem cells in human adult lung from studies of transplanted allografts. J Clin Invest 2007; 117:989 - 96.
3. Flaherty KR, Andrei A, King Jr. TE, Raghu G, Colby TV, Wells A, Bassily N, Brown KK, duBois R, **Flint A**, Gay SE, Gross BH, Kazerooni EA, Knapp R, Louvar E, Luch D, Nicholson AG, Quick J, Thannickal VJ, Travis WD, Vyskocil J, Wodenstorer F, Wilt J, Toews GB, Murray S, Martinez FJ. Idiopathic interstitial pneumonia: Do community and academic physicians agree on diagnosis? Am J Respr Crit Care Med 2007.
4. Chong DY, Demirci H, Ronan SM, **Flint A,** Elner VM. Orbital rhabdomyosarcoma in Li-Fraumeni syndrome. Arch Ophthalmol 2007; 125:566-9.
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 PlasRecon Surg (in press).

7. Scott GR, Frueh BR, **Flint A,** Elner VM. Fibrous dysplasia of the lacrimal sac. Ophthalmic Plas Reconstr Surg.
8. High titer CRMP-associated papraneoplastic optic neuropathy and vitritis as the only clinical manifestations in a patient with small cell lung carcinoma. Margolin E, **Flint A,** Trobe JD. Am J Ophth

B. BOOKS/CHAPTERS IN BOOKS

1. **Flint A:** Oculo-pathologic manifestations of the systemic vasculitides, in: Pathobiology of Ocular Disease, 3rd ed., Klintworth GK and Garner A editors. 2007

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

1. Lama VN, Bodri L, Smith L, **Flint A**, Murray S, Toews GB, Martinez FJ, Peters-Golden M, Pinsky DJ, Thannickal VJ. Resident mesenchymal stem cells in human adult lungs. Proc Am Thorac Soc 2007; 175:A761

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 (one lecture)
6. Dermatopathology lectures for dermatology residents (two 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 Pathology (one hour lecture)

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

III. Research Activities

A. SPONSORED SUPPORT – None

B. PROJECTS UNDER STUDY
1. University of Michigan (UMMC 2000-0713): Molecular, biochemical and cellular basis of melanoma and other melanocytic lesions: Tissue Bank (T. Johnson, M.D., T. Wang, M.D., J. Schwartz, M.D., J. Voorhees, M.D., A. Dlugosz, M.D., L. Lowe, M.D., L. Su, M.D., C. Bradford, M.D., V. Cimmino, M.D.
2. Clusterin expression in CD30-positive lymphoproliferative disorders of the skin and their histologic simulants (B. Schnitzer, M.D., L. Ma, M.D., Ph.D.)
3. CD13 and CD14 expression in cutaneous fibrohistiocytic tumors and histiocytic infiltrates (D. Lucas, M.D., L. Ma, M.D., Ph.D)
4. S100A6 expression in a spectrum of cutaneous neoplasms using tissue microarrays (D. Thomas, M.D., Ph.D.)
5. Search for the cancer stem cell in melanoma (E. Quintana-Fernandez, Ph.D., M. Shackleton, S. Morrison, Ph.D., T. Johnson, M.D.)

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*

B. 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

C. HONORS AND AWARDS
1. Faculty Teaching Award, Department of Pathology, 2006

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Poynter JN, Elder JT, **Fullen DR**, Nair RP, Soengas M, Johnson TM, Redman B, Thomas N, Gruber SB. BRAF and NRAS mutations in melanoma and melanocytic nevi. Melanoma Res 16; 267-273, 2006.
2. **Fullen DR**, Poynter JN, Lowe L, Su LD, Elder JT, Nair RP, Johnson TM, Gruber SB. BRAF and NRAS mutations in spitzoid melanocytic lesions. Mod Pathol 19: 1324-1332, 2006.
3. Manoharn P, **Fullen D**, Avram A. Neutrophilic urticaria:whole-body (111)In-leukocyte scan and histological correlation. Eur J Nucl Med and Mol Imaging 33: 1523-1524, 2006.
4. Denoyelle C, Abou-Rjaily G, Bezrookove V, Verhaegen M, Johnson TM, **Fullen DR**, Poynter JN, Gruber SB, Su LD, Nikiforov MA, Kaufman RJ, Bastian BC, Soengas M. Anti-oncogenic role of the endoplasmic reticulum differentially activated by mutations in the MAPK pathway. Nat Cell Biol 8: 1053-1063, 2006.
5. Kroon HM, Lowe L, Wong S, **Fullen D**, Su D, Cimmino V, Chang AE, Johnson T, Sabel MS. What is a sentinel node? Re-evaluating the 10% rule for sentinel lymph node biopsy in melanoma. J Surg Oncol 95: 623-628, 2007.
6. Olsen SH, Su LD, Thomas D, **Fullen DR**. Telomerase expression in sebaceous lesions of the skin. J Cutan Pathol 34: 386-391, 2007.
7. McHugh JB, **Fullen DR**, Ma L, Kleer C, Su LD. Expression of polycomb group protein EZH2 in nevi and melanoma. J Cutan Pathol (in press)
8. Wu AJ, Rodgers T, **Fullen DR**. Drug-associated histiocytoid Sweet's syndrome: a true neutrophilic maturation arrest variant. J Cutan Pathol (accepted for publication)
9. Carvalho J, **Fullen D**, Lowe L, Su L, Ma L. The expression of CD23 in cutaneous non-lymphoid neoplasms. J Cutan Pathol (in press)

Jason Gestwicki, Ph.D.

Assistant Professor of Pathology
Research Assistant Professor, LSI

I. Clinical Activities - None

II. Teaching Activities

A. UNDERGRADUATE STUDENTS
1. Emily Hugh (UROP)
2. Nick White (HHMI undergraduate research experience)

B. GRADUATE STUDENTS
1. Paul Marinec (2nd year, Mol. Cell. Pathology)
2. Srikanth Patury (2nd year, Mol. Cell Pathology)
3. Christopher G. Evans (2nd year, Chemical Biology)
4. Jerome Quintero (2nd year, Biophysics)
5. Ashley Rienke (1st year, Biol. Chem.)
6. Lyra Chang (1st year, Chemical Biology)

C. POSTDOCTORAL FELLOWS
1. Susanne Wisen, Ph.D.

D. LECTURES
1. Chemical Biology 502 (8 lectures)

E. RESEARCH ROTATIONS
1. Candice Paulsen (Chemical Biology)
2. Anjanette Turbiak (Med. Chem.)
3. Stephen Leonard (Chemical Biology)
4. Andrea Dooley (MSTP)
5. John Androsavich (Chemical Biology)
6. Matthew Smith (PIBS; Neuroscience)

F. CANDIDACY COMMITTEES
1. Yi-Chen Chen (Med. Chem.)
2. Jody Canapp (Chem.)
3. Nicolette Guthrie (Chem.)

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. Chem.)
6. Shengying Li (Med. Chem.)
7. Graham Brady (MCP)
8. Karolyn Oetjen (MSTP, MCP)

III. Research Activities

A. SPONSORED SUPPORT

1. Co-Investigator (10%) "Treatment of a polyglutamine neurodegenerative disease with synthetic bifunctional compounds that target misfolded proteins" The McKnight Foundation Neuroscience of Brain Disorders Award, 1/1/07 - 12/31/09, $100,000 per annum
2. Principle Investigator, "Synthetic Molecules that Regulate Chaperone-Mediated Protein Folding" University of Michigan BioMedical Research Council New Initiatives Grant, 1/1/07 – 12/31/07, $30,000
3. Principle Investigator, "Systematic Generation of Uniformly Modified Compounds" Thermo-Fisher Corp. Collaborative Pilot Projects, 1/1/07 – 12/31/07, $51,500
4. Principle Investigator, "Drug Discovery for Huntington's Disease" Rackham Graduate School Faculty Grants, 7/1/07 – 6/31/08, $15,000

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Graduate Program in Medicinal Chemistry
   a) Member, Graduate Program in Chemical Biology
   b) Member, Graduate Program in Biological Sciences (PIBS)
   c) Member, Faculty Search Committee (LSI - Chemistry)
   d) Member, LSI Equipment Task Force
   e) Member/Chair, Selection Committee for Pfizer Awards in Chemistry and Chemical Biology
   f) Member, Executive Committee of the Center for Chemical Genomics (CCG)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Review Boards
   a) *Chemical Biology and Drug Design*
2. Peer-Review
   a) *ACS Chemical Biology*
   b) *Journal of the American Chemical Society*
   c) *Science*
   d) *Genome Biology*
   e) *Nature Chemical Biology*
   f) *Nature Protocols*
   g) *ChemMedChem*

B. INVITED LECTURES/SEMINARS

1. Invited Seminars (Internal):
   a) Department of Pathology, Annual Research Symposium 2006
   b) Department of Biological Chemistry, June 5th, 2007
2. invited Seminars (External):
   a) Department of Chemistry, Michigan Technical University, Houghton, MI, Oct, 2006
   b) Midwest Conference on Chaperones and the Stress Response, Evanston, IL, Feb, 2007
   c) Department of Chemistry, Michigan State University, E.Lansing, MI, March, 2007
   d) Department of Chemistry, SUNY Fredonia, Fredonia, NY, May, 2007
   e) Discussion Leader, Bioorganic Chemistry Gordon Research Conference, June, 2007

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

D. HONORS AND AWARDS
1. Methods and Reagents for Activating Heat Shock Protein 70 (pending)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Stankunas, K.; Bayle, J. H.; Havranek, J. J.; Wandless, T. J.; Baker, D.; Crabtree, G. R.; **Gestwicki, J. E**. "Rescue of degradation-prone mutants of the FK506-rapamycin binding (FRB) protein with chemical ligands" Chem BioChem 2007 (in press).
2. Evans, C. G.; Wisen, S.; **Gestwicki, J. E**. "Heat shock proteins 70 and 90 inhibit early stages of amyloid beta aggregation in vitro" J. Biol. Chem. 2006, 281(44):33182-33191.
3. Rubinsztein D. C., **Gestwicki, J. E.**, Murphy, L. and Klionsky, D. J. "Potential therapeutic applications of autophagy" Nat. Rev. Drug Discovery 2007, 6:304-312.

Donald Giacherio, Ph.D.

Associate Professor of Pathology
Director, Clinical Chemistry

I. Clinical Activities

A. Director, Chemical Pathology Laboratory

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 the workgroup overseeing the quality assurance programs for bedside blood glucose testing in the Medical Center.

D. Direct the workgroup for the selection of new blood gas / electrolyte analyzers for the Emergency Department, and the OR's of University Hospital, Mott Hospital, and the Cardiovascular Center.

E. Planning group for the approval and establishment of alternate site testing programs.

F. 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).

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

H. Sign out and interpretation of lipoprotein electrophoresis results.

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

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Organize Chemistry block for Clinical Pathology Grand Rounds
   2. Coordinator, Pathology House Officer rotation through Chemistry Section
   3. Review sign-out and interpretation of lipoprotein electrophoresis results.
   4. Review of selected topics in Clinical Chemistry with Block B residents.

B. LECTURES
1. "Issues with the Standardization of Chemistry Tests". Clinical Pathology Grand Rounds, September 12, 2006
2. "Point-of-Care Testing". Clinical Pathology Grand Rounds, September 26, 2006

C. OTHER
1. Review of lipid testing and lipoprotein electrophoresis with medical technology students.
2. Lecture for Medical Technology Students: "Issues with the standardization of some common chemistry and immunoassay tests."

III. Research Activities

A. SPONSORED SUPPORT
1. Chemistry Core Lab Director within the Measurement Core of the Michigan Diabetes Research and Training Center, NIH 5P60 DK20572 , 5 % effort, Measurement Core $127,696/yr ($713,000 / 5 yr) 12/1/02 –11/30/07 MDRTC $ 1,229,000 / yr, ($ 6,071, 400 / 5 yr)

B. PROJECTS UNDER STUDY
1. Evaluation of automated, multiplex chemiluminescent immunoassay technology for the performance of antinuclear antibody testing (ANA) and testing for antibodies to extractable nuclear antigens (ENA).
2. Pancreatic function testing in patients with chronic pancreatitis and impaired glucose tolerance (with M DiMagno and C Piraka)
3. Relationship of obesity, sex hormone levels, and PSA in screening for prostate cancer (with J Beebe-Dimmer, K Wojno)
4. Pharmacokinetics of mycophenylate during relapse and remission of childhood nephritic syndrome (with T Annesley, R Gbadegesin, W Smoyer)
5. Evaluation of automated immunoassays for 25 hydroxyVitamin D, PTH, and Plasma renin on the Diasorin Liason analyzer.
6. Development of new point of care testing technologies (with M Burns, Chemical Engineering Department).
7. Evaluation of methods for bioavailable testosterone.
8. Expansion of drug screening menu to include oxycodone and urine adulterants.
9. Automation of testing for anti-nuclear antibody and extractable nuclear antigens by multiplexed immunoassay.

IV. Administrative Activities

A. DEPARTMENTAL
1. Quality Assurance Committee
2. Director, Chemistry Section Laboratories
3. Director, Point-of -Care Testing for UMHS

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

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Program Chair 2006, Michigan Section AACC

2. Executive Committee, Michigan Section AACC
3. Abstract review committee, AACC 2007 National Meeting

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc reviewer, *Clinical Chemistry*

B. INVITED LECTURES/SEMINARS
1. "Standardization Issues in beta-HCG Assays". Michigan Section AACC Symposium, Livonia, MI, November 15, 2006
2. "Laboratory issues with steroid hormone assays". American Association of Clinical Endocrinology symposium, Dearborn, MI, March 22, 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Clinical Chemistry, Program Chair for Michigan Section

VI. Publications – None

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

Associate Professor of Pathology

I. Clinical Activities

A. Surgical Pathology; Room 1, BE, GU, 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. GRADUATE STUDENTS
1. Thesis Committee Member
2. Mentor to Scott Tomlins, MSTP Program
3. Discussion, Epidemiology 818; Methodologic Issues in Cancer
4. Epidemiology, "Morphologic and Molecular Classification of Cancer"

C. HOUSE OFFICERS AND FELLOWS
1. General Surgical Pathology – 3.5 months
2. Endocrine Surgical Pathology - 12 months

D. LECTURES
1. Lecture to Genetic Counseling Students, "Pathology of Cancer"
2. Lecture to Molecular Biology Graduate Students, "Pathology of Cancer"
3. Division of Metabolism, Endocrinology and Diabetes Research Conference, "Molecular Profiles of Thyroid Cancer"

E. OTHER
1. Endocrine Conference, Department of Surgery - monthly
2. Endocrine Tumor Board - weekly
3. XXVI International Congress of the International Academy of Pathology, Short Course Director and Instructor, "Early Lesions of the Adrenal Gland", Montreal, Canada

4. United States and Canadian Academy of Pathology, 96th Annual Meeting, 2007 Special Course, Introductory Molecular Pathology, "Introduction to Proteomics", San Diego, CA

III. Research Activities

A. SPONSORED SUPPORT

1. Tissue Core Director, 17.5% effort, 5 P30 CA46592 (M.S. Wicha, M.D.), 6/01/06-5/31/11, National Institutes of Health, $3,415,190 annual directs, "Cancer Center Support Grant"
2. Co-Investigator, 10% effort, 5R01CA081488-08 (S.B, Gruber, M.D., Ph.D. M.P.H.), 4/1/99-3/31/2009, National Institutes of Health-National Cancer Institute, $761,843 annual directs, "Molecular Epidemiology of Colorectal Cancer"
3. Co-investigator, 5% effort, 2 RO1 AI 37141-09A1 (James Baker, Jr., M.D., Ph.D.), 5/01/04 to 4/30/2009, National Institutes of Health-NIAID, $225,000 annual directs, "Apoptosis in Thyroiditis"
4. Co-Investigator/Modality Chair, 2% effort, 2 U10 CA027057-25 (Laurence Baker, M.D.). 4/1/04 to 12/31/2006, National Institutes of Health-National Cancer Institute, $116,406 direct (9 months), "Southwest Oncology Group"
5. Co-Investigator, 5 % effort, N01-HR-46162 (Fernando Z. Martinez, M.D.), 02/01/04 to 01/31/09, National Institutes of Health-NHLBI, $413,032 annual directs, "Lung Tissue Research Consortium"
6. Co-Investigator, 4% effort, RSG DDC-106870 (Gary Hammer, M.D., Ph.D.), 07/01/04 to 06/3008, American Cancer Society, $600,000 total direct costs, "Wnt Signaling in Adrenocortical Development and Cancer"
7. Co-Investigator, 3.5% effort, 2RO1 CA072877-07A1 (Elizabeth Petty, M.D.), 12/1/2005-11/30/2010, National Institutes of Health- National Cancer Institute, $250,000 annual directs, "Role of SEPT9 in cell proliferation and oncogenesis"
8. Principal Investigator, 5% effort, "Pfizer Tissue Bank", Pfizer Inc., 1/1/04 to 12/31/08 ($280,000 annual directs)

B. PENDING PROJECTS

1. Biosample Core Director, 10% effort GI Spore (Dean Brenner,M.D.), 10/01/07-09/30/12, National Institutes of Health-National Cancer Institute, $8,677,266 total direct costs, "Translational Research in GI Cancer"

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
5. Member, AP Grossing Redesign Committee

B. INSTITUTIONAL
1. Sequence Co-Coordinator – Component II Endocrine Sequence
2. Director, Tissue Procurement Service
3. Director, Frozen Tumor Bank
4. Director, Laser Capture Microdissection Service
5. Medical Institutional Review Board (IRB-Med), *ad hoc* member
6. MSTP Career Advisory PanelG., Co-Director, Histology/Immunoperoxidase Service

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Convener, Endocrine Sessions, XXVI International Congress of the International Academy of Pathology, Montreal, Canada
2. Session Organizer and Moderator, American Society of Investigative Pathology Companion Meeting, United States and Canadian Academy of Pathology, 96th Annual Meeting, San Diego, CA
3. Exam Reviewer, 2007 Pathology Subject Examination, Step 1, National Board of Medical Examiners

V. Other Relevant Activities

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

B. INVITED LECTURES/SEMINARS
1. Invited Speaker, "Molecular characterization of differentiated thyroid cancer", 2006 Annual Meeting & Research Workshop on the Biology, Prevention & Treatment of Head and Neck Cancer, American Head & Neck Society, Chicago, IL

2. Invited Speaker, "Molecular Endocrine Pathology: Adrenal Cortical Carcinoma", International Academy of Pathology, Montreal, Canada
3. Invited Speaker, "Controversies in Molecular Thyroid Pathology", International Academy of Pathology, Montreal, Canada
4. Invited Speaker, "Pathology and Molecular Profiling of Adrenal Cortical Tumors", Adrenal Cancer Symposium, Translational Genomic Research Institute (TGen), Phoenix, AZ
5. Invited Speaker, "Translational Molecular Studies in Well-Differentiated Thyroid Cancer", Brigham and Women's Hospital, Harvard Medical School, Boston, MA
6. Invited Speaker, "Molecular Profiles of Differentiated Thyroid Cancer," Novartis Institutes for Biomedical Research, Cambridge, MA
7. Invited Speaker, United States and Canadian Academy of Pathology, 96th Annual Meeting, American Society of Investigative Pathology Companion Meeting, "Molecular Profiles of Well-Differentiated Follicular Cell Thyroid Carcinoma," San Diego, CA

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. 1983-present, American Association for the Advancement of Science
2. 1993- present, American Society of Clinical Pathologists
3. 1994- present, United States and Canadian Academy of Pathology
4. 1994- present, University of Michigan Comprehensive Cancer Center
5. 1995- present, American Society for Investigative Pathology
6. 1996- present, A. James French Society of Pathology
7. 1996- present, Association for Molecular Pathology
8. 2002-present, American Association for Cancer Research
9. 2005-present, Michigan Society of Pathologists
10. 2006-present, American Society of Clinical Oncology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Zhao J, Chang AC, Li Chen, Shedden KA, Thomas DG, Misek DE, **Giordano TJ**, Beer DG, and Lubman DM. Comparative proteomic analysis of Barrett's metaplasia and esophageal adenocarcinoma using 2-D liquid mass mapping. *Mol Cell Proteomics* 2007.
2. Grachtchouk M, Liu J, Wang A, Wei L, Bichakjian CK, Garlick J, Paulino AF, **Giordano T**, Dlugosz AA. Odontogenic keratocysts arise from quiescent epithelial rests and are associated with deregulated Hedgehop signaling in mice and humans. *Am J Pathol* 2006:169;806-814.
3. Hong S-H, Misek DE, Wang H, Puravs E, Hinderer R, **Giordano TJ**, Greenson JK, Brenner DE, Simeone DM, Logsdon CD, Hanash SM. Identification of a specific vimentin isoform that induces an antibody response in pancreatic cancer. *Biomarker Insights* 2006:2; 175-183.
4. Lin J, Raoof DA, Thomas DG, Greenson JK, **Giordano TJ**, Orringer MB, Chang AC, Beer DG, Lin L. Expression and effect of inhibition of the ubiquitin-conjugating enzyme E2C on esophageal adenocarcinoma. *Neoplasia* 2006:8;1062-1071.
5. Park BK, Zhang H, Zeng Q, Dai J, Keller ET, **Giordano TJ**, Gu K, Shah V, Pei L, Zarbo RJ, McCauley L, Shi S, Chen S, Wang CY. NF-kB in breast cancer cells

promotes osteolytic bone metastasis by inducing osteoclastogenesis via GM-CSF. *Nat Med* 2007:13;62-69.

6. Menash-Osman EJ, Thomas DG, Tabb MM, Larios JM, Hughes DP, **Giordano TJ**, Lizyness ML, Rae JM, Blumberg B, Hollenberg PF, Baker LH. Expression levels and activation of a PXR variant are directly related to drug resistance in osteosarcoma cell lines. *Cancer* 2007:109;957-965.
7. Chen G, Wang X, Yu J, Varambally S, Yu J, Thomas DG, Lin MY, Vishnu P, Wang Z, Wang R, Fielhauer J, Ghosh D, **Giordano TJ**, Giacherio D, Chang AC, Orringer MB, El-Hefnawy T, Bigbee WL, Beer DG, Chinnaiyan AR. Autoantibody profiles reveal ubiquilin 1 as a humoral immune response target in lung adenocarcinoma. *Cancer Res* 2007:67;3461-3467.
8. **Giordano TJ**. Molecular pathology of adrenal cortical tumors: separating adenomas from carcinomas. *Endocrine Path* 2007:17;355-363.
9. Ciampi R, **Giordano TJ**, Wikenheiser-Brokamp K, Zhu Z, Koenig R, Nikiforov YE. HOOK3/RET: A novel type of RET/PTC rearrangement in papillary thyroid carcinoma. *Endocr Relat Cancer.*

B. BOOKS/CHAPTERS IN BOOKS

1. **Giordano TJ**. Morphologic and molecular classification of human cancer. In: Cancer Epidemiology & Prevention (3rd edition), Oxford University Press, New York, 2006.

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

1. Gu K, Shah V, Park BK, Zeng Q, Zhang H, **Giordano T**, Pei L, Zarbo RJ, Wang CY. GM-CSF promotes breast cancer bone metastasis. *Mod Path* 2007:20;306A.
2. Bommer GT, Feng Y, **Giordano T**, Kuick R, Kadikov H, Sikorski D, Cho KR, Fearon ER. Role of insulin receptor substrate-1 (IRS1) in Wnt/B-catenin/TCF-dependent neoplastic transformation. Presented at 2007Annual Meeting of the AACR.
3. Lin L, Lin J, Raoof DA, Wang Z, Lin M-Y, Thomas DG, Greenson JK, **Giordano TJ,** Chang AC, Orringer MB, Beer DG. Presented at 2007 Annual Meeting of the AACR.

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
C. Cardiac biopsies
D. Cardiovascular consultant for surgical and autopsy pathology
E. 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 Andy 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

E. LECTURES (see above)

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH PO1 HL57346 "Molecular Genetics Coagulation Disorders" 7/1/03 –6-30-08 PI: D. Ginsburg; Morphology Core Director: D. Gordon (10%); Direct costs ($99,717/year)
   2. M01-RR00042 (R. Kelch) Gen. Clin. Research Center, 3/01/2006 – 2/28/2011, NIH National Center for Research Resources; $5.8 Million; D. Gordon: Director of the

Minority Health Research Program (5%)

B. PENDING PROJECTS
1. The Morphology Core mentioned above will be going in for a competitive renewal this year.

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

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) Chair, University of Michigan Diversity Council
   b) Member of the National Center for Institutional Diversity

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. *Cardiovascular Pathology*

B. 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

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Miller DL, Li P, Dou C, Armstrong WF, and **Gordon D**: Evans Blue Staining of Cardiomyocytes Induced by High MI Contrast Echocardiography in Rats: Evidence for Necrosis Instead of Apoptosis. (Accepted in *Ultrasound in Medicine and Biology*, 2007)

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, 8 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, 2007.
3. Gastrointestinal and hepatic pathology tutoring – 18 weeks.
4. Three 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

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. Co-Investigator (5%), "Molecular Epidemiology of Colorectal Cancer", NIH R01CA81488-01, $4,547,772 April 2004 – March 2009.
2. Co-Investigator (8%), "Hepatitis C Clinical Trial", NIH N01-DK-9-2323 $1,433,559, July 2000 – June 2008.

B. PENDING PROJECTS
1. Co-investigator (3%), "Hedgehog signaling in upper digestive tract malignancy", NIH RO1 CA 118875-01A2 $250,000 July 2007-June 2012.

C. PROJECTS UNDER STUDY
1. Study of fatty liver and steatohepatitis with Hari Conjeevaram 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(grant renewed for 5 more years).
4. Study of molecular genetic changes in pancreas and colon cancer in Egypt with Amr Soloman (New grant submitted).
5. Study of Barrett's dysplasia with Weijian Zhu.
6. Study of focally enhanced gastritis in children with Jonathon McHugh and Robert Ruiz.
7. Study of Eosinophilic Esophagitis with Julia Dahl and Robert Odze.
8. Study of biopsy forceps in UC dysplasia with Grace Elta and Chris Golembeski.
9. Study of pancreas cancer with Mark Zalupski and Diane Simeone.
10. Study of Collagenous Sprue with International Study Group.
11. NIH study of Hedgehog signaling in upper digestive tract tumors with Andrzej Dlugosz.

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

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Chairperson, Program Committee of Arthur Purdy Stout Society.
2. American Board of Pathology, Test Question Committee.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a) *Human Pathology*
   b) *American Journal of Surgical Pathology.*
   c) *American Journal of Clinical Pathology*
2. Reviews
   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. Keynote Speaker, Surgical Forum of Inflammatory Bowel Disease in Tokyo, Tokyo, Japan, July 2006.
2. Co-chair, GI Pathology slide seminar, International Academy of Pathology, Montreal, Canada, September, 2006.
3. Invited Speaker, GI Pathology Society Companion Meeting at USCAP meeting, San Diego, CA, March, 2007
4. Moderator, GI Specialty Conference. USCAP Meeting, San Diego, CA,March, 2007
5. Co-chair of Proferred Papers, Gastrointestinal Pathology section, USCAP Meeting, San Diego, CA, March, 2007
6. Visiting Professor, Emory University School of Medicine, Atlanta, Georgia, February 2007
7. Visiting Professor, Boston University School of Medicine, Boston, MA, March 2007
8. Invited Speaker, The Stanley Robbins Lecturer, New England Society of Pathology, Boston, MA, March 2007
9. Invited Speaker, Gastrointestinal Pathology seminar (2 lectures). Asian IAP meeting, Singapore, May 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Chairperson, Program Committee, 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. Stanley Robbins Lecturer, New England Society of Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Lamps LW, Schneider EN, Havens JM, Scott MA, Goldblum JR, **Greenson JK,** Shaffer RA. Molecular diagnosis of Campylobacter jejuni infection in cases of focal active colitis. Am J Surg Pathol 30:782-785, 2006.
2. Soliman AS. Bondy M. Webb CR. Schottenfeld D. Bonner J. El-Ghawalby N. Soultan A. Abdel-Wahab M. Fathy O. Ebidi G. Zhang Q. **Greenson JK**. Abbruzzese JL. Hamilton SR. Differing molecular pathology of pancreatic adenocarcinoma in

Egyptian and United States patients. International Journal of Cancer 119(6):1455-61, 2006.

3. Kang H, **Greenson JK,** Omo JT, Chao C, Peterman D, Anderson L, Foess-Wood L, Sherbondy M, Conjeevaram HS. Metabolic syndrome is associated with greater histologic severity, higher carbohydrate and lower fat diet in patients with NAFLD. Am J Gastroenterol 101:2247-2253, 2006.
4. Hong S-H, Misek DE, Wang H, Puravs E, Hinderer R, Giordano TJ, **Greenson JK,** Brenner DE, Simeone DM, Logsdon CD, Hanash SM. Identification of a Specific Vimentin Isoform That Induces an Antibody Response in Pancreatic Cancer. Biomarker Insights 2:175-183, 2006.
5. Lin J. Raoof DA, Wang Z, Lin MY, Thomas DG, **Greenson JK**, Giordano TJ, Orringer MB, Chang AC, Beer DG, Lin L. Expression and effect of inhibition of the ubiquitin-conjugating enzyme E2C on esophageal adenocarcinoma Neoplasia 8:1062-71, 2006.
6. Owens SR, **Greenson JK.** The Pathology of Malabsorption: Current Concepts. Histopathology 50:64-82, 2007.
7. Owens SR, **Greenson JK**. Immunhistochemical Staining for p63 is Useful in the Diagnosis of Anal Squamous Cell Carcinomas. Am J Surg Pathol. 31:285-90, 2007.
8. Lok AS, Everhart JE, Chung RT, Padmanabhan L, **Greenson JK**, Shiffman ML, Everson GT, Lindsay KL, Bonkovsky HL, Di Bisceglie AM, Lee WM, Morgan TR, Ghany MG, Morishima C, and the HALT-C Trial Group. Hepatic steatosis in hepatitis C: comparison of diabetic and non-diabetic patients in the HALT-C Trial. Clinical Gastroenterology and Hepatology 5:245-54, 2007.
9. Spencer AU, Yang H, Haxhija EQ, Wildhaber BE, **Greenson JK**, Teitelbaum DH. Reduced severity of a mouse colitis model with Angiotensin Converting Enzyme Inhibition. Dig Dis Sci. 52:1060-1070, 2007.
10. Ramachandran V. Arumugam T. Hwang RF. **Greenson JK**. Simeone DM. Logsdon CD. Adrenomedullin is expressed in pancreatic cancer and stimulates cell proliferation and invasion in an autocrine manner via the adrenomedullin receptor, ADMR. Cancer Research. 67(6):2666-75, 2007
11. McDonnell WM, Loura F, Pointon MJ, **Greenson JK.** Cat Scratch Colon. Endoscopy 39:459-461, 2007.
12. Simeone DM, Ji B, Banerjee M, Arumugam T, Li D, Anderson MA, Bamberger A, **Greenson JK,** Brand RE, Ramachandran V, Logsdon CD. CEACAM1, a novel serum biomarker for pancreatic cancer. Pancreas. 34:436-443, 2007.
13. 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. Accepted to American Journal of Clinical Oncology
14. 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. Accepted to Liver Transplantation.
15. 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 . Accepted to Pancreas.
16. 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. Accepted to Carcinogenesis.

B. BOOKS/CHAPTERS IN BOOKS
1. Dahl J, **Greenson JK**. Colon. In: Mills SE, ed. Histology for Pathologists. 3rd Ed. Philadelphia: Lippincott Williams & Wilkins, 2006, p.627-648.
2. **Greenson JK**, Lauwers G, Wang H, Odze Rd. Atlas of Tumor Pathology Tumors of the Esophagus and Stomach (AFIP Fascicle) Series 4. Armed Forces Institute of Pathology, Washington D.C., In preparation.
3. Lewin KJ, Riddell R, Weinstein W. Gastrointestinal Pathology and its Clinical Implications. First edition. Igaku-Shoin, New York 1992. Preparing second edition with Henry Appelman and many other editors
4. **Greenson JK**. GI Pathology Book and Online Atlas, Amirsys Corp. In Preparation

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Dahl J, **Greenson JK**, Furuta GT, Barry TS, Hornick JL, Odze RD. Distinct Subtypes of Dendritic Cells, T- and B-Lymphocytes in Primary Eosinophilic Esophagitis: Implications Regarding Pathogenesis and Differential Diagnosis with GERD. Poster presentation at USCAP 2007, Mod Pathol 20:111-2A, 2007.
2. Basturk O, Simeone DM, Wang L, **Greenson JK**, Levi E, Thirabanjasak D, Adsay NV. Overexpression of Ataxia Telengectasia Group D Complement Gene (ATDC) in Pancreatic Adenocarcinoma. Poster presentation at USCAP 2007, Mod Pathol 20:277A, 2007.
3. **Greenson JK,** Rennert G, Presswala S, Low M, Rozek LS, Bonner JD, Thomsho LP, Gruber SB. Validation of Morphologic Predictors of Microsatellite Instability in Colorectal Cancer. Poster presentation at USCAP 2007, Mod Pathol 20:116A, 2007.

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. GRADUATE STUDENTS
1. Sara Monroe (PIBS, Ph.D. Candidate)
2. Brendan Crawford (CMB, M.D./Ph.D. Candidate)
3. Victoria Cancelli (CMB, Chair, Preliminary Exam Committee)
4. Ferdous Barlaskar (CMB, Preliminary Exam Committee)
5. Stephanie Jo (Rotating M.D./Ph.D. Student)
6. Daniel Sanders (Undergraduate Student)

B. HOUSE OFFICERS AND FELLOWS
1. Kajal Sitwala, M.D., Ph.D.
2. Mohamad El-Osta, Ph.D.
3. Andrew Muntean, Ph.D.

III. Research Activities

A. SPONSORED SUPPORT
1. PI (20%) - "Mechanisms of *Hox* gene regulation by MLL", NIH R01-CA78815-07, $211,500 annual direct costs, 7/1/1998-6/30/2008.
2. PI (20%) - "Mechanisms of Hox Protein Mediated Transformation", NIH R01-CA116570-01A1, $177,500 annual direct costs, 7/1/2006 - 6/30/2011.
3. PI Project 1 (10%) - "Consortium for the Study of Chromatin Biology and Epigenetic Targeting in Hematologic Malignancies", LLS SCOR, $150,000 annual direct costs, 10/1/2007 - 9/30/2012.
4. PI Project 1 - "New approaches to improve bone marrow transplantation in leukemia", MICHR Grant, $55,000 direct costs, 1 year.

B. PENDING PROJECTS
1. PI (20%) - "Transcriptional Deregulation by MLL Fusion Proteins", NIH 2R01-CA92251-04, 7/1/2007- 11/30/2012 (scored in the 0.6 percentile)

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, Director of Finance and Administration Search Committee
3. Chair, Lean Implementation Steering Committee
4. Chair, Marketing Oversight Committee
5. 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. Medical School Executive Committee
11. Medical School Executive Committee Business Subcommittee
12. Chair, Michigan Center for Translational Pathology Executive Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. American Society of Hematology Abstract Review Committee, Coordinating Reviewer
2. Cancer and Molecular Pathobiology Study Section (ad hoc reviewer)
3. American Association for Cancer Research Program Committee
4. Association of Pathology Chairs Research Committee

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*
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*

h) *Chromosomes and Cancer*
i) *Modern Pathology*
j) *Human Pathology*
k) *American Journal of Clinical Pathology*
l) *Experimental Hematology*
m) *DNA and Cell Biology*
n) *Oncogene*
o) *Gene*
p) *Molecular and Cellular Biology*
q) *Nature Cell Biology*

B. INVITED LECTURES/SEMINARS
1. "Building Research Infrastructure" Association of Pathology Chairs Annual Meeting, Colorado Springs, CO, July 14, 2006
2. "Training Academic Pathologists" Association of Pathology Chairs Western and Midwestern Division, San Diego, CA, October 27, 2006
3. "Mechanisms of Transformation by MLL: Insights from Fruit Flies, Mice and Microarrays" Johns Hopkins University School of Medicine Workshop on Clinical Targeting of Epigenetic Chance in Cancer, Phoenix, AZ, January 12, 2007
4. "Mechanisms of Transformation by MLL: Insights from Fruit Flies, Mice and Microarrays" NIH Transcription Factors Interest Group, Bethesda, MD, February 1, 2007
5. "Mechanisms of Transformation by MLL: Insights from Fruit Flies, Mice and Microarrays" Massachusetts General Hospital Cancer Center, Boston, MA, April 4, 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathologists (Fellow, 1992 - Present)
2. American Society of Hematopathologists (1993 - Present)
3. United States and Canadian Academy of Pathology (1994 - Present)
4. American Society of Hematology (1997 - Present)
5. American Association for Cancer Research (2000 - Present)
6. Association of Pathology Chairs (2005 - Present)
7. Association of Pathology Chairs Research Committee (2005 - Present)
8. Pluto Society (2006 - Present)
9. Michigan Society of Pathologists (2006 - Present)
10. A. James French Society (2005 - Present)

D. HONORS AND AWARDS
1. Madison Who's Who Among Executives and Professionals

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 (in press).

B. BOOKS/CHAPTERS IN BOOKS
   1. Crawford B, **Hess, JL.** MLL core components give the green light to histone methylation. AC Chemical Biology 1:495-498, 2006.
   2. Milne, TA, Zhao, K, **Hess, JL**. Chromatin immunoprecipitation for analysis of histone modifications and chromatin-associated proteins. So, E., ed.: Methods in Molecular Medicine, vol. xx. Totowa, NJ, Humana Press (in press).
   3. **Hess, JL**, Zutter, MM: The hematopoietic system: Lymph node and spleen. Dehner, LP, ed: Pediatric Surgical Pathology, Third Edition, Baltimore, Williams and Wilkins (in press).
   4. Zutter, MM, **Hess, JL**: The hematopoietic system: Bone marrow. Dehner, LP, ed.: Pediatric Surgical Pathology, Third Edition, Baltimore, Williams and Wilkins (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Caslini, C, **Hess, JL**. MLL modulates telomere length in mammalian cells. Blood 108(11): 626a, 2006. (Presented at American Society of Hematology, Orlando, FL, 2006)

Cory M. Hogaboam, Ph.D.

Associate Professor

I. Clinical Activities – None

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lauren Heise, M1 Medical Student, Student Biomedical Research Program.

B. GRADUATE STUDENTS
1. PhD Dissertation Committees
   a) Betsy Pierce (Graduate Immunology Program) PhD defense Dec. 1, 2006.
   b) Tobias Rodriguez (Graduate Immunology Program) PhD defense Jan 25, 2007.
   c) Haitao Wen (Molecular and Cellular Pathology Graduate Program)
   d) Esther Choi (Graduate Immunology Program)
   e) Andrew Shreiner (Graduate Immunology Program)
   f) Adam Hartigan (Graduate Immunology Program)
   g) Hemanth Ramaprakesh (Graduate Immunology Program)
2. PIBS Graduate Student Laboratory Rotations, University of Michigan:
   a) Leah Hubbard
   b) Hemanth Ramaprakash
3. Preliminary Examiner for Ph.D. Programs: Molecular and Cellular Pathology and other Graduate Programs, University of Michigan
   a) Ms. Lara Kelley, Chair of examining committee
   b) Mr. Paul Marinec
   c) Mr. Srikanth Patury

C. UNDERGRADUATE STUDENTS
1. Daniel Fong, University of Michigan
2. Ashley Cherniawski, Kalamazoo College
3. Tatiana Paula Teixera Ferreira, Oswaldo Cruz Institute, Rio de Janeiro, Brazil.

D. 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) Alessia Meneghin, M.D.

e) Ana Coelho, Ph.D.
f) Priya Kulasekaran, Ph.D.
g) Karen Buckland, Ph.D.

E. LECTURES
1. Pathology 582: Inflammation and Tissue Repair. U of Michigan
2. Course Organizer – New Therapeutic perspectives for chronic pulmonary disease. Fiocruz Institute, Rio de Janeiro, Brazil. GLOBAL outreach supported. October 23-27
3. ULAM seminar series. Linking innate and acquired immunity in the lung: lessons learned from Aspergillus fumigatus. University of Michigan Medical School.
4. BSRB Immunology Program seminar series. TLR9: exploring its role in chronic pulmonary disease. University of Michigan Medical School.

F. OTHER
1. ImmunoRio2007. 13th International Congress of Immunology. Co-Chair of mini-symposium: Immunity to ectoparasites and worms. Rio de Janeiro, Brazil.
2. Keystone Symposia: Molecular Mechanisms of Fibrosis – from bench to bedside. Chair of plenary session: Pulmonary fibrosis.
3. AAI, Miami FL Chair of Symposium: Host defense against parasitic and fungal infections.

III. Research Activities

A. SPONSORED SUPPORT
1. P50 HL074024 (Theodore Standiford, PI of SCCOR) Specialized Center for Clinically Oriented Research (SCCOR) Project 1 (Steven L. Kunkel, P.I., Cory M. Hogaboam, Co-I) Dynamic effects of chemokines on systemic inflammation. 12/01/03 - 11/31/08 $249,054.00 per annum
2. R01 HL69865 (Cory M. Hogaboam, P.I.) Targeting of RANTES/CCL5 during chronic fungal asthma. 08/30/03-07/31/07 $175, 000.00 per annum.
3. R01 HL073728 (Cory M. Hogaboam, P.I.) IL-13 fusion cytotoxin as a targeted therapeutic for IIP. 09/30/03-08/31/07 $275, 000.00 per annum.
4. RFP-HR-04-08 (Fernando J. Martinez, P.I., Cory M. Hogaboam, Co-I) Lung Tissue Research Consortium: Clinical Centers. 01/30/04-01/29/09 Total amount of Contract: $3,060,407.00.
5. P01HL31963 (Steven L. Kunkel, PI of Program Project) Inflammatory Cells and Lung Injury 12/01/04-11/30/09
6. Project 4 (Nicholas W. Lukacs, PI, Cory M. Hogaboam, Co-I) Cockroach allergen-induced airway inflammation. $225,000.00 per annum
7. R01 U10 HL080371 (Fernando J. Martinez, PI, Cory M. Hogaboam, Co-I) Novel Therapeutic Approaches in IPF. 04/01/05 – 03/31/10 $548,655 per annum.
8. Novartis Institute for Biomedical Research (Cory M. Hogaboam, PI) Identification and validation of novel therapeutic targets and biomarkers for idiopathic pulmonary fibrosis. 02/01/06-01/31/09 $515,898.00 per annum.
9. Novartis Institute for Biomedical Research (Cory M. Hogaboam, PI) Master Agreement for Services: Target validation in a SCID model of pulmonary fibrosis.
   a) Agreement 1: testing antibodies directed against CCL19, CCL21, and CCR7. $75,041.00.

b) Agreement 2: testing antibodies directed against PDGF receptor alpha and beta. $60,000.00.

10. Centocor Research and Development, Inc. (Cory M. Hogaboam, PI). Target validation of novel anti-fibrotic strategies in a novel model SCID model of human IIP. 06/01/06-05/31/07 $115,545.00 per annum.
11. Centocor Research and Development, Inc. (Cory M. Hogaboam, PI). Biomarker study in human IIP fibroblasts. 12/01/06-11/31/07 $72,350.00 per annum.
12. Centocor Research and Development, Inc. (Cory M. Hogaboam, PI). Protective and therapeutic targeting of TLR3 during acetaminophen-induced liver injury. 05/31/07-06/01/08 $45,000.00 per annum.
13. Centocor Research and Development, Inc. (Cory M. Hogaboam, PI). Validation of two models of viral exacerbation of chronic fungal asthma. 05/31/07-06/01/08 $35,000.00 per annum.

B. 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.

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.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Center for Scientific Review, ZRG1 IMB (01) Fellowship (F32) and R15 Review.
2. Course Organizer – Pathobiology of Inflammation. Oswaldo Cruz Institute, Rio de Janeiro, Brazil

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. Journal peer-review
   a) *Journal 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*
7. 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. Role of chemokines in pulmonary fibrosis induced by Aspergillus infection. Molecular mechanisms of Fibrosis: from bench to bedside. Keystone Symposium, Granlibakken Resort, Tahoe City, CA.
2. On the infectious basis of pulmonary fibrosis. Emory University, Atlanta, GA.
3. On the infectious basis of pulmonary fibrosis. 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)

D. HONORS AND AWARDS

1. US Patent Application: Alleviating symptoms of Th2-like cytokine mediated disorders by reducing IL-13 receptor expressing cells in the respiratory tract. Filed March 1, 2002. Docket Number 015280-448000. Patent rights licensed to NeoPharm Incorporated, June 11, 2007.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Lama V.N., Harada H., Badri L., Flint A., **Hogaboam C.M**., McKenzie A., Martinez F.J., Toews G.B., Moore B.B., Pinsky D.J. Obligatory role for IL-13 in obstructive lesion development in airway allografts. Am. J. Pathol. 169(1): 47-60, 2006.
2. Schaller M, **Hogaboam C.M**., Lukacs N., Kunkel S.L. Respiratory viral infections drive chemokine expression and exacerbate the asthmatic response. J. Allergy Clin. Immunol. 118(2): 295-302, 2006.
3. Henke P.K., Pearce C.G., Moaveni D.M., Moore A.J., Lynch E.M., Longo C., Varma M., Dewyer N.A., Deatrick B., Upchurch G.R., Wakefield T.W., **Hogaboam C.**, Kunkel S.L. Targeted deletion of CCR2 impairs DVT resolution in a mouse model. J. Immunol., 177: 3388-3397, 2006.
4. Joshi B.H., **Hogaboam C.**, Dover P., Husain S.R., Puri R.K. Role of Interleukin-13 in cancer, pulmonary fibrosis, and Other T(H)2-Type diseases. Vitam Horm. 74C:479-504, 2006.
5. Huang S.K., Wettlaufer S.H., **Hogaboam C.M**., Aronoff D.M., Peters-Golden M. Prostaglandin E2 inhibits collagen expression and proliferation in patient-derived normal lung fibroblasts Via E prostanoid 2 receptor and cAMP signaling. Am. J. Physiol. Lung Cell. Mol. Physiol. Oct 6; [Epub ahead of print] 2006.
6. Ness T.L., Ewing J.L., **Hogaboam C.M.,** Kunkel S.L. CCR4 is a key modulator of innate immune responses. J. Immunol., 177(1): 7531-7539, 2006.
7. Hartl D., Buckland K.F., **Hogaboam C.M.** Chemokines in allergic bronchopulmonary aspergillosis - from animal models to human lung diseases. Inflammation & Allergy – Drug Targets, 5(4): 219-228, 2006.
8. Keane M.P., Gomperts B.N., Weigt S., Xue Y.Y., Burdick M.D., Nakamura H., Zisman D.A., Ardehali A., Saggar R., Lynch III J.P., **Hogaboam C.,** Kunkel S.L., Lukacs N.W., Ross D.J., Grusby M.J., Strieter R.M., Belperio J.A. IL-13 is pivotal in the fibro-obliterative process of bronchiolitis obliterans syndrome. J. Immunol., 178: 511-519, 2007.
9. Vallance B.A., Radojevic N., **Hogaboam C.M**., Deng Y., Gauldie J., Collins S.M. IL-4 gene transfer to the small bowel serosa leads to intestinal inflammation and smooth muscle hyperresponsiveness. Am. J. Physiol. Gastrointest. Liver Physiol., 292: G385-G394, 2007.
10. Buckland K.F., O'Connor E.C., Coleman E.M., Lira S.A., Lukacs N.W., **Hogaboam C.M.** Remission of chronic fungal asthma in the absence of CCR8. J. Allergy Clin. Immunol., 119(4):997-1004. Feb 23,Epub ahead of print, 2007.
11. Pierce E.M., Carpenter K.J., Jakubzick C., Kunkel S.L., Flaherty K.R., Martinez F.J., **Hogaboam C.M**. Idiopathic pulmonary fibrosis fibroblasts migrate and proliferate to CCL21. Eur. Respir. J., 29(6): 1082-1093. March 1, Epub ahead of print, 2007.
12. Meneghin, A., **Hogaboam, C.M**. Infectious disease, the innate immune response, and fibrosis. J. Clin. Invest., 117(3): 503-508, 2007.

13. Kamio K., Liu X.D., Sugiura H., Togo S., Kobayashi T., Kawasaki S., Wang X., Mao L., Ahn Y., **Hogaboam C.,** Toews M.L., Rennard S.I. Prostacyclin analogues inhibit fibroblast contraction of 3-D collagen gels through cAMP-PKA pathway. Am. J. Respir. Cell Mol. Biol., March 15, Epub ahead of print, 2007.
14. Wells, A., **Hogaboam, C.M**. Update in diffuse parenchymal lung disease 2006. Am. J. Respir. Crit. Care Med., 175(7): 655-660, 2007.
15. Pierce E.M., Carpenter K.J., Jakubzick C., Kunkel S.L., Flaherty K.R., Martinez F.J., **Hogaboam C.M.** Therapeutic targeting of CCL21 or CCR7 abrogates pulmonary fibrosis induced by the adoptive transfer of human pulmonary fibroblasts into immunodeficient mice. Am. J. Pathol., 170:1152-1164, 2007.
16. Ajuebor M.N., Wondimu Z., **Hogaboam C.M.**, Le T., Proudfoot A.E., Swain M.G. CCR5 deficiency drives enhanced natural killer cell trafficking to and activation within the liver in murine T cell-mediated hepatitis. Am. J. Pathol., Apr. 6 Epub ahead of print, 2007.
17. Wen H., **Hogaboam C.M**., Kunkel S.L. The chemokine receptor CCR6 is an important component of the innate immune response. Eur. J. Immunol., in press, 2007.
18. Coelho, A., Schaller M.A., Benjamim C.F., **Hogaboam C.M**., Kunkel S.L. The chemokine CCL6 promotes innate immunity via immune cell activation and recruitment. J. Immunol., in press, 2007.
19. Joshi A., Raymond T., Coelho A.L., Kunkel S.L., **Hogaboam C.M.** Schistosoma mansoni-egg induced pulmonary granulomatous disease modifies bone marrow-derived macrophage Toll like receptor expression and function. Infect. Immun. in press, 2007.
20. Ajuebor M.N., Zhou F., Yang Y., **Hogaboam C.M.**, Kronenberg M., Swain M.G. Ligand specific differential regulation of IFN-γ production in CD1d restricted NKT cells by TNF-α. J. Immunol., in press, 2007.
21. Daley E., Robinson K., Taraseviciene-Stewart L., Kurup V.P., **Hogaboam C.,** Lincoln P., Goldman S., Grunig E., Voelkel N.F., Grunig G. Pulmonary arterial muscularization induced by a chronic intermittent antigen challenge. J. Immunol., in press, 2007.
22. Xiaodan R., Bin H., **Hogaboam C.M.**, Colletti L.M. Stem cell factor and its receptor, c-kit, are important for hepatocyte proliferation in wild-type and TNF-receptor-1 knockout mice following 70% hepatectomy. Am. J. Physiol. Gastrointest. Liver Physiol., in press, 2007.
23. 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. Inflamm. Res., in press, 2007.
24. Milam J.E., Keshamouni V.G., Phan S.H., Tyagi R.K., **Hogaboam C.M.**, Standiford T.J., Thannickal V.J., Reddy R.C. PPAR-γ ligands inhibit pro-fibrotic phenotypes in human lung fibroblasts. Am. J. Resp. Cell Mol. Biol., in press, 2007.

B. BOOKS/CHAPTERS IN BOOKS

1. Schaller M., **Hogaboam C.M.**, Lukacs N., Kunkel S.L. Respiratory viral infections drive chemokine expression and exacerbate the asthmatic response. In: American Academy of Allergy, Asthma and Immunology. In press, 2006.
2. Trujillo G., **Hogaboam C.M.**, Chemokines and their receptors in fibrosis. In: The Chemokine Receptors. Ed: Jeffrey K. Harrison and Nicholas W. Lukacs. Humana Press. In press, 2007.

3. Buckland K.F., **Hogaboam C.M.**Cytokines. In: Immunology of Fungal Infections. Ed: G.D. Brown and M.G. Netea. Springer. pp 201-234, 2007.
4. 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.
5. Ness T.L., Kunkel S.L., **Hogaboam C.M**. CCR5 antagonists: the answer to inflammatory disease? Expert Opinion on Therapeutic Patents. 16, 1051-1065, 2006.
6. Ness T.L., Kunkel S.L., **Hogaboam C.M**. Chemokines: central mediators of the innate immune response to sepsis. Current Immunology Reviews, 1(3): 237-260, 2006.

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

1. Buckland, K.F., O'Connor E.C., **Hogaboam C.M**. Toll-like receptor (TLR)-2 is required for the airways hyperreactivity and remodeling during chronic fungal-induced asthma in mice. Proc Am Thorac Soc 3: A467, 2006.
2. Grunig G., Daley E., Robinson K., Kurup V., Taraseviciene-Stewart L., **Hogaboam C.M.**, Voelkel N. IL-13 – an inducer of pulmonary vascular remodeling. Proc Am Thorac Soc 3: A857, 2006.
3. Ito T., Schaller M., **Hogaboam C.M.**, Chensue S.W., Kunkel S.L. Toll like receptor 9 participation in experimental Th type 1 (mycobacterial) pulmonary granuloma formation. J. Immunol. 178: 44.15.
4. Coelho A.L., Schaller M. **Hogaboam C.**, Kunkel S. Protective role of CCL6 during severe sepsis through interferon-gamma generation and interferon-producing killer dendritic cell recruitment. J. Immunol. 178: 44.18.
5. Choi E.S., Buckland K., **Hogaboam C.** Expression of TREM-1 in macrophages is TLR2-dependent. J. Immunol. 178: 51.7.
6. Grunig G., Daley E., Emson C., Taraseviciene-Stewart L., Kurup V.P., de Waal-Malefyt R., **Hogaboam C.,** Grunig E., Voelkel N.F. A Th2 response to chronic intermittent antigen exposure induces pulmonary vascular muscularization. J. Immunol. 178: 96.8.

Naohiro Inohara, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Postdoctral Fellow, Mizuho Hasegawa, Ph.D.

III. Research Activities

A. SPONSORED SUPPORT

1. RO1 GM60421-01A2 "Nod 1: An Apaf-like Activator of Apoptosis and NF-KB"

B. PENDING PROJECTS

1. "Regulation of oral bacteria by pattern recognition receptors"

C. PROJECTS UNDER STUDY

1. Immune responses mediated by Nod proteins and related disease

IV. Administrative Activities

A. DEPARTMENTAL - None

B. INSTITUTIONAL - None

C. REGIONAL/NATIONAL/INTERNATIONAL - 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 ECDO meeting (Sardia, Italy, Oct. 3, 2006)

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Biochemistry and Molecular Biology

2. American Society of Cell Biology

D. HONORS AND AWARDS – None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Park JH, Kim YG, Shaw M, Kanneganti TD, Fujimoto Y, Fukase K, **Inohara N**, Nunez G.Nod1/RICK and TLR Signaling Regulate Chemokine and Antimicrobial Innate Immune Responses in Mesothelial Cells. J Immunol. 2007 Jul 1;179(1):514-21.
2. Hasegawa M, Kawasaki A, Yang K, Fujimoto Y, Masumoto J, Breukink E, Nunez G, Fukase K, **Inohara N.** A role of lipophilic peptidoglycan-related molecules in induction of Nod1-mediated immune responses. J Biol Chem. 2007 Apr 20;282(16):11757-64. Epub 2007 Feb 23.
3. Zhao L, Kwon MJ, Huang S, Lee JY, Fukase K, **Inohara N,** Hwang DH. Differential modulation of nods signaling pathways by fatty acids in human colonic epithelial HCT116 cells. J Biol Chem. 2007 Feb 15; [Epub ahead of print]
4. Park JH, Kim YG, McDonald C, Kanneganti TD, Hasegawa M, Body-Malapel M, **Inohara N**, Nunez G. RICK/RIP2 Mediates Innate Immune Responses Induced through Nod1 and Nod2 but Not TLRs. J Immunol. 2007 Feb 15;178(4):2380-6.
5. Kanneganti, TD Body-Malapel M, Amer A, Park JH, Whitfield J, Taraporewala JF, Miller D, Patton TD, **Inohara N,** Gabriel Nunez Critical role for cryopyrin/Nalp3 in activation of caspase-1 in response to viral infection and double-stranded RNA J Biol Chem. 2006 Dec 1;281(48):36560-8. Epub 2006 Sep 28.
6. Hasegawa M, Kawase K, **Inohara N**, Imamura R, Yeh WC, Kinoshita T, Suda T. Mechanism of ASC-mediated apoptosis: Bid-dependent apoptosis in type II cells. Oncogene. 2007 Mar 15;26(12):1748-56. Epub 2006 Sep 11.
7. Hasegawa M, Yang K, Hashimoto M, Park JH, Fujimoto Y, Nunez G, Fukase K, **Inohara N** Differential release and distribution of Nod1 and Nod2 immunostimulatory molecules among bacterial species and environments. J Biol Chem. 2006 Sep 29;281(39):29054-63. Epub 2006 Jul 26.
8. Masumoto J, Kobayashi H, Nakamura T, Kaneko Y, Ota H, Hasegawa M, Kobayashi Y, Suzuki T, Matsuda K, Sano K, Katsuyama T, **Inohara N.** Regulation of the ASC expression in response to LPS stimulation is related to IL-8 secretion in the human intestinal mucosa. Biochem Biophys Res Commun. 2006 Aug 4;346(3):968-73.
9. Franchi L, Amer A, Body-Malapel M, Kanneganti TD, Ozoren N, Jagirdar R, **Inohara N,** Vandenabeele P, Bertin J, Coyle A, Grant EP, Nunez G. Cytosolic flagellin requires Ipaf for activation of caspase-1 and interleukin 1beta in salmonella-infected macrophages. Nat Immunol. 2006 Jun;7(6):576-82.

B. BOOKS/CHAPTERS IN BOOKS – None

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

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. 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. Laboratory Instructor - Second year Pathology Course.
6. Laboratory Instructor-First year Pathology Course.
7. Lecturer Genitourinary Pathology – Second Year Pathology Course,
8. Michigan State University Medical School

III. Research Activities

A. SPONSORED SUPPORT
1. Principal Investigator, "Inflammatory Cells and Lung Injury", Core C, National Institutes of Health, $299,985 annual. 02/1/05-01/31/10.
2. Co-Principal Investigator, "Mechanisms of MMP-Involvement in Acute Inflammatory Lung Injury" with Jim Varani. RO1, NIH. $775,000, $225,000 annual. 6/01/03-11/30/06.
3. Principal Investigator "Studies on Biomarkers of Animal and Human Vasculitis" Pfizer, Inc. $160,149.00 annual. 7/01/03-12/31/06.
4. Principal Investigator "Development of Human and Mouse Microarrays". Pfizer, Inc. $534,040.00 1/15/06-1/15/08.
5. Principal Investigator "Application of Protein Expression Technologies to Identify Biomarkers of Disease". Pfizer, Inc. $592,500.00. 1/15/06/1/15/08.
6. Principal Investigator "Biological Samples from Patients with Cancer or Inflammatory Diseases". DNAX, Inc. $133,267.00. 1/25/06-12/31/06.

B. PENDING PROJECTS

1. Co- Investigator, "Mechanisms of MMP Involvement in Acute Lung Injury" NIH.

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
   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 Study Section.

B. INVITED LECTURES/SEMINARS
1. Invited Speaker-Department of Pathology Seminal Series
2. Invited Speaker Pfizer Research and Development

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. McClintock SD, Barron AG, Olle EW, Deogracias MP, Opp M, **Johnson KJ**: Role of interleukin-6 in immune complex induced models of vascular injury. Inflammation 2006 29:154-162.
2. Olle EW, Ren X, McClintock S, Warner RL, Deogracias MP, **Johnson KJ,** Colletti L: Matrix metalloproteinase-9 (MMP-9) is a critical factor in hepatic regeneration following partial hepatectomy. Hepatology 2006 44:540-549.
3. Reddy P, **Johnson KJ**, Uberti JP, Reynolds C, Silver S, Ayashi L, Braun TM, Ratanatharathorn V: Nephrotic syndrome associated with chronic graft-versus-host disease after allogeneic hematopoietic stem cell transplantation. Bone Marrow Transplantation 2006 38:351-357.

4. McClintock, SD, Barron, AG, Olle, EW, Deogracias, MP, Warner, RL, Opp, MR, **Johnson, KJ**: Role of interleukin-6 in a glucan-induced model of granulomatous vasculitis. Exp. Mol. Pathol. 2007 Apr;82(2):203-9. Epub 2007 Jan 12.
5. 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 2007 May 4 [Epub ahead of print].
6. 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 May 14; [Epub ahead of print].
7. 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, *In press, 2007*.
8. 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*, 2007.
9. 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*, 2007.

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

1. McClintock, S.D., Barron, A.G., Warner, R.L., Nerusu, K.C., Bhagavathula, N., Varnai, J., **Johnson, K.J.**: Role of Macrophage Metalloelastase (MMP-12) in Remodeling Following Bleomycin Induced Pulmonary Fibrosis. 2007 Experimental Biology, Washington, DC.
2. Bickel, D., Deogracias, M.P., McClintock, S., Warner, R.L., Paulauskis,J., Anderson, T.D., **Johnson, K.J.**: Use of Small Semi-Quantitative Antibody Arrays for Rapid Multiple Protein Analysis in Models of Vasculitis. 2007 Experimental Biology, Washington, DC.
3. Barron, A.G., Warner, R.L., Bhagavathula, N., Dasilva, M., **Johnson, K.J.,** Varani, J.: Members of the Family *Zingiberaceae* Promote Tropoelastin and Procollagen Type 1 Synthesis in Cultured Human Fibroblasts. 2007 Experimental Biology, Washington, DC.
4. Varani, J., Nerusu, K.C., Warner, R.L., Bhagavathula, N., McClintock, S.D., **Johnson, K.J.,** Standiford, T.: Matrix metalloproteinase-1 (interstitial collagenase) and matrix metalloproteinase-3 promote disease progression in acute lung injury. 2007 Experimental Biology, Washington, DC.

Walter John Judd, FIBMS, MIBIOL

Professor of Pathology
Director of Blood Bank Reference Laboratory

I. Clinical Activities

A. Director, Blood Bank Reference Laboratory
   1. In collaboration with the Molecular Diagnostics Laboratory, acquired and implemented molecular genotyping beadchip technology for human blood group polymorphisms

B. Consultant, Veteran's Administration Medical Center, Ann Arbor.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Introduction to the Transfusion Service - Monthly lectures to M4 students

B. HOUSE OFFICERS AND FELLOWS
   1. Resident Training
      a) Program Director, Clinical Pathology Grand Rounds: CME Accredited Program 10016
      b) Program Coordinator Clinical Pathology Case Study Conference: CME Accredited Program 10021
      c) Program Director: Management Lecture Series for Pathology Residents
      d) Coordinator, Core-Lecture Series in Transfusion Medicine for 1st-year Pathology House Officers
      e) Pathology Residents: Provided instruction in immunohematology to 12 house-officers during their Blood Bank Rotation:
   2. Fellows
      a) Provided instruction in immunohematology to two hematology fellows.

C. LECTURES
   1. Clinical Pathology Grand Rounds,It's a load of codswallop. April 8, 2007
   2. Judd's last hurrah. April 22, 2007

D. OTHER
   1. Current Topics in Blood Banking, Program Director: 34th Annual Conference Speaker: It's a load of codswallop

III. Research Activities

A. PROJECTS UNDER STUDY

1. Downs T, Dake L, Butch S, Kreiner E, Bensette M, Judd WJ. Validation results with reformulated 0.8% Selectogen reagent red blood cells for gel column use. Abstract submitted for presentation at the Annual Meeting of the American Association of Blood Banks, Anaheim, CA, October, 2007.
2. Dake LR, Howard JK, Judd WJ, Cooling L. Validation of the human trythrocyte antigen (HEA) BeadChipTM after implementation of the Web-based (wHEATM v1.1 Beta) kit. Abstract submitted for presentation at the Annual Meeting of the American Association of Blood Banks, Anaheim, CA, October, 2007.
3. 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! Abstract submitted for presentation at the Annual Meeting of the American Association of Blood Banks, Anaheim, CA, October, 2007.
4. Cooling LW,Thomas R, Mullis N, Shayman JA, Judd J. A LKE-negative phenotype due to an apparent weak P phenotype. Abstract submitted for presentation at the Annual Meeting of the American Association of Blood Banks, Anaheim, CA, October, 2007.
5. Jennifer K. Howard JK, Dake LR, Judd WJ, Wilson TE, Elenitoba-Johnson, KSJ. Determination of Human Blood Group Antigens by Multiplex PCR with Array-Based Allele-Specific Detection. Abstract submitted for presentation at the Annual Meeting of the Association for Molecular Pathology, November 2007.

IV. Administrative Activities

A. DEPARTMENTAL

1. Blood Bank Daily Rounds.
2. Weekly Blood Bank Communication Meetings.
3. Monthly Clinical Pathology Faculty Meetings.

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Michigan Association of Blood Banks:
   a) Member, Annual Meeting Program Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a) *Transfusion*
   b) *Immunohematology*
2. Reviewer
   a) *Transfusion*
   b) *Immunohematology*
   c) *International Journal of Laboratory Hematology*
   d) *Transfusion Medicine and Vox Sanguinus*

B. INVITED LECTURES/SEMINARS

1. What to about weak D. Michigan Association of Blood Banks, Annual Meeting Livonia, 2006.
2. What to about weak D. Ortho Clinical Diagnostics Seminar, Dayton, OH. September, 2007.

3. How I manage weak and partial D. American Association of Blood Banks Annual Meeting, Miami, October 2006.
4. It's a load of codswallop. American Association of Blood Banks Annual Meeting, Miami, October 2006.
5. What to about weak D. Ortho Clinical Diagnostics Seminar, Pittsburgh, PA, February 2007.
6. It's a load of codswallop. Ortho Clinical Diagnostics Seminar, Pittsburgh, PA, February 2007.
7. What to do about weak D. Institute for Transfusion Medicine, Pittsburgh, PA, February, 2007.
8. What to do about weak D. AABB Teleconference, Bethesda, MD, April 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. International Society of Blood Transfusion Michigan Association of Blood Banks AABB Institute of Biomedical Sciences (Fellow) Institute of Biology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Yazer MH, **Judd WJ,** Davenport RD, et al. 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. Denomme G, Dake L, Vilensky D, Ramyar L, **Judd WJ.** Variability of partial D and weak D types in the serological analysis of Rh discrepancies. Transfusion: Accepted

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 (228 days on call)
D. Immunopathology Service
E. Endomyocardial Biopsy Service
F. Autopsy Service (23 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 signout (30 hours)
   2. Case Review (Autopsy Service and GU Service, 6 hours)
   3. Nephrology Board Review (8 hours)
   4. Case Review with Nephrology Fellows (8 hours)

C. OTHER
   1. Nephrology Basic/Clinical Conference (12 hours)

III. Research Activities

A. SPONSORED SUPPORT
   1. Core Director, Morphology Core, Biology of the Glomerular Podocyte, NIH-P50-DK39225 (5% effort) $129,949/year, 07/01/03-06/30/08.
   2. Co-Investigator, "Mouse Models of Diabetic Nephropathy and Neuropathy", DK01009, (5% effort) $545,421 direct costs/year, 10/01/01-9/30/06.

B. PROJECTS UNDER STUDY
   1. Glomerular podocyte reaction to injury.
   2. Predictors of renal progression.
   3. Transcriptome analysis in archival renal biopsy specimens.

4. Surrogate markers of vascular injury in renal transplantation.

IV. Administrative Activities

A. INSTITUTIONAL

1. IRBMED A1 Committee, July '06-
2. Component II Curriculum Development, M2 Urinary System.

V. Other Relevant Activities – None

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS

1. Shayman JA, **Killen PD**: Fabry Disease. In Molecula and Genetic Basis of Renal Disease, Mount DB and Pollak, M eds., Elsevier Saunders, Philadelphia, 2006

Celina G. Kleer, M.D.

Associate Professor of Pathology

III. Clinical Activities

A. Sign out sessions 8 weeks. This session involves signing out in-house and transfer cases from other institutions and teaching residents and fellows.

B. 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 Breast Care Multidisciplinary Conference – Every Monday for approx.18 weeks/year.

D. On-call - 2 weeks

IV. Teaching Activities

A. MEDICAL STUDENTS

1. Mentor for Iris Wei, M2, who rotated in my laboratory for the summer (3 months). Iris focused on "Promoter methylation as a cause WISP3/CCN6 down-regulation in the development of inflammatory breast cancer", which she presented as a poster at the U of Michigan Medical School Research Meeting.

B. GRADUATE STUDENTS

1. Member of the Thesis Dissertation Committee
   a) Neali Hendrix (PathologyPh.D. candidate). Mentor: Kathleen Cho, Pathology Dept.
   b) Lisa Privette (Human Genetics Ph.D. candidate). Mentor: Liz Petty, Human Genetics Dept.
2. Mentor
   a) Anchi Lo, Graduate Student at School of Public Health, University of Michigan.
   b) Sharon Hensley Alford, Graduate Student at School of Public Health, University of Michigan.

C. HOUSE OFFICERS AND FELLOWS

1. Breast pathology diagnostic room instruction for house officers – 8 weeks.
2. Slide seminar on interesting cases in breast pathology – 1 contact hours.
3. One didactic lecture on breast pathology – 1 contact hours.

consultation cases, and in research projects.

III. Research Activities

A. SPONSORED SUPPORT

1. PI (80%), "Role of LIBC (WISP3) in the Development of the Inflammatory Breast Cancer Phenotype", NIH/NCI K08 CA090876-01A2, $676,800, 9/30/03-8/31/08.
2. PI (30%), "Role of EZH2 in Breast Cancer Progression", NIH/NCI RO1 CA107469-01, $1,296,876, 2/01/05-1/31/10, concurrent with K08.
3. Co-Investigator (2%), "Changes Induced by Parity in the Stem/Progenitor Cell Population of the Normal Human Breast" Avon Foundation (PI: Dontu, G) 11/01/2006 - 10/31/2008

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Breast Pathology Fellowship
2. Member, Pathology Graduate Program Executive Committee

B. INSTITUTIONAL

1. Member, Breast Care Center Task Force
2. Member, Medical School Admissions Committee

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.

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
5. Abstract Reviewer
   a) Society for Molecular Imaging
   b) United States andCanadian Academy of Pathology (IAP-USCAP).

B. INVITED LECTURES/SEMINARS

1. "The Pathology of High Risk Breast Lesions" Michigan Radiological Society, Plymouth, MI, October 29th, 2006.
2. "Breast Pathology" ASCP residents review course, Chicago, IL, April, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, United States and Canadian Academy of Pathology
2. Member, American Association of Clinical Pathologists
3. Member, American Medical Association
4. Member, College of American Pathologists
5. Member, A. James French Society of Pathologists
6. Member, American Association for Cancer Research
7. Member, CCN Proteins Society
8. Member, Southwest Oncology Group (SWOG)
9. Member, American Society for Investigative Pathology
10. Member, American Society for Clinical Oncology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Kleer, C.G.,** Teknos, T.N., Islam, M., Marcus, B., Lee, J.S.J., Pan, Q., and Merajver, S.D. RhoC-GTPase Expression as a Potential Marker of Lymph Node Metastasis in Squamous Cell Carcinomas of the Head and Neck. Clinical Cancer Res, 12(15):4485-90, 2006.
2. Ding L, and **Kleer CG.** Enhancer of zeste 2 as a Marker of Preneoplastic Progression in the Breast. Cancer Res. 66(19)9352-5, 2006.
3. Zeidler M, and **Kleer CG**. The Polycomb Group Protein Enhancer of Zeste 2: Its Links to DNA Repair and Breast Cancer. J Mol Histol. 37(5-7):219-223, 2006
4. 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
5. 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.
6. 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.
7. **Kleer CG**, Zhang Y, Merajver SD. CCN6 (WISP3) as a New Regulator of the Epithelial Phenotype in Breast Cancer. Cells Tissues Organs 185 (1-3):95-99, 2007.
8. 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, In press.
9. McHugh JB, Fullen DR, Ma L, **Kleer CG**, Su LD. Expression of polycomb group protein EZH2 in nevi and melanoma. Journal of Cutaneous Pathology. In press. Published online Dec. 2006.

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

1. **Kleer, C.G.** Polycomb Group Proteins. Encyclopedia of Cancer, Second Edition 2007. Editor: Manfred Schwab. Springer-Verlag, Germany.

2. Wei, I.*, Pu, R.*, Zhang, Y., Merajver, S.D., and **Kleer, C.G**. Analysis of WISP3 Promoter Methylation in Inflammatory Breast Cancer. XXVI Congress of the International Academy of Pathology, Montreal, Sept. 16-21, 2006.
3. Hayes, MJ, Witkiewicz, A, **Kleer, C.G.** Aberrant b-Catenin Expression is Associated with Morphology and Prognosis in Metaplastic Mammary Carcinomas. United States and Canadian Academy of Pathology, San Diego, CA, March 24-30, 2007.
4. Kunju, LP, **Kleer, C.G.** Carcinoma and Grade 1 (Well Differentiated) Invasive Ductal Carcinoma: Comparision of Associated Flat Epithelial Atypia and Other Intra-Epithlial Lesions. United States and Canadian Academy of Pathology, San Diego, CA, March 24-30, 2007.
5. Lo, AC., Soliman, AS., **Kleer, C.G**, Alford, SH., Eissa, S., Hablas, A., Khaled, HM., Omar, S., Merajver, S. Molecular Epidemiologic Features of Inflamitory Breast Cancer: A Comparison Between Egyptian and U.S. Patients. AACR meetingApril 14-18, 2007, Los Angeles, CA.
6. Georgopolis, A., Soliman, A., **Kleer, CG.**, Lo, AC., Eissa, S., Khaled, H., Omar, S., Merajver, SD. Molecular Differences Between Inflammatory Breast Cancers in Egyptian Patients. AACR meeting, April 14-18, 2007, Los Angeles, CA.

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: 15 weeks
2. Consultation Service: 15 weeks
3. Review of Urology cases to be presented at Multidisciplinary Tumor Conference, (every other conference, biweekly).
4. Rapid warm autopsy coverage for advanced prostate cancer: Back-up coverage

C. Breast Pathology Diagnostic Service (BE room): 4 weeks

D. Intra-operative consultation (on-call): 5 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
1. M1 Histopathology Sequence, Laboratory Instructor (20 contact hours)
2. M-2 GU Pathology Lab Sequence Lecturer and Laboratory Instructor, (2 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: 6 months.
2. GU Path Slide (Consult) Conferences: Two conferences (1 hour each)
   a) Didactic Lecture on Tumors of Testis: Two lectures (1 hour each)

D. LECTURES
1. Invited Speaker at 25th M Labs symposium. Lecture on "Relevant Immunohistochemistry in Genito-urinary Pathology"

E. OTHER
1. Interdepartmental: Multidisciplinary Urology Tumor Conference: 1 hour, weekly

III. Research Activities

A. PROJECTS UNDER STUDY
1. Co-Investigator-Characterization of Neoadjuvant Paclitaxel, Carboplatin and Gemcitabine Response in locally advanced bladder cancer.
2. Detailed study of micropapillary urothelial carcinoma
3. Incidence and Significance of HGPIN and Atypical Small Acinar Proliferation (ASAP) in era of extended needle biopsies: Experience from a single high-volume institution.
4. Is individual Gleason grading of multiple cores submitted in sme container necessary?
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

B. INSTITUTIONAL
1. Medical School Admission Committee Member

C. REGIONAL/NATIONAL/INTERNATIONAL – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Adhoc manuscript reviewer, *Human Pathology*.

B. INVITED LECTURES/SEMINARS
1. Tubular Carcinoma and Grade 1 (Well Differentiated) Invasive Ductal Carcinoma: Comparison of Associated Flat Epithelial Atypia and Other Intra-Epithelial Lesions. LP Kunju and CG Kleer. Poster presentation at United States and Canadian Academy of Pathology Apr 2007, San Diego, Ca. Mod Pathol 2007:20(2):39A (156).
2. Comparison of Lymphovascular Invasion in TURBT and Radical Cystectomy Specimens from Patients with Urothelial Carcinoma. LP Kunju, L You, Y Zhang, S Daignault, J Montie and CT Lee. Podium Presentation at American Urological Association (AUA) Annual Meeting,Anaheim CA, May 2007.
3. Invited Speaker at 25th M Labs symposium. Lecture on "Relevant Immunohistochemistry in Genito-urinary Pathology".

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Urologic Association (AUA)
2. United States and Canadian Academy of Pathology (USCAP)
3. American Socieity of Clinical Pathology (ASCP)
4. American Medical Association (AMA)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. ***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. Accepted at Hum Pathol, May 2007.
2. 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. Accepted at Am J Surg Pathol, Apr 2007.
3. 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 Accepted at Urology, Mar 2007.
4. **LP Kunju** and CG Kleer. Significance of Flat Epithelial Atypia on Mammotome Core Needle Biopsy: Should it be Excised? Hum Pathol, 2007; 38:35-41.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. ***LP Kunju*** and CG Kleer, Tubular Carcinoma and Grade 1 (Well Differentiated) Invasive Ductal Carcinoma: Comparison of Associated Flat Epithelial Atypia and Other Intra-Epithelial Lesions. Mod Pathol 2007:20(2): 39A (156).
2. C Przybycin, ***LP Kunju,*** A Wu and RB Shah. Partial Atrophy in Prostate Needle Biopsies: A Detailed Characterization of Morphology, Immunophenotype and Proliferation Status. Mod Pathol 2007:20(2): 171A (776).
3. A Wu, ***LP Kunju*** and RB Shah. Renal Cell Carcinoma in Children and Young Adults: Clinicopathologic Spectrum with Emphasis on Translocation Associated Carcinomas.
4. ***LP Kunju***, L You, Y Zhang, S Daignault, J Montie and CT Lee. Comparison of Lymphovascular Invasion in TURBT and Radical Cystectomy Specimens from Patients with Urothelial Carcinoma. AUA Annual Meeting Selected abstracts, Anaheim CA, May 2007.

Steven L. Kunkel, Ph.D.

Endowed Professor of Pathology Research
Co-Director of Sponsored Research

I. Clinical Activities - None.

II. Teaching Activities

A. MEDICAL STUDENTS
1. Host Defense Sequence, First Year Medical School
2. Case Reports First Year Medical Students

B. GRADUATE STUDENTS
1. Academic Advisor, Immunology Graduate Program
2. Supervised/served on thesis committee
   a) Haitao Wen
   b) Brittney Shaw
3. Doctoral Thesis Committee Member/Orals Committee
   a) Ben Murdock (Immunology)
   b) Haitao Wen (Pathology)
   c) Aasia Obaid (Dentristy)
   d) Andrea Waite (CMDB)
   e) Betsy Pierce (Immunology)
   f) Matt Hyman (CMB)
   g) Susan Faust (Immunology)
4. Oral preliminary examination committee
   a) Jolie Hoffman (CMB)
   b) Mike Steinbaugh (CMB)

C. UNDERGRADUATE STUDENTS
1. Supervised/served on thesis committee
   a) Shelby Lincoln
   b) Pavel Godfrey
   c) Ellen Walsh,
   d) Ally Knight
   e) Dan Fong
   f) Hannah Logue
1. Alec Dean

D. HOUSE OFFICERS AND FELLOWS
   1. Grand rounds, Pediatrics Fellows
      a) Tracy Raymond
      b) Matt Schaller
      c) Ana Lucia Coelho
      d) Amrita Joshi
      e) Toshihiro Ito
      f) Makoto Ishii
      g) Karen Cavassani De Souza

E. LECTURES - None.

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH - Macrophage/Monocyte Signals in Lung Granuloma Formation; HL-RO1-35276; Principal Investigator, MERIT Grant (re-submitted)
   2. NIH - Monokine Gene Expression/Regulation in Lung Injury HL-RO1-31237; Principal Investigator
   3. NIH - Inflammatory Cells and Lung Injury; Program Project HL-31963; Principal Investigator
   4. SCCOR Acute Lung Injury, P50HL60289, Principal Investigator Project 3.
   5. Research Training in Experimental Immunology Training Grant, Principal Investigator

B. PENDING PROJECTS
   1. NIH, Cytokine Phenotypes Alter the Host's Response During Chronic Lung Inflammation R01HL089216-A1

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

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 (Pathology)
   7. Member, Lung Immunopathology Post-doctoral Training Program (Pathology)

B. INSTITUTIONAL
   1. Operating Committee Graduate Program in Immunology
   2. Member, Pulmonary Cellular and Molecular Biology Training Program
   3. Member, Pediatric Training Grant "Cellular and Molecular Biology in Pediatrics"
   4. Member, Systems and Integrative Biology Training Program (Physiology)

5. Member, Hematology Training Grant
6. Member, Multidisciplinary Training Program in Lung Disease
7. Member MMP Microbiology Molecular mechanisms in Microbial Pathogenesis Training Program
8. Member, Graduate Teaching Award Review Committee
9. Associate Dean for Interdisciplinary Programs, Rackham Graduate School
10. Director, Immunology Program (BSRB)
11. Member, Committee on Medical Student Research
12. Medical Scientist Training Program interviewer
13. Member, Research Council of the Office of the Vice President for Research
14. Member, Michigan Cancer Center
15. Grant reviewer, Biomedical Research Council
16. Member, Advisory Committee Cancer Center Animal Core
17. CMB Advisory Committee
18. Member, Medical School Space Committee
19. Member, Provost Promotion Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant Reviewer
   a) The Arthritis Society
   b) Veterans Administration
2. Project Reviewer
   a) National Institutes of Health Study Section
3. Chair, Board of Scientific Counselors, NIAID, NIH
4. Scientific Advisory Board Committee 9th World Congress on Inflammation
5. INBRE; NIH Advisory Board
6. Member NNLBI-NIH Strategic Planning Committee Co-Chair, National Institute of Allergy and Infectious Diseases (NIH-NIAID), Board of Scientific Counselors.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Associate Editor
   a) *Experimental and Molecular Pathology*
   b) *Shock*
2. Editorial Board, *Mediators of Inflammation*
3. Reviewer
   a) *American Journal of Pathology,*
   b) *American Review of Respiratory Disease, Circulation, Infection and Immunity*
   c) *Laboratory Investigation*
   d) *Science*
   e) *Journal of Immunology,*
   f) *American Journal of Respiratory Cell and Molecular Biology*

B. INVITED LECTURES/SEMINARS
1. Invited Speaker, International Conference on Chronic Obstructive Pulmonary Disease, Vilnius, Lithuania
2. Visiting Professor, Federal University of Rio de Janeiro, Rio de Janeiro, Brasil
3. Invited Speaker, IV International Symposium on Extracellular Matrix, Buzios, Brasil

4. Speaker/Session Chair, Gordon Conference on Chemotactic Cytokines Aussios, France
5. Keynote Speaker, End of Life Communication, Veteran's Administration Hospital, Fargo, ND
6. Invited Speaker, Immunology Program, University of Pennsylvania, Philadelphia, PA
7. Speaker, Association of University Pathologists, Dominican Republic
8. Invited speaker, United States Canadian Academy of Pathology, San Diego, Nathan Kaufman Lecturship
9. Invited Speaker, "2007 COPD Sympoisum on Exacerbation Free COPD", Lund, Sweden
10. Invited Speaker, Pfizer Immunology Section, St Loius MO.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. President: Association of University Pathologists-Pluto Club; 2007-2008

D. HONORS AND AWARDS
1. Nathan Kaufmann Lectureship; USCAP

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Schaller, M., Hogaboam, CM, Lukacs, N, **Kunkel SL**. Respiratory viral infections drive chemokine expression and exacerbate the asthmatic response. J Allergy Clin Immunol 2006 118:295-302.
2. Henke, PK, Pearce, CG, Moaveni, DM, Moore, AJ, Lynch EM, Longo,C, Varma, M, Dewyer, NA, Deatrick, KB, Upchurch, GR, Wakefield, TW, Hogaboam, C, **Kunkel SL**. Targeted deletion of CCR2 impairs deep vein thombosis resolution in a mouse model. J Immunol 2006 177:3388-3397.
3. Hildebrand F, Hubbard,WJ, Choudhry MA, Frink M, Pape HC, **Kunkel SL,** Chaudry IH. Kupffer cells and their mediators: the culprits in producing distant organ damage after trauma-hemorrrhage. Am J. Pathol. 2006 169:784-794.
4. Freeman CM, Stolberg VR, Chiu BC, Lukacs NW, **Kunkel SL**, Chensur SW. CCR4 participation in Th type 1 (mycobacterial) and Th type 2 (schistosomal) anamnestic pulmonary granulomatous responses. J.Immunol. 2006 177:4149-4158.
5. Karpus WJ, Kennedy KJ, Fife BT, Bennett JL, Dal Canto MC, **Kunkel SL,** Lukacs NW. Anti-CCL2 treatment inhibits Theiler's murine encephalomyelitis virus-induced demyelinating disease. J. Neurovirol. 2006 12:251-261.
6. Amat M, Benjamim CF, Williams LM, Prats N, Terricabras E, Beleta J, **Kunkel SL**, Godessart N. Pharmacological blockade of CCR1 ameliorates murine arthritis and alters cytokine networks in vivo. Br. J. Pharmacol. 2006 149:666-675.
7. Frink M, Lu A, Thobe BM, Hsieh YC, Choudry MA, Schwacha MG, **Kunkel SL**, Chaudry IH. Monocyte Chemoattractant Protein-1 influences trauma-hemorrhage-induced distal organ damage via regulation of keratinocyte-derived chemokine production. Am. J. Physiol. 2006 Nov Epub ahead of print.
8. Ness TL, Ewing JL, Hogaboam CM, **Kunkel SL.** CCR4 is a key modulator of innate immune responses. J. Immunol. 2006 177:7531-7539.
9. Keane, MP, Gomperts BN, Weigt S, Xue YY, Burdick MD, Nakamura H, Zisman DA, Ardehali A, Saggar R, Lynch JP, Hogaboam CM, **Kunkel SL**,Lukacs NW, Ross DJ,

1. Grusby MJ, Strieter RM, Belperio JA. IL-13 is pivotal in the fibro-obliterative process of bronchiolitis obliterans syndrome. J. Immunol. 2007 178:511-519.
2. Pierce, EM, Carpenter, K, Jakubzick, C, **Kunkel, SL**, Evanoff, H, Flaherty, KR, Martinez, EJ, Toews, GB, Hogaboam, CM. Idiopathic pulmonary fibrosis fibroblasts migrate and proliferate to CCL21. Eur, Repir. J. 2007 Epub ahead of print.
3. Numata, K, Kubo, M, Watanabe, H, Takagi, K, Mizuta, H, Okada,S, **Kunkel, SL**, Ito, T, Matsukawa, A. Overexpression of suppressor of cytokine signaling-3 in T cells exacerbates acetaminophen-induced hepatotoxicity. J Immunol 2007; 178:3777-3785.
4. Pierce, EM, Carpenter, K, Jakubzick, **Kunkel, SL,** Flaherty, KR, Martinez, FJ, Hogaboam, CM. Therapeutic targeting of CCligand 21 or CC chemokine receptor 7 abrogates pulmonary fibrosis induced by the adoptive transfer of human pulmonary fibroblasts to immunodeficient mice. Am J Pathol 2007;170:1152-1164.
5. Rudd BD, Schaller MA, Smit JJ, **Kunkel SL**, Neupane R, Kelley L, Berlin AA, Lukacs NW MyD88-Mediated Instructive Signals in Dendritic Cells Regulate Pulmonary Immune Responses during Respiratory Virus Infection. J Immunol. 2007;178:5820-7.
6. Horchreiter, R, Ptaschinski, C, **Kunkel SL,** Rochford, R. Murine gammaherpervirus-68 productively infects immatue dendritic cells and blocks maturation. J Gen Virol 2007 88:1896-190.

B. BOOKS/CHAPTERS IN BOOKS - None.

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

Andrew P. Lieberman, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. DIAGNOSTIC SURGICAL NEUROPATHOLOGY - 8 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) Monzy Thomas, Ph.D. (postdoctoral fellow)
   b) Zhigang Yu, M.D. (postdoctoral fellow)
   c) Christopher Pacheco (thesis student)
   d) Adrienne Wang (thesis student)
2. Thesis committee member
   a) Mary Heng, Neuroscience Graduate Program
   b) Yunfang Man, Pathology Graduate Program
   c) Scott Tomlins, Pathology Graduate Program
3. Preliminary examination committee member
   a) Sarah Schumacher, Pharmacology Graduate Program
   b) Michelle Kron, Neuroscience Graduate Program
4. Teaching in graduate school courses
   a) Lecturer and discussion leader, Protein Folding and Neurological Disease, Pathology 582
   b) Lecturer and laboratory instructor, Neuropathology, Pathology 581
5. Membership in graduate programs
   a) Molecular and Cellular Pathology
   b) Neuroscience
   c) Cellular and Molecular Biology
6. UNDERGRADUATE STUDENTS
   a) Luvena Ong, University of Michigan

b) Akshay Lohitsa, Harvard University

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. Principal Investigator, Paul Beeson Career Development Award in Aging Research, NIH and American Federation for Aging Research, K08 AG024758, "Modifiers of polyglutamine toxicity", 75%, $200,000/yr ($600,000/3 yr), 8/1/04 – 5/31/07; no cost extension until 8/31/07
2. Principal Investigator, NIH, R01 NS055746, "Mechanisms of motor neuron toxicity in Kennedy disease", 30%, $196,875/yr ($1,071,875/5 yr), 3/1/07 – 1/31/12
3. Principal Investigator, NIH, R03 NS057150, "A conditional null mutant of the mouse *Npc1* gene", 5%, $50,000/yr ($100,000/2 yr), 5/1/07 – 4/30/09
4. Core Principal Investigator, Michigan Alzheimer's Disease Research Center, NIH, P50 AG08671, 10%, "Neuropathology Core", $47,034/yr, 6/1/99 – 5/31/10
5. Principal Investigator, Muscular Dystrophy Association, "A knock-in mouse model of Kennedy's disease", 5%, $90,000/yr ($270,000/3 yr), 7/1/04 – 6/30/07
6. Principal Investigator, McKnight Foundation Neuroscience of Brain Disorders Award, "Treatment of a polyglutamine neurodegenerative disease with synthetic bifunctional compounds that target misfolded proteins", 0%, $90,000/yr ($270,000/3 yr), 2/1/07 – 1/31/10
7. Sponsor/Mentor, (Christopher Pacheco, Principal Investigator), NIH, F31 NS51143, "Understanding Niemann-Pick C with cell and mouse models", 0%, $35,248/yr ($140,992/4 yr)
8. Principal Investigator, AP Project, "A conditional knock-in model of Kennedy disease", 0%, $20,000/yr, 6/1/06 – 5/31/07.

B. PROJECTS UNDER STUDY
1. Mechanisms of neurodegeneration in Kennedy disease
2. Mechanisms of neurodegeneration in Niemann-Pick C

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. PIBS 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

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Review
   a) *BMC Neurology*
   b) *Eurpopean Journal of Neuroscience*
   c) *Gene*
   d) *Human Molecular Genetics*
   e) *Journal ofNeuropathology*
   f) *Experimental Neurology*
2. Grant Review
   a) Advocacy for Neuroacanthocytosis
   b) Alzheimer's Association
   c) Michigan Institute for Clinical and Health Research
   d) Telethon Foundation of Italy

B. INVITED LECTURES/SEMINARS

1. "Pathologic Diagnosis of Dementias", invited presentation, Course on Critical Care Issues in the Care of Older Adults: Dementia, Ann Arbor, MI, October 2006.
2. Invited discussant (expert in neuropathology), Walsh-in-Asia Session, International Neuro-Ophthalmology Society Congress, Tokyo, Japan, December 2006.
3. Invited participant and panel discussant, Kennedy's Disease Association meeting, October 2006, Atlanta, GA.
4. "Kennedy disease: Mouse models, molecular mechanisms and therapeutic strategies", invited seminar, Endocrine Society's 89th Annual Meeting, Toronto, Canada, June 2007.
5. Invited presentation and laboratory instructor, "Autopsy diagnosis of dementia", Gerontology 528, Advanced Issues in Dementia Care, Eastern Michigan University, Ann Arbor, Michigan, June 2007.
6. Invited discussant, Kennedy's Disease Association sponsored on-line chat, June 2007.
7. "Androgen receptor toxicity in Kennedy disease", invited presentation, Department of Neurology research seminar, January 2007.
8. "Androgen receptor toxicity in Kennedy disease", invited presentation, Department of Urology grand rounds, February 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Member, American Association of Neuropathology
2. Member, American Society of Human Genetics
3. Member, College of American Pathologists
4. Member, Society for Neuroscience

D. HONORS AND AWARDS

1. Paul Beeson Career Development Award in Aging Research, NIH and American Federation for Aging Research.
2. McKnight Foundation Neuroscience of Brain Disorders Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Yu Z, Dadgar N, Albertelli M, Gruis K, Jordan C, Robins DM, **Lieberman AP.** Androgen-dependent pathology demonstrates myopathic contribution to the Kennedy disease phenotype in a mouse knock-in model. J Clin Invest, 116, 2663-2673, 2006.
2. **Lieberman AP.** Inflammatory dural masses: If it's not one thing, it's another. J Neuroophthalmol, 27, 89-90, 2007.
3. Pacheco CD, Kunkel R, **Lieberman AP.** Autophagy in Niemann-Pick C disease is Beclin-1 dependent and responsive to lipid trafficking defects. Hum Mol Genet, 16, 1495-1503, 2007.
4. 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, in press.
5. Pacheco CD, **Lieberman AP.** Lipid trafficking defects increase Beclin-1 and activate autophagy in Niemann-Pick C disease. Autophagy, in press.

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

1. Yu Z, Albertelli M, Gruis K, Dadgar N, Robins DM, **Lieberman AP.** Androgen receptor 113 CAG knock-in mice demonstrate myopathic contribution to the Kennedy disease phenotype. International Congress of Neuropathology, San Francisco, CA, September 2006.
2. Pacheco CD, Kunkel R, **Lieberman AP.** Autophagy in Niemann-Pick C disease is dependent upon Beclin-1 and response to intracellular cholesterol. Keystone Symposia on Autophagy in Health and Disease, Monterey, CA, April 2007.
3. Thomas M, Wisen S, Gestwicki JE, **Lieberman AP.** Novel small molecules designed to activate hsp70 and treat polyglutamine disorders. Gordon Research Conference on CAG Triplet Repeat Disorders, Aussois, France, May 2007.

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 resource web page in Gyn Pathology (Web access to Gyn Pathology laboratory, lecture slides, and other resources)
   2. M3 – Teaching during weekly Colposcopy Clinic.

B. DENTAL STUDENTS
   1. D2, Reproductive Sequence – two hours

C. HOUSE OFFICERS AND FELLOWS
   1. Semimonthly Tumor Planning Conference – twelve months.
   2. Colposcopy clinic staff – one-half day per week (twelve months).
   3. Operating Room Instruction – one-half day per week.
   4. Gyn Pathology Rotation for 3rd year Gyn Oncology Fellow – one month.

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. Lectures in Gynecologic Pathology to Gyn Oncology Service – two/year.
   4. Placental Pathology Lectures – two hours.

III. Research Activities

A. SPONSORED SUPPORT
   1. SOFTWARE DEVELOPMENT:
      a) Placental Imaging Project – Imaging and Bar Code Schema for Image Capture
      b) Placental Pathology Requisition – Development of On-Line Form

B. NON-SPONSORED SUPPORT
1. Digital Imaging for Web-based Review of Tumor Histopathology for Rapid Confirmation Eligibility in a GOG Protocol; Addendum to GOG 207 and Subsequent GOG Studies
2. Direct Sponsor: The Gynecologic Oncology Group. $10,000 for administrative support
3. Determination of Biomarker Expression in Uterine Sarcomas and Uterine Papillary Serous Tumors. IRB# HUM00001698. Rhodes J, Lieberman R, Liu J.
4. The potential role of human papillomavirus in mediating the inflammatory process in endometriosis. IRB# HUM00003403. Lebovic D, Lieberman R, Kavoussi S, Mueller M, Shah D.
5. 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.
6. IRB Approval – Data Collection and Submission July – September 2006

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Pathology Bioinformatics, Department of Pathology.
2. Director of Telepathology, 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
   a) *Obstetrics and Gynecology.*
   b) *Cancer.*

B. INVITED LECTURES/SEMINARS
1. "Panel Discussion of HPV Infection, Mangement of abnormal cytology, and Vaccines" Women's Health Conference, Towsley Center, University of Michigan. December 1, 2006.
2. "Basic Colposcopy Course", American Society of Colposcopy and Cervical Pathology, Charlotte, North Carolina, Prepared 5 lectures. May 17-20, 2007.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Akers A, Jarzembowski JA, Johnson CT, **Lieberman RW,** Dalton VK. Examining the relationship between positive mid-gestational fetal fibronectin assays and histologic evidence of acute placental inflammation. Journal of Perinatal Medicine 35(1):36-42, 2007.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS PUBLICATIONS (non-peer reviewed):
   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.
   4. 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. Signout 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. Signout teaching of Pathology House Officers and Hematopathology Fellows
   4. Postdoctoral fellow, Rodney Miles, M.D., Ph.D.
   5. Hematopathology Educational Conferences

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH/NCI 1 R42, 03/01/05-02/28/06 $100,000 Quantitative RT-PCR prediction of follicular lymphoma transformation, (Phase I) (Co-Investigator).
   2. NIH/NCI 7 R33 CA112061-02, 09/01/06-06/30/09 $1,267,365 Proteomic analysis of transformed follicular lymphomas, (Co-Investigator)

B. PENDING PROJECTS
   1. NIH/NCI R21, 01/01/08-12/31/10 A Phase II Pilot Multicenter Study of Denileukin Diftitox Alone and in Combination with ICE (ICED) Chemotherapy in Children, Adolescents and Young Adults with Relapsed or Refractory Anaplastic Large Cell Lymphoma (Co-Investigator)

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. Phase II clinical trial of Denileukin diftitox for relapsed pediatric anaplastic large cell lymphoma.
   4. Minimal residual disease detection of NPM/ALK in pediatric anaplastic large cell lymphoma patients receiving SGN-30 therapy.

5. Identification of ALK interacting proteins using synthetic phosphopeptides and mass spectrometry.
6. Proteomic studies of follicular lymphoma transformation (collaboration with Kojo Elenitoba-Johnson, M.D.).
7. Evaluation of mouse hematopoietic neoplasms deficient for PTEN/INK4 (collaboration with Sean Morrison, 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. Co-ordinator of call schedule, both weekend and weekday
5. Member, Department of Pathology Peer Review Committee

B. INSTITUTIONAL

1. Member, Program in Biomedical Sciences (PIBS)
2. Member, Program in Cell and Molecular Biology
3. Member, Michigan Comprehensive Cancer Center

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Abstract review committee for American Society of Hematology
2. Member, A. James French Society
3. American Society of Investigative Pathologists
4. United States-Canadian Academy of Pathology
5. Michigan Society of Pathologists, Association for Molecular Pathology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board, *Laboratory Investigations*
2. Reviewer
   a) *Journal of Molecular Diagnostics*
   b) *Radiation Research*
   c) *Leukemia*
   d) *Genomics*
   e) *Gene Therapy*
   f) *Blood*
   g) *Cancer*
   h) *Proteomics*
   i) *Pathology Research and Practice*
   j) *Expert Reviews in Proteomics*
   k) *Biotechniques*
   l) *Leukemia and Lymphoma*
   m) *Journal of Surgical Oncology*
   n) *Experimental Hematology*
   o) *Archives of Pathology and Laboratory Medicine*
   p) *Fertility and Sterility*

B. INVITED LECTURES/SEMINARS
1. Clinical Proteomics: College of American Pathologists Half-day Workshop, Sept. 11, 2006 San Diego, CA.
2. Translating Mass Spectrometry-Based Proteomics into Clinical Application. ASIP Companion Meeting at USCAP Annual Meeting, March 25, 2007, San Diego, CA.
3. Molecular Pathology Symposium, Asia-Pacific IAP, May 28, 2007, Singapore.
4. Post-transplant lymphoproliferative disorders: diversity in pathology and genetics, Hematolymphoid Pathology Symposium, Asia-Pacific IAP, May 30, 2007, Singapore.
5. Interdigitating reticulum cell tumor, Hematolymphoid Pathology Symposium, Asia-Pacific IAP, May 30, 2007, Singapore.
6. Biologic prognostic factors for lymphoma, Lymphoma Excellence Forum Symposium, June 19, 2007, Toronto, ON.
7. Mass spectrometry-based proteomic studies of human lymphoma. Cell Signaling Technologies, Inc. June 26, 2007. Danvers, MA

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Royal College of Physicians and Surgeons of Canada
2. American Association for Cancer Research
3. American Society of Hematology
4. Society of Hematopathology
5. United States and Canadian Association of Pathology
6. European Society of Hematopathology
7. Association for Molecular Pathology
8. American Society of Investigative Pathology
9. Children's Oncology Group
10. American Biologic Resources and Facilities

D. HONORS AND AWARDS – None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Vaughn C, Crockett DK, Lin Z, **Lim MS**, Elenitoba-Johnson KSJ. (2006) proteomic study of released proteins from follicular lymphoma derived cells. Proteomics 6(10)3223-3230.
2. Chen E, **Lim MS**, Rosic-Kablar S, Jolicoeur P, Dube ID, Hough MR. (2006) Dysregulated expression of mitotic regulators is associated with cell lymphomagenesis in HOX11 transgenic mice. Oncogene 25(18)2575-2587.
3. Elenitoba-Johnson KSJ, Crockett DK, Jenson S, Schumacher JA, **Lim**, **MS**. (2006) Proteomic identification of oncogenic chromosomal translocation partners encoding chimeric anaplastic lymphoma kinase fusion proteins. Proc. Natl. Acad. Sci. USA 103(19):7402-7407.
4. Chen, E, Kwon, IT, **Lim, MS**, Dube, ID, Hough, MR. (2006) Loss of Ubr1 cooperatively synergizes with HOX11 in B cell lymphomagenesis. Oncogene 25(42):5752-63.
5. Pysher TJ, Bach PR, Geaghan SM, Hamilton MS, Laposata M, Lockitch G, Brugnara C, Coffin CM, Pasquali M, Rinaldo P, Roberts WL, Rutledge JC, Ashwood ER, Blaylock RC, Campos JM, Goldsmith B, Jones PM, **Lim MS**, Meikle AW, Perkins SL,

Perry DA, Petti CA, Rogers BB, Steele PE, Weiss RL, Woods G. (2006) Teaching pediatric laboratory medicine to pathology residents. Arch Pathol Lab Med 130:1031-1038.

6. **Lim, MS**, and Elenitoba-Johnson, KSJ. (2006) Mass spectrometry-based proteomic studies of human anaplastic large cell lymphoma. Mol Cell Proteomics. 5:1787-1798.
7. Reading, NS, **Lim, MS**, and Elenitoba-Johnson, KSJ. (2006) Detection of acquired Janus kinase 2 V617F mutation in myeloproliferative disorders by fluorescence melting curve analysis. Mol Diagn Ther 10:311-317.
8. Vaughn, CP, Crockett, DK, **Lim, MS**, and Elenitoba-Johnson, KS. (2006) Analytical characteristics of cleavable isotope-coded affinity tag-LC tandem mass spectrometry for quantative proteomic studies. J Mol Diagn 8:513-520.
9. Schumacher JA, Crockett DK, Elenitoba-Johnson KSJ, **Lim MS.** (2007) Evaluation of enrichment technoiques for mass spectrometry: identification of tyrosine phosphoproteins in cancer cells. J Mol Diag; 9:169-197.
10. Aggarwal A, Aggarwal N, Glenn M, **Lim MS.** (2007) Blastic transformation of low gradew follicular lymphoma. J Clin Oncol 25:2326-2328.
11. 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 April 6 epub.
12. Schumacher JA, Holden J, elenitoba-Johnson KSJ, **Lim MS**. (2007) Detection of the c-kit D81816V mutation in systemic mastocytosis by allele-specific PCR. J. Clin Pathol May 25 epub.
13. 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 NPMN-ALK positive anaplastic large cell lymphoma. Leuk Res (in press).
14. 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 (in press).
15. Schumacher JA, Crockett DK, Lin Z, Elenitoba-Johnson KSJ, **Lim MS.** (2007) Quantitative analysis of protein expression changes induced by geldanamycin in NPM-ALK positive lymphoma cells by functional proteomics. Proteomics (in press).
16. 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 (in press).
17. Wada, D, Agaarwal, N, **Lim, MS.** Collison Tumor. Pathol (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. Walsh MP, Scott-Woo GC,**Lim MS**,Sutherland C, Ngai PK. (1987) Calcium and Calcium-Binding Proteins (Gerday, C., ed.) Springer-Verlag, Berlin. Thin filament-linked regulation in vertebrate smooth muscle.
2. Stetler-Stevenson M, Lim MS.(1998) in Molecular Methods in Medicine **Lim MS**, Elenitoba-Johnson KSJ in Diagnostic Hematopathology (Jaffe ES, Harris NL, Vardiman J. ed) WB Saunders Pathology of Congenital Immunodeficiencies. Submitted.

3. **Lim, MS**, Elenitoba-Johnson, KSJ (2005) in Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Mast cell and histiocytic disorders. In press.
4. **Lim, MS.** (2005) Pratical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Lymphoproliferative Disorders associated with primary and acquired immunodeficiencies. In press.
5. **Lim, MS** and Elenitoba-Johnson, KSJ. Medical Proteomics. Yearbook of Science and Technology. Companion to McGRAW-HILL ENCYCLOPEDIA OF SCIENCE & TECHNOLOGY. (submitted)
6. (Hanansek, M., ed.) Humana Press Inc. Use of Polymerase Chain Reaction Technique to Detect the t(14;18) Translocation in Lymphoid Tissue.

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

1. **Lim, MS.** VEGF and the extracellular matrix. (2006) J Surg. Oncol. 93(4)253-254. *Editorial.*

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. Univeristy 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 Arthirits Research Unit lecture series, "Cutaneous Manifestations of Lupus Erythematosus" (1 lecture)
5. "Dermatopathology Review", University of Michigan, Department of Dermatology, 3 lectures

E. OTHER
1. Hospital Conferences

a) Multidisciplinary Melanoma Tumor Board
b) Multidisciplinary Merkel Cell Carcinoma Tumor Board

III. Research Activities

A. SPONSORED SUPPORT - None

B. PENDING PROJECTS

1. NIH RO1. The Unfolded Protein Response in Melanoma Progression and Chemoresistance. PI: Maria Soengas Ph.D. Co-Investigator: Lori Lowe, M.D. 0% effort. Resubmission July, 2007 (7/1/07-11/30/12) $1,832,610

C. PROJECTS UNDER STUDY

1. Phase I, Double-Blind, Randomized, Placebo-controled, Multicenter Study Evaluating the Safety and Tolerability of a Multidose Regimen of G-024856 Topically Applied to Superficial or Nodular Basal Cell Carcinoma. Protocol number: THA3435g. Sponsor: Genentech, Inc Local principal investigator: Sewon Kang, M. D., Co-Investigator: Lori Lowe, M.D. (2/2006 – 8/2006).
2. University of Michigan (UMCC 2005-130): Multicenter Selective Lymphadenctomy Trial II (MSLT-II). Local principal investigator: Michael Sabel, M.D., Co-Investigator: Lori Lowe, M.D. (2007-ongoing).
3. University of Michigan (UMMC 2000-0713): Molecular, biochemical,and cellular basis of melanoma and other melanocytic lesions: Tissue Bank. Principal Investigator: Timothy M. Johnson, M.D., Co-Investigator: Lori Lowe, M. D. (2001-ongoing).
4. University of Michigan (UMCC 2-15): 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. Principal Investigator: Michael Sabel, M.D. (2003-ongoing).
5. NIH/NIDDK Grant DK59169. Topical Retinoids for Diabetic Foot Ulcers. Member, NIDDK Data and Safety Monitoring Plan. Principal Investigator: James Varani, Ph.D. 2003-2006.

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. Coordinator, QA/QC program (Mohs surgery slides), Cutaneous Surgery and Oncology Program, Department of Dermatology, University of Michigan
5. Interviewer, Pathology House Officer Candidates
6. 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

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Amercian Academy of Dermatology
2. Member, American Society of Dermatopathology
3. Member, North American Melanoma Pathology Study Group
4. Member, American Medical Women's Association Mentorship Program
5. Member, American Academy of Dermatology's Minority Medical Student Mentor Program
6. Member, Women's Dermatologic Society
7. Member, Michigan Dermatologic Society

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a) Skin Cancer
   b) *Journal of the American Academy of Dermatology*
2. Section Editor
   a) *Cancer*
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. Self-Assessment Course in Dermatopathology, faculty, Annual Meeting of the American Society of Dermatopathology, Chicago, October, 2006.
2. Evening Slide Symposium, faculty, Annual Meeting of the American Society of Dermatopathology, Chicago, October, 2006.
3. American Society of Clinical Pathology, 2007 Resident Review Course, Faculty, "Dermatopathology", April, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Amercian Academy of Dermatology
2. Member, American Society of Dermatopathology
3. Member, North American Melanoma Pathology Study Group
4. Member, American Medical Women's Association Mentorship Program
5. Member, American Academy of Dermatology's Minority Medical Student Mentor Program
6. Member, Women's Dermatologic Society
7. Member, Michigan Dermatologic Society

D. HONORS AND AWARDS
1. ***Most Cited Article*** published in the Annals of Surgical Oncology in 2005, presented at the Society of Surgical Oncology 60th Annual Cancer Symposium, Washington D.C., 2007 ("Mitotic Rate and Younger Age are Predictors of Sentinel Lymph Node Positivity: Lessons Learned form the Generation of a Probabilistic Model").

2. Listed in IBC *Leading Health Professionals of the World, 2007*, sponsored by International Biographical Centre, Cambridge, England.
3. Listed in *America's Top Doctors for Cancer*, 2nd edition by Castle Connolly Medical Ltd., 2006.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Robson K, Maughan J, Deramo S, Petersen M, Haefner, **Lowe L**. Erosive papulonodular dermatosis associated with topical benzocaine: A report of two cases and evidence that granuloma gluteale, pseudoverrucous papules and Jacquet's erosive dermatitis are a disease spectrum. J Am Acad Dermatol 55: s74-80, 2006.
2. Orringer JS, Hammerberg C, **Lowe L**, Kang S, Johnson TM, Karimipour DJ, Hamilton T, Voorhees JJ, Fisher GJ. The effects of laser-mediated hair removal in the immunohistochemical staining properties of follicular stem cells. J Am Acad Dermatol 55: 402-407, 2006.
3. Shors AR, Kim S, White E, Argenyi Z, Barnhill RL, Duray P, Erickson L, Guitart J, Horenstein MB, **Lowe L**, Messina J, Rabkin MS, Schmidt B, Shea CR, Trotter MJ, Piepkorn, MW. Nevi with moderate to severe histologic dysplasia: a risk factor for melanoma. Br J Dermatol 155: 988-933, 2006.
4. Fullen DR, Pynter JN, **Lowe L**, Su LD, Elder JT, Nair RP, Johnson TM and Gruber SB. BRAF and NRAS mutations in spitzoid melanocytic lesions. Mod Pathol 19: 1324-1332, 2006.
5. Frankel TM, **Lowe L**, Sabel MS. Desmoplastic melanoma: A horse of a different color. CML Dermatology 11(4): 85-94, 2006.
6. Paek SC, Griffith KA, Johnson TM, Sondak VK, Wong SL, Chang AE,Cimmino VM, **Lowe L**, Bradford CR, Rees RS, Sabel MS. Impact of factors beyond Breslow depth on predicting sentinel lymph node positivity in melanoma. Cancer 109: 100-108, 2007.
7. Kroon HM, **Lowe L**, Wong S, Fullen D, Su L, Cimmino V, Chang AE, Johnson T, Sabel MS. What is a sentinel node? Re-evaluating the 10% rule for sentinel lymph node biopsy in melanoma. J Surg Oncol 95: 623-628, 2007.
8. Bichakjian CK, **Lowe L**, Lao CD, Sandler HM, Bradford CR, Johnson TM, Wong SL. Merkel cell carcinoma: Critical review with guidelines for multidisciplinary management. Cancer 110: 1-12, 2007.
9. Jejurikar SS, Borschel GH, Johnson TM, **Lowe L**, Brown DL.simultaneous excision and optimal reconstruction of facial lentigo maligna and lentigo maligna melanoma utilizing staged, "square" total peripheral margin control. Plastic and Reconstructive Surg 2007 (in press).
10. Carvalho J, Fullen D, **Lowe L**, Su L, Ma L. The expression of CD 23 in cutaneous nonlymphoid neoplasms. J Cutan Pathol 2007 (in press).
11. 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 2007 (in press).

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

1. Carvalho JC, Fullen D, **Lowe L**, Su L, Ma L. Diagnostic value of CD23 in merkel cell carcinoma and small cell carcinoma. United States and Canadian Academy of Pathology Annual Meeting, San Diego, CA, March 2007.

David R. Lucas, M.D.

Associate Professor of Pathology

I. Clinical Activities

A. Surgical pathology-25 weeks. Bone and soft tissue consultation-52 weeks.
B. Sarcoma tumor board-52 weeks.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology mentorship 4 PGY4 students-1 month.

B. DENTAL STUDENTS
   1. Pathophysiology 540-100 PGY1 students-3 lecture hours.
   2.

C. HOUSE OFFICERS AND FELLOWS
   1. Surgical pathology sign-out-25 weeks. Bone and soft tissue pathology elective-2 house officers, 1 month each. Lectures in bone and soft tissue pathology-4 hours. Consultant conferences-4 hours.

III. Research Activities

A. SPONSORED SUPPORT
   1. Myxoid liposarcoma: beyond the round cell paradigm. Przybycin C, Thomas D, Lucas D. Anantomic Pathology Funding-$6833.

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.

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.

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) *Canadian Journal of Neurosurgy*

B. INVITED LECTURES/SEMINARS
1. 26th annual MLabs symposium, 2 lectures: Metastatic carcinoma of unknown primary and Practical immunohistochemsitry of soft tissue tumors

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathologists
2. Michigan Society of Pathology
3. American Society of Clinical Oncologists
4. Connective Tissue Oncology Society
5. Southwest Oncology Group
6. Radiation Therapy Oncology Group
7. A. James French Society of Pathologists
8. Arthur Purdy Stout Society of Surgical Pathologists

D. HONORS AND AWARDS
1. 2007 Residents' Teaching Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. McHugh JB, Thomas DG, Herman JM, Baker LH Adsay NV, Rabah R, **Lucas DR**. Primary versus radiation-associated craniofacial osteosarcoma: biologic and clinicopathologic comparison. Cancer 107:554-562, 2006.
2. Morag Y, Jacobson J, **Lucas D,** Miller B, Brigido M, Jamadar D. US Appearance of the Rotator Cable with Histologic Correlation: Preliminary Results. Radiology 241(2):485-91, 2006.
3. **Lucas DR,** Diehl KM, Chugh R, Ray ME. Case of the quarter with expert commentaries (Radiation-associated angiosracoma of breast). ASBD Advisor, issue #3:4-6, 2006.
4. Chughtai A, Cronin P, **Lucas DR,** Prager R, Kazerooni EA. Metastatic Shoulder Liposarcoma to the Right Ventricle: CT Findings. J Thorac Imaging. 2007 May;22(2):195-198.

5. Murphy J, Feng M, Griffith KA, Baker LH,Sondak VK,**Lucas DR**, McGinn CJ, Ray ME. Long-Term Outcomes after Radiation Therapy for Retroperitoneal and Deep Truncal Sarcoma. Int J Radiat Oncol Biol Phys. 2007 Jun 6; [Epub ahead of print]
6. Wu, AJ, Jarzembowski J, Morag Y, **Lucas D R**. Wagner-Meissner Neurilemmoma of the Right Cheek. Annals Diag Pathol (In Press)

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

1. Ray ME, Murphy J, Feng M, Griffith KA, Baker LH, Sondak VK, **Lucas DR**, Cornelius McGinn C. Outcomes after Combined Modality Treatment of Retroperitoneal Sarcomas. CTOS, 12th Annual Meeting, Venice, Italy
2. Thomas DG, Hart AL, Biermann JS, Scheutze S, **Lucas DR,** Baker LH. Epidermal Growth Factor Receptor (EGFR) Expression and Mutational Analysis in Synovial Sarcomas and Malignant Peripheral Nerve Sheath Tumors. CTOS, 12th Annual Meeting, Venice, Italy (11/2006)
3. Kshirsagar MP, Baker LH, Scheutze SM, Biermann JS, Thomas DG, Hamre MR, **Lucas DR.** Histologic Response to Neoadjuvant Chemotherapy By Itself Is Not a Reliable Predictor of Outcome in High Grade Extremity Soft Tissue Sarcoma. CTOS, 12th Annual Meeting, Venice, Italy (11/2006)

Peter C. Lucas, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Diagnostic surgical pathology (room BE); 11 weeks.
2. Diagnostic surgical pathology (extramural consultations); approx 16 weeks.

B. INTERDISCIPLINARY BREAST CARE CLINIC (BCC)
1. Pathology Representative, weekly BCC Tumor Board; 16 weeks.

C. AUTOPSY PATHOLOGY
1. Staff pathologist; 2 days.

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 Pathology Laboratory Instructor (Respiratory sequence); 3 labs (approx 6 hours).
2. M4 Pathology Mentor; 1 month rotation.

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 Graduate Program)
   b) Aasia Rehman (Cellular & Molecular Biology Graduate Program)

D. HOUSE OFFICERS AND FELLOWS
1. Mentoring of breast pathology fellow; 11+ weeks.
2. Room BE sign-out of breast pathology, with resident instruction; 11 weeks.
3. Autopsy supervision and sign-out; 2 days.
4. AP consult conference (unknown slide conference); 1 hour.

E. OTHER
1. Faculty advisor for 7 students in Mechanical Engineering (courses ME450 and ME599); approx 8+ hours.

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator (70% effort), "NF-κB Signaling and the Molecular Pathogenesis of MALT Lymphoma" (Mentored Career Development Award), K08 CA094920, National Institutes of Health (NCI). $136,900 direct costs/yr ($684,500/5 yrs); 7/1/02 – 6/30/07.
2. Principal Investigator (5% effort), "A Novel Signaling Pathway Mediating Hypertension- and Obesity-dependent Insulin Resistance", Michigan Diabetes Research and Training Center (MDRTC) Pilot/Feasibility Study Grant. $45,000 direct costs/yr; 12/1/05-11/30/06.

B. PENDING PROJECTS

1. Principal Investigator (30% effort), "Angiotensin II Signaling Through a Novel NF-κB Pathway", NIH R01 HL082914, National Heart/Lung Institute. $250,000 direct costs/yr requested ($1,250,000/5 yrs); 12/01/07 – 11/30/12.
2. Principal Investigator (25% effort), "A Novel Signaling Pathway Mediating Hypertension- and Obesity-dependent Insulin Resistance", NIH R01 DK079973-01, National Institute of Diabetes, Digestive, and Kidney Diseases. $250,000 direct costs/yr requested ($1,250,000/5 yrs); 12/01/07 - 11/30/12.
3. Principal Investigator (15% effort), "The Angiotensin II receptor (AGTR1) as a novel oncogene in breast cancer", Department of Defense (DOD) Breast Cancer Idea Award. $100,000 direct costs/yr ($300,000/3 yrs); 4/1/08 - 3/31/11.
4. Co-Investigator (10% effort), "Multiple Roles of the API2 Moeity in API2-MALT1-mediated Lymphomagenesis", NIH R01 CA124540, National Cancer Institute (McAllister-Lucas, PI). $250,000 direct costs/yr requested ($1,250,000/5 yrs); 12/01/07-11/30/12.
5. Co-Investigator (3% effort), "Pathology Sample Management System", UM Pilot and Collaborative Grant Program for Translational and Clinical Research (Shih, PI). $93,027/yr; 5/07 - 4/08.
6. Principal Investigator (laboratory support only), "Bcl10 as a mediator of Angiotensin-dependent atherosclerosis", Department of Pathology AP Research Projects Fund. $20,000 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 committe.

2. Quality assurance for the breast pathology service.
3. Pathology residency training program candidate interviews.
4. Surgical pathology fellow candidate interviews.

B. INSTITUTIONAL
1. Career Advisory Panel, Medical Scientist Training Program.
2. Member; PIBS Graduate Program Admissions Committee.
3. 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. Ad hoc manuscript review:
   a) *Oncogene*
   b) *Cancer Research*
2. Ad hoc grant reviewer
   a) NIH Diabetes Research and Training Grants.
   b)

B. INVITED LECTURES/SEMINARS
1. Invited speaker; Univ of Michigan Dept. of Nephrology Seminar Series (March 2007): "Pro-inflammatory signaling through the Angiotensin II receptor".

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Rivers, A.K., Griffith, K.A., Hunt, K.K., Degnim, A.C., Sabel, M.S., Diehl, K.M., Cimmino, V.M., Chang, A.E., **Lucas, P.C.**, and Newman, L.A. (2006) Clinicopathologic features associated with having four or more metastatic axillary nodes in breast cancer patients with a positive sentinel lymph node. Annals Surg. Oncol., 13:36-44.
2. McAllister-Lucas, L.M., Ruland, J., Siu, K., Jin, X., Gu, S., Kim, D.S.L., Kuffa, P., Kohrt, D., Mak, T.W., Nunez, G., and **Lucas, P.C.** (2007) CARMA3/Bcl10/MALT1-dependent NF-κB activation mediates angiotensin II-responsive inflammatory signaling in nonimmune cells. Proc. Natl. Acad. Sci. USA, 104:139-144
3. **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-κB activation; heterotypic oligomerization and TRAF2 recruitment. Oncogene, March 7; [Epub ahead of print].

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Lucas, P.C.**, Kuffa, P., Kohrt, D., Gu, S., Kim, D., and McAllister-Lucas, L.M. (2006) A dual role for the API2 moiety in APIs-MALT1 fusion protein-mediated lymphomagenesis. 2nd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin's Lymphoma. New York, NY

2. **Lucas, P.C**., Kuffa, P., Kohrt, D., Gu, S., Kim, D., and McAllister-Lucas, L.M. (2006) A dual role for the API2 moiety in API2-MALT1 fusion protein-mediated oncogenesis. Doris Duke Charitable Foundation Clinical Research Symposium. New Jersey.

Nicholas W. Lukacs, Ph.D.

Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. DENTAL STUDENTS

1. 1st year students- Lectures on Inflammation, cytokines and Chemokines (3 hrs)

B. GRADUATE STUDENTS

1. Pathology 643, Course Director, Immune mechanisms of Disease, Fall, 2006
2. Pathology 581, Inflammation and Immune responses, Winter, 2007

III. Research Activities

A. SPONSORED SUPPORT

1. RO1 AI36302-07 (Lukacs, N.W. PI), 8/1/96-11/30/12, "Role of chemokines in eosinophil airway inflammation", Direct dollars- $250,000/yr.
2. RO1 HL59178-05 (Lukacs, N.W., PI), 5/1/98-4/30/08, "Role of SCF in airway eosinophil inflammation", Direct Dollars-$225,000/yr.
3. PO1 HL (Lukacs, PI, Project IV), 3/1/99-2/28/10, "Cockroach allergen-induced airway inflammation", NIH Program Project, Project IV; Steven L. Kunkel, M.D., PPG, PI., Direct Dollars-$225,000/yr.
4. RO1 AI073876 (Nicholas Lukacs PI), 12/01/07-11/30/12, "TLR and Notch Ligand in RSV-induced Disease", Direct Dollars-$250,000/yr.
5. P50 HL60289 (Theodore Standiford, PI), 12/01/98-11/30/08, Acute Lung Injury", Project 2, NIH Special Centers of Research (SCOR) grant, Project 3 with Steven L. Kunkel, Ph.D. Role-Co-Investigator
6. RO1 HL69865 (Cory Hogaboam, P.I.), 8/15/03-7/30/07, "Targeting of RANTES/CCL5 during chronic fungal asthma", Role-Co-investigator. Direct Dollars-$170,866/yr.
7. RO1 GM067827-01A2 (Duckett- PI), Control of Apoptosis and Signaling by XIAP, 4/05-3/10, Role- Co-Investigator. Direct Dollars-$170,673/yr.
8. NIH RO1HL081420 (Hershenson- PI), Rhinovirus and airway epithelial cell responses, 4/06-3/10,Role-Co-Investigator. Direct Dollars-$242,750/yr.
9. R21 AT002823, (Hershenson-PI),Quercetin Treatment of Airway Inflammation 9/05-8/07, Role-Co-Investigator. Direct Dollars-$122,062/yr.
10. 04-0166 Sandler Asthma Grant (Phan-PI) 7/04-6/08, Bone Marrow Progenitor Cells in Airway Remodeling, Role-Co-Investigator. Direct Dollars-$250,000/yr.

11. DA021416 (Woods-PI), Development of Esterases for the Treatment of Cocaine Overdose and Abuse, Role-Co-Investigator. Direct Dollars-$494,890/yr.

B. PENDING PROJECTS
1. T32HL007517 (Lukacs-PI), Lung Immunopathology Training Grant. Direct Dollars-~$300,000/yr. 1.5 priority score.

C. 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.
5. Director of Preliminary exams for Molecular and Cellular Pathology Graduate Program.

B. INSTITUTIONAL
1. 2003-present-Immunology Training Grant T-32 (NIAID) Steering committee
2. 2004-present -Institutional Biosafety Committee (IBC)
3. 2004-2007-Advisory Committee on Appointments, Promotions, and Tenure (ACAPT). Chair in 2006-2007.
4. 2004-present-Associate Chairs of Research Committee for the Medical School-Pathology Representative.

C. REGIONAL/NATIONAL/INTERNATIONAL - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Duties:
   a) Section Editor - *Journal of Interferon & Cytokine Research*
   b) Editorial Boards
      (1) *Laboratory Investigation American*
      (2) *Journal. of Pathology*
   c) Books edited: The Receptors: The Chemokine Receptors. Humana Press Inc, Totowa, NJ. Edited by: J.K. Harrison and N.W. Lukacs
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*

3. Grant Review committees
   a) Special Emphasis- Chairman-NIH LCMI overflow grant review, 11/7/06.
   b) Ad Hoc Reviewer- AITRC- T32 grant review committee, NIAID, 1/28/07.

B. INVITED LECTURES/SEMINARS
1. The role of RSV in pulmonary disease. MedImmune. Gaithersburg, MD., 02/16/07.
2. TLR3 in chronic lung disease. Centecore. Philadelphia, PA, 3/07.
3. The role of TLRs in the development of the pulmonary immune environment. AAI Society of Mucosal Immunology Symposium. Featured Speaker. Miami, FL. 5/22/07.
4. Chemokine receptors in asthmatic inflammation. European Allergy and Asthma Association. 6/11/07.

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. Smit JJ, **Lukacs NW**.A closer look at chemokines and their role in asthmatic responses. Eur J Pharmacol. 2006. 533(1-3):277-88.
2. Nanua S, Zick SM, Andrade JE, Burgess JR, **Lukacs NW**, Hershenson MB. Quercetin Blocks Airway Epithelial Cell Chemokine Expression. Am J Respir Cell Mol Biol. 2006.
3. Elner SG, Delmonte D, Bian ZM, **Lukacs NW,** Elner VM. Differential expression of retinal pigment epithelium (RPE) IP-10 and interleukin-8. Exp Eye Res. 2006 83(2):374-9.
4. **Nicholas W. Lukacs,** Martin L Mooreb, Brian D. Rudda, Aaron A. Berlina, Robert D. Collinsc, Sandra J. Olsenc, Samuel B. Hod, and R. Stokes Peebles Jr. Differential immune responses and pulmonary pathophysiology are induced by two different strains of Respiratory syncytial virus. Am J. Pathol. 169:977.
5. Joost J. Smit and **Nicholas W. Lukacs**. The missing link: Chemokine receptors and tissue matrix breakdown in COPD. TIPS. Sept. 22, 2006.
6. Nakahira K, Kim HP, Geng XH, Nakao A, Wang X, Murase N, Drain PF, Wang X, Sasidhar M, Nabel EG, Takahashi T, **Lukacs NW,** Ryter SW, Morita K, Choi AM. Carbon monoxide differentially inhibits TLR signaling pathways by regulating ROS-induced trafficking of TLRs to lipid rafts. J Exp Med. 2006

7. Karpus WJ, Kennedy KJ, Fife BT, Bennett JL, Dal Canto MC, Kunkel SL, and **Lukacs NW.** Anti-CCL2 treatment inhibits Theiler's murine encephalomyelitis virus-induced demyelinating disease. J Neurovirol. 2006 (4):251-61.
8. Freeman CM, Stolberg VR, Chiu BC, **Lukacs NW,** Kunkel SL, Chensue SW. CCR4 participation in Th type 1 (mycobacterial) and Th type 2 (schistosomal) anamnestic pulmonary granulomatous responses. J Immunol. 2006, 177(6):4149-58.
9. Sajjan US, Jia Y, Newcomb DC, Bentley JK, **Lukacs NW**, LiPuma JJ, Hershenson MB.H. influenzae potentiates airway epithelial cell responses to rhinovirus by increasing ICAM-1 and TLR3 expression. FASEB J. 2006, (12):2121-3.
10. Hu JS, Freeman CM, Stolberg VR, Chiu BC, Bridger GJ, Fricker SP, **Lukacs NW,** Chensue SW. AMD3465, a novel CXCR4 receptor antagonist, abrogates schistosomal antigen-elicited (type-2) pulmonary granuloma formation. Am J Pathol. 2006, 69(2):424-32.
11. Smit JJ, **Lukacs NW.** The missing link: chemokine receptors and tissue matrix breakdown in COPD. Trends Pharmacol Sci. 2006 (11):555-7.
12. Keane MP, Gomperts BN, Weigt S, Xue YY, Burdick MD, Nakamura H, Zisman DA, Ardehali A, Saggar R, Lynch JP 3rd, Hogaboam C, Kunkel SL, **Lukacs NW**, Ross DJ, Grusby MJ, Strieter RM, Belperio JA. IL-13 Is Pivotal in the Fibro-Obliterative Process of Bronchiolitis Obliterans Syndrome. J Immunol. 2007, 178(1):511-9.
13. Dolgachev V, M. Thomas, AA Berlin, and **NW Lukacs.** Stem cell factor-mediated activation pathways promote murine eosinophil CCL6 production and survival. J. Leuk. Biol. 81(4):1111-9.
14. Buckland KF, O'connor, EC, Coleman, EM, Lira, SA, **Lukacs, NW**, and Hogaboam, CM. Remission of chronic fungal asthma in the absence of CCR8. J Allergy Clin Immunol. 2007, 119(4):997-1004.
15. 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.

B. BOOKS/CHAPTERS IN BOOKS

1. **Nicholas W. Lukacs** and Matthew Schaller. Lymphocyte trafficking and chemokine receptors during pulmonary disease. IN: 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. IN: 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**, Joost Smit, Dennis Lindell, Matthew Schaller.Respiratory syncytial virus-induced Pulmonary disease and exacerbation of allergic asthma. IN: Models of Exacerbation is Asthma and COPD. Ed. Sjobrin U. and Taylor JD. (In Press).
4. **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).
5. Dennis M. Lindell and **Nicholas W. Lukacs.** Chemokine Receptors in Allergic Lung Disease. IN: The Receptors: The Chemokine Receptors. Humana Press Inc. (In Press).

Linglei Ma, M.D.

Assistant Professor of Pathology and Dermatology

I. Clinical Activities

A. Diagnostic Dermatopathology (University Hospital cases, transfer cases, M-lab 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): Molecular, biochemical, and cellular basis of melanoma and other melanocytic lesions: Tissue Bank. Johnson TM, Wang TS, Schwartz JL, Voorhees JS, Dlugosz A, Lowe L, Su LD, Fullen DR, Ma L, Bradford C, and Cimmino V. Secondary preceptor, NIH T32 training grant
2. Principle investigator, Department of Pathology, University of Michigan (AP project funding): DNA damage response and melanoma progression, $9,700, 7/06-7/07
3. Principle investigator, Department of Pathology, University of Michigan (AP project funding): Expression of CD163, CD13, CD14, and CD33 in Cutaneous Histiocytic/Fibrohistiocytic lesions, $9,300, 7/07-7/08

B. PROJECTS UNDER STUDY

1. Principal Investigator, "Expression of CD163 in Cutaneous Histiocytic/Fibrohistiocytic lesions".
2. Principal Investigator, "Expression of CD163, CD13, and CD14 in Leukemia Cutis".
3. Principal Investigator, "H2AX in cutaneous clear cell tumors".
4. Principal Investigator, "The expression of DNA damage response molecule H2AX in melanocytic lesions".
5. Principal Investigator, "Evaluation of K homology domain containing protein (KOC) in melanocytic lesions".

IV. Administrative Activities

A. DEPARTMENTAL

1. Pathology residency training program and Dermatopathology fellowship program candidate interviews
2. Dermatology faculty candidate interviews
3. Member, AP redesign project committee

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. Invited speaker, "Clinicopathological correlation of skin diseases", University of Massachessetes, Department of Pathology, MA, March, 2007.
2. Invited speaker, "Clinicopathological correlation of skin diseases", 11th Association of Chinese American Physicians Convention, New York, NY, June, 2007.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. 2004 - American Society of Clinical Pathology
2. 2006 - American Society of Dermatopathology
3. 2005 - United States and Canadian Academy of Pathology
4. 2006 - American Association of Dermatolog
5. 2006 -International Society of Dermatopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Hutchin M, Chenoweth C, **Ma L**, McClean K. Auricular Erythema with Nodules and Scale. In press, 2007, *Archieves of Dermatology*.
2. McHugh JB, Fullen DR, **Ma L**, Kleer CG, Su LD. Expression of polycomb group protein EZH2 in nevi and melanoma. In press, 2007, *Journal of Cutaneous Pathology*.
3. Carvalho J, Lowe L, Fullen DR, Su LD, **Ma L**. The expression of CD23 in cutaneous adnexal neoplasms. In press, 2007, *Journal of Cutaneous Pathology*.
4. Olsen S, **Ma L**, Schnitzer B, Fullen DR**.** The expression of clusterin in cutaneous T-cell lymphomas. Accepted for *Journal of Cutaneous Pathology*.

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

1. Carvalho J, Fullen DR, Lowe L, Su LD, **Ma L**. The expression of CD23 in cutaneous adnexal neoplasms. *43rd Annual Meeting of the American Society of Dermatopathology,* Chicago, IL, October, 2006 (platform presentation).

2. Wasco M, Olsen S, Fullen DR, **Ma L**. Expression of MUM1 in cutaneous T-cell lymphomas. *43rd Annual Meeting of the American Society of Dermatopathology,* Chicago, IL, October, 2006.
3. Olsen S, **Ma L**, Schnitzer B, Fullen DR**.** The expression of clusterin in cutaneous T-cell lymphomas. *43rd Annual Meeting of the American Society of Dermatopathology,* Chicago, IL, October, 2006.
4. Carvalho J, Lowe L, Fullen DR, Su LD, **Ma L.** The utility of CD23 in differentiating Merkel cell carcinoma from small cell carcinoma. *United States Canadian Academy of Pathology, 2007 annual meeting,* March, 2007.

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
B. Medical Director, Central Distribution/Specimen Processing
C. Medical Director, Sendouts (Reference Laboratory Testing)
D. Medical Director coverage for Dr. Rasche at Forest Health Medical Center
E. UMHS Surgical Pathology Placental Service, 3 weeks
F. MLabs Surgical Pathology and Consultations, MLabs, 26 weeks
G. UMHS Clinical Pathology Immunology Signout, 1 week
H. UMHS Electron Microscopy Signout, Immotile Cilia Syndrome Evaluations
I. Medical Director coverage for Dr. Rasche at The University Health Services Laboratory

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Resident Rotations in Clinical Pathology Management (Rotation B) - 8 hours
2. Make vs. Buy Analyses Sendout Strategies Lean and Six Sigma Overview
3. Genesis of Outreach Laboratories and Marketing Strategies for MLabs
4. Modern QA vs. QC, Roles of a QA officer
5. New Resident Orientation, "Bringing Outreach Perspectives to Bear on Academic Medical Center Laboratory Operations." 20 June 2007
6. Placental Pathology, AP Service Signout Immunology Signout

B. LECTURES
1. "Lean Design in the Laboratory." Labratory Management Lecture Series, University of Michigan Department of Pathology, Ann Arbor, August 2006.

C. "Lean Six Sigma Overview," University of Michigan Department of Pathology Medical Technology Students, April 2007

D. OTHER
1. "Lean Six Sigma Overview," University of Michigan Department of Pathology Combined Faculty Meeting, July 2006
2. "Departmental Lean Consultancy," University of Michigan Department of Pathology Combined Faculty Meeting September 2006
3. "Using Root Cause Analysis Tools - Fishbones, 5 Whys and 8Ds" University of Michigan, Core Laboratory Leadership, June 27 and 28, 2007.

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL
1. Departmental Division Directors' Meeting
2. Laboratory Personnel, Operations and Improvements Meetings, MLabs, Sendouts, Central Distribution
3. Laboratory Quality Assurance Committee Client Resource Management Application Selection Committee
4. MLabs Connect (Atlas LabWorks) Web Portal Implementation, Lead Departmental Lean Initiatives, Team Leader, Mentor; Special Project (5 months) Implementation Coordinator
5. GI/GU Strategic Workgroup, Special Project with Dr. Myers and Marketing Section Lead
6. General Motors, Lansing Grand River Plant Lean Site Visit, Program Coordinator
7. Mayo Medical Laboratories, Reference Lab, Rochester, MN, Site Visit Lead and Program Coordinator
8. Chief Department Administrator Selection Committee
9. Surgical Pathology Consensus Conference
10. Client Services Module Evaluation, Selection and Development (ACT! / Web Connect) for Department-Wide Applications
11. Strategic and Tactical Approach to Sendouts Committee
12. Clinical Pathology Faculty Meetings
13. Anatomic Pathology Faculty Meetings
14. Department Combined Faculty Meetings
15. MLabs Operations Meetings
16. Central Distribution/Specimen Processing Operations Meeting

B. INSTITUTIONAL
1. Clinical Computing Advisor Committee, Member
2. Lean Workshop – Internal Results Delivery, Process Owner and Implementation Section Lead
3. Joint Venture Hospital Laboratories, UMHS Delegate
4. Emerging Leaders, The Global Institue for Leadership Development Project Team Lean, "The Human Factors"
5. Leadership Development Program, Lead Consultant, "Sendout Laboratory Expense Assessment and Reduction Strategies."

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. "Polishing Core Lab Functions with Lean Six Sigma Tools." Invited speaker, Lab InfoTech Summit, Las Vegas, 2 March, 2007.
2. "Lean: Your Magic Wand for Waste, Workflow, Whiners and Winners." Invited speaker, Michigan Society of Histotechnologists' Annual Scientific Meeting, Royal Oak, MI, Feb 2007.

B. HONORS AND AWARDS
1. Selected to UMHHC Emerging Leader Program, July 2006.

VI. Publications

A. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. “Lean Lessons From Life." MLabs Spectrum, Vol. 20, No. 3, July 2006

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 followup
   2. immunohistochemical and special stains, and electron microscopic neuropathology
   3. Weekly Brain Tumor Board, review of neurosurgical, neuroradiologic, neuropathologic and clinical-pathologic correlation, 28 weeks.
   4. Surgical neuropathology case load is four times the national average.

B. Diagnostic neuropathology consultant, Veterans Administration Hospital.

C. Examination of all University Hospital autopsy neuropathologic material – brain cutting, sampling, microscopic examination, and special stains.

D. General autopsies, 26 days.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Senior Medical Student Neuropathology electives Omer Yilmaz and others,
   2. M4 – mentoring. 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. HOUSE OFFICERS
      a) Brain cutting, sampling, microscopic examination and special stain instruction of pathology and clinical House Officers.
      b) Individual instruction of Pathology, Neurology, Anad Gundakaram, M.D, and other House Officers on neurosurgical biopsy material, 28 weeks.
      c) Review neurosurgically removed material in the hospital in CME-approved Thursday Specialty Conferences rotated with other faculty monthly conference, 27 weeks.
      d) Invited presentations of neuropathologic observations at various clinical conferences and CPC conferences.
      e) Pathology Resident's Tuesday AP Conference rotated with other faculty.
      f) One month House Officer Electives.
      g) Autopsy call, and Pathology Gross Conference.

2. FELLOWS/GRADUATE STUDENTS:
   a) Johanna Buchstaller, Ph.D. from laboratory of Sean Morrison, Ph.D.
   b) Nancy Joseph, M.D., Ph.D. student, from laboratory of Sean Morrison, Ph.D.
   c) 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. Brain Tumor Board, CPC, and other conferences.
2. Individual instruction of Dr. Gaurang Shah, Neuroradiology.

III. Research Activities

A. SPONSORED SUPPORT
1. Isolation and characterization of neural cancer stem cells with Dr. Sean Morrison, 5% effort on grant. $9,494 in direct costs.
2. Tumor proliferation and apoptosis in transgenic mice with Drs. Brian D. Ross and Thomas Chenevert, 10% effort on grant. Grant has been re-submitted.
3. Study of pituitary adenoma hypophyseal stroma with Drs. Jason Jarzembowski and Ricardo V. Lloyd.
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. Full accreditation from the Accreditation Council for Graduate Medical Education obtained in 1996, status inactive.

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 various 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.

2. M-Labs Neuropathology Services.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a) *Journal of Neuropathology and Experimental Neurology*
2. Primary Review Pathologist, Children's Cancer Study Group CCG 9897 nationwide study of childhood low grade gliomas.
3. 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.*

B. INVITED LECTURES/SEMINARS

1. "New Methods of Brain Tumor Analysis": AFIP Kenneth M. Earle Memorial Neuropathology Reviews, Armed Forces Institutes of Pathology, Bethesda, Maryland, February 2007.
2. "Gliomas", Neurology Department, Michigan State University, October 2006.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Faculty of Graduate Program of Department of Pathology.
2. Member, U.S. & Canadian Academy of Pathology, 1972 --present.
3. Member, Alpha Omega Alpha, Eta Chapter, 1972 -- present.
4. Member, American Association of Neuropathologists, 1978 -- present.
5. Member, Constitution Committee, 2000 -- present.
   a) Committee Chair, 2004-2005.
6. Member, Society of Neuroscience, 1983 -- present.
7. Member, Children's Cancer Study Group, 1985 -- present.
   a) Pathology Committee, 1989 -- present.
8. Member, Histochemical Society, 1989 -- present.
   a) Constitution Advisor 1996
9. Lieutenant Colonel, U.S. Army Reserve Medical Corps, 1997 - present.
   a) Duty station AFIP, 1997-2005
   b) Duty station Pathology Dept., Walter Reed Army Medical Center, 2005 – present

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Mobley BC, Roulston D, Shah, GV, Bijwaard KE, and **McKeever PE**: Peripheral PNET/Ewing sarcoma in the craniospinal vault: case report and review. Human Pathology 37(7):845-853, 2006.
2. Sundgren PC, Fan X, Weybright P, Welsh RC, Carlos RC, Petrou M, **McKeever PE**, Chenevert TL. Differentiation of recurrent brain tumor versus radiation injury using diffusion tensor imaging in patients with new contrast-enhancing lesions. Magn Reson Imaging 24(9):1131-42, 2006.
3. 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.

4. 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.
5. Joseph NM, Mosher JT, Buchstaller J, Zhu Y, Snider P, **McKeever PE**, Lim M, Conway S, Parada LF, Jacks T, Morrison SJ: The loss of Nf1 promotes self-renewal but not tumorigenesis by neural crest stem cells. Cancer Cell (in press).

B. BOOKS/CHAPTERS IN BOOKS
1. **McKeever PE**: Immunohistochemistry of the nervous system. In: Diagnostic Immunohistochemistry, 2nd edition. Dabbs DJ (Ed). Churchill Livingstone, Philadelphia, PA 2006, pp. 746-816.
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. In: Encyclopedia of Neuroscience, Elsevier Science, 3rd edition. Smith BH and Adelman A, eds., (in press).
4. **McKeever PE,** Boyer PJ: The brain, spinal cord and meninges. In: Sternberg's Diagnostic Surgical Pathology, 5th edition. Mills SE et al (Ed). Lippincott William & Wilkins (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **McKeever PE**, Mobley BC, Shah GV, Roulston D, Bijwaard KE: Peripheral PNET/Ewing sarcoma of the craniospinal vault: Two case reports and review of similar cases. XVI International Congress of Neuropathology, 2006 (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. Cytology services--10 weeks
E. General anatomic pathology on call--4 weeks
F. 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 signout

B. HOUSE OFFICERS AND FELLOWS
   1. Surgical pathology diagnosing rooms and consult service instruction for assigned house officer/fellow – 8 months
   2. Cytopathology service, cytopathology fellows and resident instruction, 2.5 months
   3. Lectures in gastrointestinal and liver pathology, 4 hours
   4. Consult conferences, 4-5 hours
   5. Cytology conferences, 3 hours
   6. House officer orientation lecture--1 hour
   7. Hepatology fellows conference--3 hours
   8. Morgue rounds and cytology fellows conference, 1 per week each

C. LECTURES
   1. Lectures in GI and liver pathology --4 hours
   2. Consult conferences--4 hour
   3. Cytology conferences--3 hours
   4. House officer orientation lecture--1 hour

III. Research Activities

A. SPONSORED SUPPORT
   1. 2.5% effort on a grant in Gastroenterology titled "Fenofibrate for the Treatment of Patients"

B. PROJECTS UNDER STUDY
1. Marginal collagenous colitis, with HD Appelman, W Xin, M Anderson, L Evans
2. The prevalence of unsuspected invasive carcinoma in specimens resected for high grade dysplasia in Barrett's mucosa, with X Zhu, HD Appelman, S Ramsburgh, Joel Greenson, and members of the Thoracic Surgery Division
3. Reproducibility of villous features and high-grade dysplasia in colorectal adenomas, with C Golembeski, and HD Appelman
4. Lymphocytic esophagitis, with J Purdy and HD Appelman
5. Findings in biopsies performed to investigate for possible GVHD, with M Wasco
6. Validation study of select biomarkers for the diagnosis of pancreatic cancer, with M Anderson and other members of Division of Gastroenterology
7. 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.
8. "Fenofibrate for the Treatment of Patients". with Hari Conjeevaram
9. "MRI Quantification and Display of Hepatic Fat in Hepatitis C and Non-Alcoholic Liver Disease (NAFLD) patients", with Hero Hussain
10. Nonalcoholic steatohepatitis: is leptin deficiency an etiologic factor: with E Oral and others from Endocrinology, Gastroenterology and Radiology

IV. Administrative Activities

A. DEPARTMENTAL
1. Program Director, Surgical Pathology Fellowship
2. Residency Program Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Chair, ASCP Resident Inservice Examination Committee
2. ASCP Maintenance of Certification Committee
3. ASCP Commission on Public Policy
4. ASCP Commission on Assessment
5. Chair, Membership Committee of the Rodger C. Haggitt Gastrointestinal Pathology Society
6. 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. "The Most Common GI Consult Cases: An Audience-directed Discussion", with Elizabeth Montgomery, MD, March 2007 USCAP Annual Meeting, 2007
2. "Troublesome GI biopsies" Microscope Tutorial, Annual meeting of the American Society for Clinical Pathology, October, 2006, Las Vegas, NV
3. "Just another day on the GI consultations service" with HD Appelman, American Society for Clinical Pathology, October, 2006, Las Vegas, NV

4. "What is an Advanced Adenoma?" DDW Abstract Plenary on Pathology of Advanced and Serrated Adenoma, Digestive Disease Week, Washington, D.C., May 2007

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Pathology
   a) Vice President
2. United States and Canadian Academy of Pathology
   a) Ambassador
3. Gastrointestinal Pathology Society
   a) Chair, Membership Committee
4. A. James French Society of Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Siddiqui MA, **McKenna BJ**. Hepatic mesenchymal hamartoma: a short review. Arch Pathol Lab Med. 2006 Oct;130(10):1567-9.
2. McHugh JB, Appelman HD, **McKenna BJ.** The diagnostic value of endoscopic terminal ileum biopsies. Am J Gastroenterol. 2007;102:1-6
3. **McKenna BJ.** The American Society for Clinical Pathology Resident In-Service Examination: Does resident performance provide insight into the effectiveness of Clinical Pathology education? Clin Lab Med 2007;27:283-92

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Golembeski CP, **McKenna BJ,** Appelman HD. Advanced adenomas: pathologists don't agree. Mod Pathol. 20(Supplement):115A, 2007
2. Purdy JK, Golembeski CP, Appelman HD, **McKenna BJ.** Lymphocytic esophagitis: what it is and what it is not. Mod Pathol. 20(Supplement):128A, 2007
3. 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

Claire W. Michael, M.D.

Associate Professor
Director of Cytopathology

I. Clinical Activities

A. Cytopathology – Twenty-one weeks.
B. Thoracic Multidiscipline Conference – Six months
C. Breast Cancer Clinic, Cytopathology – twelve months.
D. Review all ductal lavage specimens – twelve months.
E. Cytopathology Consultation Service, Department of Pathology - twelve months.
F. Necropsy Service – One weekend.

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Mentor for medical students' senior clerkship – six weeks.

B. HOUSE OFFICERS AND FELLOWS
   1. Sign out; Gynecologic and Non-Gynecologic Cytology cases (21 weeks)
   2. Instruction in the performance and interpretation of fine needle aspirates (11 weeks).
   3. Weekly Cytopathology Fellowship Conference
   4. Cytopathology positive case review/consensus conference: daily
   5. Cytopathology Journal Club: 12/year
   6. Cytopathology Research conference: 12/year

C. LECTURES
   1. Cytopathology Resident Conference (4/year).
   2. Consult Case Conference (4/year).
   3. Anatomic Pathology Conference: 3/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. Pang Y and Michael CW. Evaluation of Podoplanin, and h-caldesmon, in the diagnosis of mesothelioma on cytology specimens.
   2. Pu R and Michael CW. Evaluation of Cytology Tissue Micro-array performance.

3. Stanchina D and Michael CW. Evaluating morphologic features for the diagnosis malignant mesothelioma versus poorly differentiated squamous cell carcinoma and adenocarcinoma in effusions.
4. Reisman D and Michael CW. Inactivation of BRG1 promotes tumor development.
5. Reisman D and Michael CW. Alterations to the SW1/SNF complex in head/neck tumors.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Cytopathology Laboratory.
2. Director, Cytopathology Fellowship.
3. Member, Residency Review Board.
4. Member, Autopsy Director Recruitment Committee

B. REGIONAL/NATIONAL/INTERNATIONAL

C. Member, American Society of Clinical Pathologists, Non-Gynecologic Star Program

D. Member, American Society of Cytopathology, Scientific Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. 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. Look-alikes in effusion cytology: Review of the role of ancillary testing in the differential diagnosis. ASCP teleconference, April 19, 2007.
2. The use of immunostains in effusion cytology. M-Lab Symposium, April 24, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Editorial Board, Diagnostic Cytopathology Secretary, Papanicolaou Society of Cytopathology.
2. Chairperson, Educator of the Year Award Task Force, Papanicolaou Society of Cytopathology
3. Member, American Society of Clinical Pathologists, Non-Gynecologic Star Program
4. Member, American Society of Cytopathology, Scientific Committee

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Sivertsen S., Berner A, **Michael CW**, Bedrossian CWM, Davison B. Ovarian carcinoma and malignant mesothelioma cells in effusions have comparable Cadherin expression. Acta Cytol. 2006;50:603-7.
2. Weijian Zhu, **Claire W. Michael**. How important is on site adequacy assessment for thyroid FNA? An evaluation of 883 cases. Diagn. Cytopathol. 2007;35:183-186.
3. Farnaz Hasteh, Robert Pu, **Claire W. Michael.** A metastatic renal carcinoid tumor presenting as breast mass: A diagnostic dilemma. Diagn. Cytopathol 2007;35:306-10.
4. Weijian Zhu, **Claire W. Michael.** WT1, monoclonal CEA, TTF1 and CA125 antibodies in the differential diagnosis of lung, breast and ovarian adenocarcinomas in serous effusions. (Diagn. Cytopathol.2007;35:370-375).
5. Robert Pu, Zong-Mei Sheng, **Claire W. Michael**, Michael G. Rhode, Douglas Clark, and Timothy J. O'Leary. Methylation Profiling of Mesothelioma Using Real-Time Methylation-Specific PCR. (in press Diagn. Cytopathol.)
6. 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. (in press, Diagn. Cytopathol.)
7. Reisman D, Cirrincione G, Kleer C, **Michael CW** et al. The reversible epigenetic silencing of BRM: implications for clinical target therapy. (in press, Oncogene)
8. Hasteh F, **Michael CW**. The use of immunostains in distinguishing reactive from malignant mesothelial lesions in effusions. (Diagn. Cytopathol.)
9. 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. (Cancer Cytopathology)
10. Siddiqui MA, Griffith KA, **Michael CW,** Pu TT. Tumor size as the main limiting factor in diagnosing papillary thyroid carcinoma on fine needle aspiration. (Cancer Cytopathology)
11. Hasteh F, Pang Y, Pu RT, **Michael CW**. Do we need more than one ThinPrep to obtain adequate cellularity in fine needle aspirates? (Diagn.Cytopathol.)
12. Reiseman R, Georgina C, **Michael CW**, Johnson L. BRG1 is irreversibly altered while BRM is relatively silenced in cancer cell lines. (Revisions submitted to Cancer Research).
13. Yang K, Yang H, Jin Y, Khafagi A, Li J, Tang Y, Opipari AW, Ruffin M, Patel D, Newton D, **Michael CW,** Oeth PA, Jia X-Y, and Kurnit DM. Sensitive and specific detection of the 13 types of human papilloma virus responsible for cervical dysplasia and cancer using multiplexed real competitive PCR and MassARRAY. (revisions submitted).

B. BOOKS/CHAPTERS IN BOOKS

1. **Michael CW.** "Fine needle aspiration of thyroid prepared by ThinPrep." Thyroid: Guides to Clinical Aspiration Biopsy, Kini S (ed.). Philadelphia: J.B. Lippincott Company. (in press)
2. **Michael CW.** "Exfoliative Respiratory Cytology." Differential Diagnosis in Cytopathology, Guttuso, Reddy and Massood, eds. New York, NY: Cambridge University Press. (in press)
3. **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)

4. **Michael CW**. "Body Fluids." Differential Diagnosis in Cytopathology, Guttuso, Reddy and Massood, eds. New York, NY: Cambridge University Press. (in progress)

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

1. Pang, Y., Smola B., Kern K, Pu R, **Michael CW.** Reprocessing hypocellular unsatisfactory ThinPrep Pap test specimens containing red blood cells. Cancer (Cancer Cytopathology) 2006, 108:387(79A).
2. Siddiqui M, **Michael C** and Pu R. Tumor size as the main limiting factor in diagnosing papillary thyroid carcinoma on fine needle aspiration. Cancer (Cancer Cytopathology) 2006, 108:440(184A).
3. Pu R and **Michael CW**. Utility of WT-1, p63 and MOC31 immunostains in differentiating malignant mesothelioma, squamous cell carcinoma and adenocarcinoma in effusions. Submitted to American Society of Cytopathology. Cancer (Cancer Cytopathology) 2006, 108:441(187A).
4. Hasteh F, Pang Y, Pu RT, **Michael CW**. Do we need more than one ThinPrep to obtain adequate cellularity in fine needle aspirates. Cancer (Cancer Cytopathology) 2006, 108:424(151A).
5. Jing X. **Michael CW,** Pu R. The clinical and diagnostic impact of using a standard criteria of adequacy assessment and diagnostic terminology for FNA diagnosis of thyroid nodules. (Poster, USCAP March 2007)
6. Pang Y, **Michael CW.** "Evaluation of Podoplanin and h-Caldesmon in the diagnosis of mesothelioma on cytology specimens (Poster presentation. 16 th International Congress of Cytology, May 13, 2007).
7. Pang Y, **Michael CW**, Leiman G. Assessment of abdominal fat pat fine needle aspiration for the diagnosis of systemic amyloidosis". (Poster presentation. 16 th International Congress of Cytology, May 14, 2007).

Richard A. Miller, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lecturer, M1 Human Growth and Development course
2.

B. GRADUATE STUDENTS
1. Adam Salmon (thesis student, Cellular and Molecular Biology)
2. Scott Leiser (thesis student, Cellular and Molecular Biology)
3. Adam Gobetti (thesis student, Cellular and Molecular Biology)
4. Mike Steinbaugh (thesis student, Cellular and Molecular Biology)
5. Amir A. Sadighi-Akha (postdoctoral fellow)
6. Kyoko Yasumura (postdoctoral fellow)
7. Oge Arum (postdoctoral fellow)
8. Liou Sun (postdoctoral fellow
9. Bill Swindell (postdoctoral fellow)
10. Thesis committee member
    a) Lynn Kamen, Immunology Program
    b) Phil Lapinski, Immunology Program

C. UNDERGRADUATE AND MEDICAL STUDENTS
1. Bethany Schroeder, Med-I
2. Brad Krasnik, LSA-II

D. HOUSE OFFICERS AND FELLOWS
1. Lecturer, University of Michigan Tumor Immunology program
2. Lecturer, University of Michigan Orthopaedics Research program

E. LECTURES
1. Lecturer, Pathology 581, Cellular and Molecular Basis of Disease

F. OTHER
1. James Harper (Research Investigator, Pathology)
2. Gonzalo Garcia (Research Investigator, Pathology)

3. Ricky Malhotra (Research Assistant Professor, Internal Medicine)

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator, "Laboratory for Anti-Geric Testing, Evaluation and Research," NIH/NIA U01-AG022303-03, $378,998 direct costs/year ($1,996,000/5 yr), 7/03-6/08.
2. Principal Investigator, "Biomedical Research Training in the Biology of Aging," NIH/NIA T32 AG000114-21, $378,495 direct costs/year ($1,892,075/5 yr), 5/05-4/10.
3. Project Director, "A Consortium to Study the Genetics of Longevity," NIH/NIA U19-AG023122, $200,420 direct costs/year ($1,000,000/5 yr), 10/1/04-6/30/09. Program Principal Investigator: Steven Cummings, California Pacific Medical Group.
4. Principal Investigator, "Genetic Control of Longevity in Mice." NIH/NIA R01-AG11687-10, $298,784 direct costs/year ($1,575,757/5 yr), 9/1/04 - 8/30/09.
5. Core Director, "Claude D. Pepper Older Americans Independence Center," NIH P30-AG08808, $146,000 direct costs/year, 9/1/04-7/31/09. R. A. Miller serves as (a) Director, Core Facility for Aged Rodents, direct costs/year $63,097 ($325,000/5 yr); (b) Director, Pilot and Experimental Studies Core, $60,154 direct costs/year ($300,000/5 yr). (Program PI: Jeffrey Halter, University of Michigan.
6. Project Director, "Gene Expression and Biomarkers in Dwarf Mice," SIU Subcontract, component of R01-AG19899, $44,000 direct costs/year ($220,000/5 yr), 9/1/06–8/31/11 Principal Investigator: Andrzej Bartke, Southern Illinois University.
7. Project Director, "Mechanisms of Aging in the Long-Lived Naked Mole Rat." R01-AG022891, $25,237 direct costs/year ($125,000/5 yr), 9/30/03-8/31/08. Principal Investigator, R. Buffenstein, CCNY.
8. Project Director, "Genetic Analysis of Hearing Loss, Stress, and Age-Sensitive Traits in Mice." NIH P01-AG025164, $180,253 direct costs/year ($900,000/5 yr), 9/1/2005 – 7/31/2010. Principal Investigator, Jochen Schacht, University of Michigan.

B. PENDING PROJECTS

1. Principal Investigator, " Activation Defects in T Cells of Aged Mice," NIH/NIA R01-AG019619-06A2, $250,000 direct costs/year ($1,250,000/5 year), 7/07 - 6/12. Priority score 6th percentile, funding expected 7/15/2007.
2. Co-investigator, " ERM and Rho Signal Pathways in T Cell Immune Senescence," NIH/NIA R21 AG030828-01 (G. Garcia, PI), $125,000 direct costs/year ($275,000 direct costs/2 yr), 8/1/2007 - 7/31/2009. Funding expected 8/1/2007.
3. Project Director, " The somatotropic axis and healthy aging: A search for mechanisms," NIH/NIA P01-AG-unassigned (A. Bartke, Southern Illinois University, Program Director). $201,000 direct costs, year 1 requested. 4/1/08 - 3/31/13. Awaiting review.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Biomedical Research Training in Aging Program (from 8/1/2005)

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. Preliminary examination co-ordinator, Cellular and Molecular Biology Program
7. 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)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Joint Editor-in-Chief:
   a) *Aging Cell*
2. *Editorial Board*
   a) *Aging: Clinical and Experimental Research*
   b) *Mechanisms of Ageing and Development*
   c) *Experimental Gerontology*
   d) *Journal of Gerontology: Biological Sciences*
3. Manuscript reviews
   a) *Science*
   b) *Journal of Immunology*
   c) *Public Library of Science*
   d) *Journals of Gerontology: Biological Science*

B. INVITED LECTURES/SEMINARS
1. Aging Research in Immunology Conference, Paris, France. "Genetics of Aging." September 4.
2. Department of Molecular Biology, University of Ghent, Ghent, Belgium. "Cells, Stress, Cancer and Aging." September 8.
3. American Federation for Aging Research Annual Grantee Conferencer, Santa Barbara, CA. "8 Career Tips for Biological Scientists." September 10.
4. Center for Molecular Medicine and Genetics, Wayne State University, Detroit, MI. "Cells, Stress and Aging: Lessons from Mutant Dwarf Mice." September 14.
5. American Physiology Society meeting on Comparative Physiology, Virginia Beach, VA. "Are there age-retarding genes in long-lived animals?" October 8
6. National Institute of Aging Meeting on Small Animal Models for Comorbidity, Bethesda, MD. "Overview: Rodent Models in Aging Research." October 16
7. Longevity Consortium Meeting, Napa, CA. "Genetics of stress resistance and aging in mice." October 25.
8. Sirtris Pharmaceuticals, Cambridge, MA. "Cells, Stress, Cancer and Aging." January 12.
9. NIH Science for All (STEP) Program, Bethesda, MD. "Extending Human Lifespan: Scientific Prospects and Political Obstacles. March 6.
10. University of Miami School of Medicine, Department of Microbiology and Immunology. "T Cells in Aging Mice: What Goes Wrong and How to Fix It." March 29.
11. University of Miami Center on Aging Distinguished Lecture Series. "Size, Stress, and Aging: Lessons from Long-Lived Mutant Mice." March 30.

12. Longevity Consortium Symposium, Santa Fe, NM. "Genetics of Stress Resistance and Aging in Mice." May 17.
13. Pepper Center Symposium on Genetics and Genomics of Aging, Ann Arbor, MI. "8 Career Tips for Biological Scientists." May 31
14. American Aging Association Annual Meeting, San Antonio, TX. "NIA Interventions Testing Program - Initial Results." June 1
15. Nathan Shock Center Workshop, San Antonio, TX. "Cell Stress and Aging: Studies of Mutant Mice and Long-lived Rodents." June 3

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Harper, J. M., S. J. Durkee, R. C. Dysko, S. N. Austad and **R. A. Miller.** 2006. Genetic modulation of hormone levels and life span in hybrids between laboratory and wild-derived mice. J. Gerontol. A Biol. Sci. Med. Sci. 61: 1019 - 1029.
2. Hulbert, A. J., S. C. Faulks, J. M. Harper, **R. A. Miller,** R. Buffenstein. 2006. Extended longevity of wild-derived mice is associated with peroxidation-resistant membranes. Mechanisms of Ageing and Development 127:653 – 657.
3. Hanlon, P., A. Lorenz, Z. Shao, J. Harper, A. T. Galecki, **R. A. Miller**, and D. T. Burke. 2006. Three-locus and four-locus QTL interactions influence mouse insulin-like growth factor-I. Physiological Genomics 26:46 – 54.
4. Sadighi Akha, A. A., S. B. Berger, **R. A. Miller.** 2006. Enhancement of CD8 T cell function through modifying surface glycoproteins in young and old mice. Immunology 119: 187 - 194.
5. Harper, J. M., A. B. Salmon, Y. Chang, M. Bonkowski, A. Bartke and **R. A. Miller.** 2006. Stress resistance and aging: Influence of genes and nutrition. Mech. Ageing Dev. 127:687 – 694.
6. Berger, S. B., A. A. Sadighi Akha, **R. A. Miller**, and G. G. Garcia. 2006. CD43-independent augmentation of mouse T cell function by glycoprotein cleaving enzymes. Immunology 119: 178 - 186.
7. (*) Leiser, S. F., (*) A. B. Salmon, and **R. A. Miller.** 2006. Correlatedresistance to glucose deprivation and cytotoxic agents in fibroblast cell lines from long-lived pituitary dwarf mice. (*) joint first authors. Mechanisms of Ageing and Development 127:821 - 829.
8. Reeves, G. M., B. R. McCreadie, S. Chen, A. T. Galecki, D. T. Burke, **R. A. Miller**, and S. A. Goldstein. 2007. Quantitative trait loci modulate vertebral morphology and mechanical properties in a genetically heterogeneous mouse population. Bone 40:433-443.
9. Harper, J. M., A. B. Salmon, S. F. Leiser, A. T. Galecki, and **R. A. Miller.** 2007. Skin-derived fibroblasts from long-lived species are resistant to some, but not all, lethal stresses and to the mitochondrial inhibitor rotenone. Aging Cell 6:1-13.
10. **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., R. Strong An aging interventions testing#L. Nadon, H. R. Warner program: study design and interim report. Aging Cell, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. Lithgow, G. J. and **R. A. Miller**. The determination of aging rate by coordinated resistance to multiple forms of stress. In: The Molecular Biology of Aging, L.Guarente, L. Partridge, and D. Wallace, eds. Cold Spring Harbor Press, NY. In press.

Hedwig S. Murphy, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Surgical Pathology and Frozen Section Diagnosis (17weeks/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 atUrologic 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: Tissue,Cellular and Molecular Basis of Disease 4 credits, Pathology 581
   3. Lecturer. Tissue, Cellularand Molecular Basis of Disease 4 credits 43 contact hours, Pathology 581

C. HOUSE OFFICERS AND FELLOWS
   1. Pathology house officers, Surgical Pathology supervision and instruction, (17 weeks/year)
   2. Pathology house officers, instruction in gross examination, processing and frozen section processing and diagnosis (17 weeks/ year)
   3. Pathology house officers, Autopsy supervision and instruction (13 weeks /year).
   4. Urologic Pathology Teaching Conferences: case presentation and discussion 28 hrs (286 reviewed)

D. OTHER
   1. Development of Teaching Materials
      a) Pathology 581, UM ctools.
      b) Urologic Pathology Online Review: a web-based review course for Urology residents.
      c) 2006 Penis and Urethra Part 1, 2

d) 2006 Prostate Pathology Part 1, 2
e) 2006 Urinary Bladder noninvasive squamous lesions
f) 2006 Testicular Germ Cell Tumors

III. Research Activities

A. SPONSORED SUPPORT

1. 01/05-12/08, Department of Veterans Affairs Research Enhancement Award Program (REAP) (renewal years 05-10) "Pulmonary Innate Immunity in the Pathogenesis of Tobacco-induced Lung Diseases" PI, Jeffrey L. Curtis ($1,125,000 total direct costs).
2. 03/07-03/08, Principal Investigator. Pilot Project: "Role of the vascular endothelium in a murine model of cigarette smoke induced pulmonary disease". Department of Veterans Affairs Research Enhancement Award Program (REAP). ($40,000).
3. 03/07-03/08 Prinicpal Investigator. Pilot Project: "Role of the vascular endothelium in cigarette smoke induced human pulmonary disease". Department of Veterans Affairs Research Enhancement Award Program (REAP). ($40,000).

B. PROJECTS UNDER STUDY

1. Microvascular endothelial cells in smoking induced lung disease
2. Gender and Hormones in autoimmune disease
3. Endothelial cells and their role in inflammation
4. Endothelial cell derived oxidants in signaling and cell injury

IV. Administrative Activities

A. DEPARTMENTAL

1. 2005-present, Member, Curriculum Committee, Molecular and Cellular Pathology Graduate Program

B. INSTITUTIONAL

1. 07/2001-present, Chief, Anatomic Pathology, Veterans Affairs Ann Arbor Health System, Ann Arbor, MI
2. 07/2001-present, Chief, Clinical Electron Microscopy, Veterans Affairs Ann Arbor Health System, Ann Arbor, MI

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. 1995-present, American Society for Investigative Pathology (Fellow).
2. 1995-present, American Society of Clinical Pathologists (Fellow)
3. 1995-present, American Association of University Women
4. 1996-present, The A. James French Society of Pathologists
5. 1997-present, American Heart Association
6. 2001-present, North American Vascular Biology Organization
7. 2007-present, Michigan Society of Pathologists
8. 2007-present, United States and Canadian Academy of Pathology

B. HONORS AND AWARDS

1. 2006 Dept of Veterans Affairs: Recognition of High level Performance

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Ray D. Wu A. Wilkinson JE. **Murphy HS**. Lu Q. Kluve-Beckerman B. Liepnieks JJ. Benson M. Yung R. Richardson B. Aging in heterozygous Dnmt1-deficient mice: effects on survival, the DNA methylation genes, and the development of amyloidosis. *Journals of Gerontology Series A-Biological Sciences & Medical Sciences*. 61(2):115-24, 2006.

B. BOOKS/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. 2007.

Jeffrey L. Myers, M.D.

A. James French Professor of Pathology
Director, Division of Anatomic Pathology

I. Clinical Activities

A. Room 1 (7 weeks)
B. GU pathology (8 weeks)
C. Breast pathology (4 weeks)
D. Extramural consultation cases (1,039 signed cases, 1JUL06 - 31MAY07)

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Elective in pulmonary pathology (1 month each)
      a) Diane Hall
      b) Angela Konrad (visiting resident from the University of Missouri at Columbia)

III. Research Activities

A. SPONSORED SUPPORT - None

B. PENDING PROJECTS - None

C. PROJECTS UNDER STUDY
   1. Role of tranbronchial biopsy in evaluating patients suspected of having UIP/IPF
   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)

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, 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*
2. Manuscript Review
   a) *Americal 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 2006, Bar Harbor, ME, July 2006.
2. Invited Speaker, Symposium (Pulmonary Interstitial Lung Disease Other than UIP), XXVI International Congress of the IAP, Montreal, Canada, September 2006.
3. Visiting Professor, Department of Anatomic Pathology, Cleveland Clinic, Cleveland, OH, September 2006.
4. Invited Speaker and Guest Faculty, Annual Post Graduate Course: Hands-On Approach to Diagnostic Pathology, Cleveland Clinic Department of Anatomic Pathology, Cleveland, OH, September 2006.
5. Invited Speaker and Faculty, Postgraduate Course: Current Concepts in Diagnosis and Treatment of Interstitial Lung Disease. CHEST 2006, Annual Meeting of the American College of Chest Physicians, Salt Lake City, UT, October 2006.
6. Invited Speaker and Faculty: "Update in Pulmonary Vasculitis", CHEST 2006, Annual Meeting of the American College of Chest Physicians, Salt Lake City, UT, October 2006.
7. Invited Speaker and Faculty: "Suspected Idiopathic Interstitial Pneumonia: A Clinical-Radiographic-Pathologic Approach", CHEST 2006, Annual Meeting of the American College of Chest Physicians, Salt Lake City, UT, October 2006.
8. Keynote Speaker, "Innovation . . . Core Competency for ASCP Leadership?", ASCP Matrix Meeting, Chicago, IL, December 2006.
9. Invited Speaker, "Patient Safety and Pathology. Narrowing the Gap Between Expectations and Performance", 2006 Winter Conference and Annual Meeting, Michigan Society of Pathologists, Plymouth, MI, December 2006.
10. Invited Speaker and Faculty, American Lung Association of Hawaii/Hawaii Thoracic Society 7th Annual Symposium: Current Concepts in Pulmonary and Critical Care Medicine. Maui, Hawaii, January 2007.
11. Organizer and facilitator, inaugural meeting of the Pathology Leaders Club, Asheville, NC, February 2007.
12. Invited Speaker, "Identifying and Avoiding Errors in Surgical Pathology", Lab InfoTech Summit, Las Vegas, NV, March 2007.

13. Invited Speaker, Evening Surgical Pathology Specialty Conference, Annual Meeting of the United States and Canadian Academy of Pathology, San Diego, CA, March 2007.
14. Faculty and Co-Director, Short Course ("A Potpourri of Interesting Cases for Surgical Pathologists"), Annual Meeting of the United States and Canadian Academy of Pathology, San Diego, CA, March 2007.
15. Invited speaker and Visiting Professor, Department of Pathology, Hospital General Universitario, Madrid, Spain, April 2007.
16. Invited Speaker and Faculty, 2007 Fourteenth Annual Seminar in Pathology, Pittsburgh, PA, May 2007.
17. Invited Speaker, Diagnostic and Management Dilemmas in Diffuse Interstitial Lung Disease (Postgraduate Course), ATS 2007, Annual American Thoracic Society International Conference, San Francisco, CA, May 2007.
18. Invited Speaker, Great Cases: Clinical, Radiologic, Pathological Correlations by Master Physicians (Fellows Conference), ATS 2007, Annual American Thoracic Society International Conference, San Francisco, CA, May 2007.
19. Invited Speaker, Emerging Issues in Drug Induced and Iatrogenic Lung Disease (Clinical Topics in Pulmonary Medicine), ATS 2007, Annual American Thoracic Society International Conference, San Francisco, CA, May 2007.
20. Invited Speaker, Acute Presentation of UIP/IPF; Moderator, Utility of Consensus Classifications Panel Discussion, Biennial Meeting of the Pulmonary Pathology Society, Santa Fe, NM, June 2007.

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

D. HONORS AND AWARDS
1. UMHHC "You're Super" Award, December 2006

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Atkins S, Matteson E, **Myers J**, Ryu J, Bongartz T. Morphological and quantitative assessment of mast cells in rheumatoid arthritis associated non-specific intersitial pneumonia and usual interstitial pneumonia. Ann Rheum Dis 2006; 65: 677-80.
2. Trahan S, Erickson-Johnson M, Rodriguez F, Aubry MC, Cheville J, **Myers J**, Oliveira A. Formation of the 12q14-q15 amplicon precedes the development of a well differentiated liposarcoma arising from a nonchondroid pulmonary hamartoma. Am J Surg Pathol 2006; 30: 1326-9.
3. Parambil J, **Myers J**, Ryu J. Diffuse alveolar damage: uncommon manifestation of pulmonary involvement in patients with connective tissue disease. Chest 2006; 130: 553-8.

4. Parambil J, **Myers J**, Lindell R, Matteson E, Ryu J. Interstitial lung disease in primary Sjögren syndrome. Chest 2006; 130: 1489-95.
5. Aubry M-C, Thomas C Jr, Jett J, Swensen S, **Myers J**. Significance of multiple carcinoid tumors and tumorlets in surgical lung specimens. Analysis of 28 patients. Chest 2007; 131: 1635-43.
6. Parambil J, **Myers J,** Aubry M-C, Ryu J. Causes and prognosis of diffuse alveolar damage diagnosed on surgical lung biopsy. Chest 2007; 132: 50-7.
7. Collard H, Moore B, Flaherty K, Brown K, Kaner R, King T Jr., Lasky J, Lloyd J, Noth I, Omen M, Raghu G, Roman J, Ryu J, Zisman D, Hunninghake G, Colby T, Egan J, Hansell D, Johkoh T, Kaminski N, Kim D, Kondoh Y, Lynch D, Muller-Quernheim J, **Myers J**, Nicholson A, Selman M, Toews G, Wells A, Martinez F. Pulmonary Perspective: Acute Exacerbation of Idiopathic Pulmonary Fibrosis. Am J Respir Crit Care Med 2007 (in press).

B. BOOKS/CHAPTERS IN BOOKS – None

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

1. **Myers J**, Lynch D, Nicholson A, Hansell D, Szwarcberg J, Williamson Z, du Bois R, King T. Core and site readers' interpretations of high-resolution computed tomography and surgical lung biopsy in patients with idiopathic pulmonary fibrosis-INSPIRE study. Annual Meeting of the American Thoracic Society, San Francisco, CA, May 2007.
2. Mukhopadhyay S, Savci-Heijink C, Specks U, **Myers J**, Yi E, Aubry MC. Necrotizing granulomas negative for microorganisms: Clinical course of 50 cases. Mod Pathol 2007 (annual meeting of USCAP, San Diego, CA, March 2007).
3. Roden A, Macon W, Keeney G, **Myers J**, Dogan A. Anaplastic large cell lymphoma in vicinity to breast implants: Histologic, immunophenotypic, molecular genetic studies and clinical follow-up of three cases. Mod Pathol 2007 (annual meeting of USCAP, San Diego, CA, March 2007).

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. Pathology residents – Diagnostic consultations.
  2. Pathology residents – Supervision of autopsies.
  3. Pathology residents – 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
- B. INVITED LECTURES/SEMINARS
  1. 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. Ying Ding (Biostatistics)
2. Hyung Won Choi (Biostatistics)
3. Yu-Hsuan Lin, Winter 2006, rotation student (Bioinformatics)
4. Thesis committee member
   a) Peter Ulintz (Bioinformatics)
   b) Damian Fermin (Bioinformatics)
   c) Jayson Falkner (Bioinformatics)

B. HOUSE OFFICERS AND FELLOWS
1. Xia Cao, Ph.D.

C. LECTURES
1. Bioinformatics 551 (2 lectures)

D. OTHER
1. Member, Bioinformatics Graduate Program

III. Research Activities

A. SPONSORED SUPPORT
1. Principal Investigator, "Analysis and Statistical Validation of Proteomic Datasets", National Institutes of Health, R01, 23%, $322,599.00/yr total ($1,248,281.00/4 yr total), 09/2006 – 08/2010
2. Principal Investigator, "Computational Analysis of MS Data on Protease Products", The Burnham Institute (NIH), administrative supplement to U54 RR020843 "Center for Poteolytic Pathways" (PI: Smith), 15%, $114,000.00/yr total ($114,000.00/1 yr total), 08/1/06-07/31/07
3. Co-Investigator, "Detection of Autoantibody Signature and Early Detection Markers in Colon Cancer" (PI: Chinnaiyan), Fred Hutchinson Cancer Research Center (NIH), 0% salary effort, 12/2006-06/2007

B. PENDING PROJECTS
1. Co-Investigator, "Integrated Biomedical Technology Research Resource for Proteomics", NIH, U24 (PI: Andrews), 18%, $75,000/yr direct ($388,469/5 yr direct), 08/2008 – 07/2013
2. Co-Investigator, Michigan Institute for Clinical and Health Research (MICHR), NIH (PI: Clauw, Daniel J), 5%, 09/2007 - 09/2012
3. Co-Investigator, "Identification of Biomarkers of Central Nervous System Relapse in Acute Lymphoblastic Leukemia by Mass Spectrometry", Collaborative Grant Program for Translational and Clinical Research, University of Michigan (P.I. Megan Lim), 5%, 1 year.
4. Co-Investigator, Pilot Project, "Identification of Serum Biomarkers for Hogkin Lymphoma", Collaborative Grant Program for Translational and Clinical Research, University of Michigan (P.I. Kojo Elenitoba-Johnson),5%, 1 year

C. PROJECTS UNDER STUDY
1. Development of computational methods and tools for analysis of mass spectrometry-based proteomic data
2. Analysis of protein microarray data
3. Integrative analysis and mining of proteomic dataset

IV. Administrative Activities

A. DEPARTMENTAL
1. Interviewer: Faculty Candidates, Candidates for Fellowship in Pathology Informatics

B. INSTITUTIONAL
1. Member, Curriculum Development Committee, Bioinformatics Program
2. PIBS Admission Committee (Bioinformatics Program)
3. Interviewer, Bioinformatics Program Direct Admission
4. Grant Reviewer, 2006 Pilot Research Projects, Center for Computational Biology and Medicine

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant reviewer, National Sciences and Engineering Research Council of Canada (NSERC), Canada Research Chair Program
2. Grant reviewer, National Institute of Health, NCRR Special Emphasis Panel ZRR1 BT-B, Technology Development for Biomedical Applications
3. Member, Program Committee, RECOMB Satellite Conferences on Systems Biology and Computational Proteomics, December 2006, San Diego, California
4. Member, Proteome Informatics Research Group, The Association of Biomolecular Research Facilities

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Member of Editorial Board, *Practical Proteomics* (published by WILEY-VCH Verlag)
2. 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*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker, "Computational analysis of quantitative mass spectrometry-based proteomic data", Fall Term 2006 Kick-Off Event, Bioinformatics Program, University of Michigan, Ann Arbor, September 6th, 2006
2. Invited Panel Discussant, HUPO Plasma Proteome Initiative Workshop, Long Beach, California, October 29th, 2006
3. Invited Speaker and Instructor, Proteomics Software Course at the Institute for Systems Biology, Seattle, WA, October 12th 2006; May 7th, 2007.
4. Invited Speaker, "Mass spectrometry-based proteomics and bioinformatics", 5th Annual Pathology Research Symposium, Department of Pathology, University of Michigan, Ann Arbor, November 10th, 2006.
5. Invited Speaker, "Interpretation of Shotgun Proteomic Data", Protein Biomarkers 2006 Conference, November 16th, 2006
6. Invited Speaker, "Analysis and statistical validation of shotgun proteomics datasets", Bioinformatics Workshop, Department of Biostatistics, University of Michigan, 2 February, 2007
7. Invited Speaker, "Analysis and statistical validation of proteomic datasets", AACR Special Conference in Cancer Research: Advances in Proteomics in Cancer Research, Amelia Island, Florida, March 2nd, 2007
8. Invited Panel Discussant, Statistical Proteomics Workshop, US HUPO Annual Meeting, Seattle, Washington, March 8th, 2007
9. Invited Speaker, "Methods for quality assessment of MS/MS spectra", NIH Mouse Proteomic Technologies Initiative and CPTAC Team Meeting, Seattle, Washington, 9 March, 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. Named "Rising Young Investigator" by Genome Technology magazine, Dec. 2006/Jan. 2007 special issue

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. King, N. L., Deutsch, E. W., Ranish, J. A., **Nesvizhskii, A. I.**, Eddes, J. S., Mallick, P., Eng, J., Desiere, F., Flory, M., Martin, D. B., Kim, B., Lee, H., Raught, B., and Aebersold, R. (2006) Analysis of the Saccharomyces cerevisiae proteome with PeptideAtlas. Genome Biology 7

2. Yoo, C., Patwa, T. H., Kreunin, P., Miller, F. R., Huber, C. G., **Nesvizhskii, A. I.**, and Lubman, D. M. (2007) Comprehensive analysis of proteins of pH fractionated samples using monolithic LC/MS/MS, intact MW measurement and MALDI-QIT-TOF MS. Journal of Mass Spectrometry 42, 312-334
3. Malmstrom, J., Lee, H., **Nesvizhskii, A. I.**, Shteynberg, D., Mohanty, S., Brunner, E., Ye, M. L., Weber, G., Eckerskorn, C. and Aebersold, R. (2006) Optimized peptide separation and identification for mass spectrometry based proteomics via free-flow electrophoresis. Journal of Proteome Research 5, 2241-2249

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

1. **Nesvizhskii, A. I.**, Malmstrom, J., Shteynberg, D., and Aebersold, R. (2006) Improved statistical model for validation of shotgun proteomic data that incorporates peptide isoelectric point information. Molecular & Cellular Proteomics 5, S374-S374 (presented at the HUPO World Congress, Long Beach, California, October 2006)
2. Vellaichamy, A., Sreekumar, A., Taylor, B. S., Zhao, R., Strahler, J. R., Mehra, R., Dhanasekaran, S. M., Michailidis, G., Varambally, S., **Nesvizhskii, A. I.**, Andrews, P. C., Omenn, G. S., and Chinnaiyan, A. M. (2006) OMICS of androgen action in prostate cancer. Molecular & Cellular Proteomics 5, S312-S312 (presented at the HUPO World Congress, Long Beach, California, October 2006)
3. Amunugama, R., Keshamouni, V., Allen, D., Hagler, R., Omenn, G., **Nesvizhskii, A.**, and Pisano, M. (2006) Differential protein expression during TGF beta-induced epithelial-mesenchymal transition in lung cancer cells utilizing the SILAC strategy. Molecular & Cellular Proteomics 5, S244-S244 (presented at the HUPO World Congress, Long Beach, California, October 2006)
4. Deutsch, E., King, N., Eng, J., **Nesvizhskii, A.,** Vitek, O., Tasman, J., and Aebersold, R. (2006) Defining the human plasma proteome with PeptideAtlas. Molecular & Cellular Proteomics 5, S156-S156 (presented at the HUPO World Congress, Long Beach, California, October 2006)
5. Slany, R. K., Mueller, D., Bach, C., Zeisig, D., Garcia-Cuellar, M. P., Monroe, S., Sreekumar, A., Zhao, R., **Nesvizhskii, A.**, Chinnaiyan, A., and Hess, J. L. (2006) Purification of an MLL partner associated complex (MPAC) suggests a common role for MLL fusion partners in transcriptional elongation. Blood 108, 231A-231A
6. Deutsch, E.W., N.L. King, J.K. Eng, **A.I. Nesvizhskii,** D.S. Shteynberg, R. Aebersold, The Observed Human Proteome in PeptideAtlas, US HUPO Annual Meeting, Seattle, Washington, March 7th, 2007
7. Shteynberg, D., E. Deutsch, J. Eddes, J. Eng, **A.I. Nesvizhskii,** R. Aebersold, New Models in PeptideProphet Improve Validation of MS/MS Data. US HUPO Annual Meeting, Seattle, Washington, March 7th, 2007
8. Ulintz, P.J., 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, Annual ASMS Conference, Indianapolis, Indiana, 6 June, 2007

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)

E. New clinical test development, verification and implementation.

F. Selected current activities in progress or completed during this year
1. Evaluation of automated Identification/Antibiotic Susceptibility Testing systems (completed)
2. Implementation of VITEK II automated Identification/Antibiotic Susceptibility Testing system into routine practice (completed)
3. Evaluation of real-time PCR instrumentation for in-house testing for Enterovirus and Bordetella pertussis (completed)
4. Implementation of real-time PCR for Enterovirus and Bordetella pertussis into routine practice (in progress)
5. Implementation of automated sample processing for Pneumocystis PCR testing (completed)
6. Verification of methods for automated identification of yeast using VITEK II (in progress)
7. Verification of methods for automated susceptibility testing of selected yeasts using VITEK II (in progress)
8. Implementation of EBV viral load testing (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 M-4 elective in Pathology.
6. Preceptor for Pharmacy Resident rotation in Clinical Microbiology and Virology.

D. LECTURES
1. "Laboratory safety." Management Lecture Series, Department of Pathology, University of Michigan Medical Center. 08/18/06.
2. "Biosafety in the laboratory." Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. Part 1, 10/10/06; Part 2, 10/31/06.
3. "Microbiology case presentations." Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. 11/7/06.
4. "Introduction to molecular diagnostics" Brown-bag lunch seminar for Medical Technology students, Department of Pathology, University of Michigan Medical Center. 03/12/07.

III. Research Activities

A. SPONSORED SUPPORT
1. Co-investigator, R01 NIH Grant AI057853-01A1, Principal Investigator: Arnold S. Monto, MD, Project Title: Comparative Study of Influenza Vaccines in Adult 20% effort, $28,204 (Salary = $14,180, Benefits = $4,254, Indirect Costs = $9,770)

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+ Enterobacteriaciae in hospitalized patients (DePestel/Chenoweth, PIs)
6. Identification of factors affecting quorum sensing in Enterobacteriaciae isolated from blood and urine (Younger, PI)
7. Molecular methods for detection of fungal pathogens in culture negative specimens (Rogers, PI; NIH grant submitted)
8. Antimicrobial nanoemulsions as therapy for recurrent cold-sores (Peters, PI)

9. Rapid low cost point-of-care device for the detection of bacteremia (RapidBioSense, Mathew, PI; NIH grant submitted)
10. Use of magnetic nanoparticles for the detection and susceptibility testing of bacteria (McNaughton, PI; NIH grant submitted)
11. 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)
12. Clostridium difficile in the Elderly (Malani, 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. H. influenzae genes associated with COPD (Gilsdorf, 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

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Corporate Liaison 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*

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 Disesease: West Nile Virus and Avian Influenza." Distinguished Lecture Series, Biology Program of the College of Arts and Sciences, Governors State Univeristy, 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. S.E. Ohmit, J.C. Victor, J.R. Rotthoff, E.R. Teich, R.K. Truscon, L.L. Baum, B. Rangarajan, **D.W. Newton**, M.L. Boulton, and A.S. Monto. 2006. Prevention of antigenically drifted influenza by inactivated and live attenuated vaccines. New England Journal of Medicine 355:2513-22.
2. C.D. Collins, G.A. Eschenauer, S. Salo, **D.W. Newton**. 2007. To test or not to test: A cost-minimization analysis of susceptibility testing in patients with documented Candida glabrata fungemias. Journal of Clinical Microbiology 45:1884-1888.
3. M.R. Savona, **D. Newton,** D. Frame, J.E. Levine, S. Mineishi, and D.R. Kaul. 2007. Low-dose cidofovir treatment of BK virus-associated hemorrhagic cystitis in recipients of hematopoietic stem cell transplant. Bone Marrow Transplantation 39:783-787.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. C.D. Collins, G.A. Eschenauer, S. Salo, and **D.W. Newton**. 2006. Pharmacoeconomic analysis of susceptibility testing in patients with documented Candida glabrata fungemias. Poster presented at the 46th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC), San Francisco, CA.
2. D.R. Kaul, **D.W. Newton**, D. Frame, M.R. Savona. 2006. Cidofovir treatment of BK virus associated hemorrhagic cystitis in recipients of hematopoietic stem cell transplants. Poster presented at the 44th Annual Meeting of the Infectious Diseases Society of America (IDSA), Toronto, ON.
3. C.R. Starr and **D.W. Newton**. 2007. The evaluation of mannitol salt agar with cefoxitin (MSA-FOX) for the rapid identification of MRSA in surveillance cultures. Poster presented at the 107th General Meeting of the American Society for Microbiology, Toronto, ON.
4. C. Young, D. Hall, B. Coffing, and **D. Newton.** 2007. Incubation of BacT/ALERT FA and FN blood culture bottles for 5 days is clinically indicated in a tertiary setting. Poster presented at the 107th General Meeting of the American Society for Microbiology, Toronto, ON.
5. C.R. Starr and **D.W. Newton.** 2007. The evaluation of transport media for the detection of Bordetella pertussis using the Cepheid SmartCycler system. Poster

presented at the 107th General Meeting of the American Society for Microbiology, Toronto, ON.

6. S.E. Dale, **D.W. Newton,** B. Nuccie, K. Fontecchio, R.E. Hankerd, M.A. Menegus. 2007. CMV viremia: Two PCR assays result in significantly different sensitivities when applied in a routine clinical setting. Poster presented at the 107th General Meeting of the American Society for Microbiology, Toronto, ON.

Gabriel Nuñez, M.D.

Paul H. De Kruif Professor of Pathology

I. Clinical Activities

A. Autopsy Service (19 days per year)

II. Teaching Activities

A. POSTDOCTORAL FELLOWS

1. Christine McDonald
2. Luigi Franchi
3. Amal Amer
4. Mathilde Body-Malapel
5. Thirumala-Devi Kanneganti,
6. Jong-whan Park,
7. Grace Chen
8. Michael Shaw
9. Noemí Marima-Garcia
10. Yungi Kim
11. Mohammed Lamkanfi
12. Raul Munoz-Planillo

B. GRADUATE STUDENTS

1. Raul Munoz-Planillo
2. Florence Filippetto-Manon
3. Gloria Lopez-Castejon

C. OTHER

1. Thesis Committee
   a) Elisabeta Karl
   b) Pete Beemiller
   c) Kevin Nickerson
   d) Sara Monroe
   e) Adam Hartigan
   f) Martha Hutchins
2. Instructor, Cell Biology Course 530 (1 lecture)

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator, **"**A Susceptibility Gene for Crohn's Disease" National Institutes of Health, $200,000 (total direct costs) 07/01/02-06/30/07
2. Principal Investigator, "Cryopyrin Signaling in Inflammation and Innate Immunity" National Institutes of Health, $212,500/year 05/01/05-01/31/10
3. Principal Investigator "Peptidoglycan signaling in Crohn's Disease " National Institutes of Health, $200,000/year 08/01/04-07/30/09
4. Principal Investigator "Role of Ipaf in Inflammation and Host Defense" National Institutes of Health, $250,000/year 05/15/05-04/30/10
5. Principal Investigator "Role of ASC signaling Pathway in Inflammatory Disease" National Institutes of Health, $250,000/year 02/01/06-07/30/11

B. PENDING PROJECTS

1. Principal Investigator, **"**A Susceptibility Gene for Crohn's Disease" National Institutes of Health, $250,000 (total direct costs) 10/01/07-03/30/12 (Score 110% in the 0.5% percentile)

C. PROJECTS UNDER STUDY

1. Role of Nod-like Receptors "NLRs" in Innate Immunity and Inflammatory Disease Role of inflammation in intestinal cancer.

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Comprehensive Examination Committee, Pathology Graduate Program,
2. Member, Admissions Committee, Molecular and Cellular Biology, Graduate Program,

B. INSTITUTIONAL

1. Co-Director of siRNA Core
2. Co-Director, Cell Biology Program
3. Member, Faculty Search Committee, Rheumatology Division, and Department of Microbiology/Immunology
4. Reviewer, Departmental Grants and Summer Student Scholarship Program.
5. Member, Biomedical Research Core Facilities (BRCF)
6. Member, Biomedical Research Council

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Associate Editor, *Cell Death and Differentiation.*
2. Reviewer
   a) *American Journal of Pathology*
   b) *Cancer Research*
   c) *Cell Death and Differentiation*
   d) *Immunity*
   e) *Journal of Biological Chemistry*
   f) *Journal of Cell Death and Differentiation*
   g) *Journal of Immunology*
   h) *Oncogene*
   i) *Journal of Cell Biology*

j) *Laboratory Investigation*
k) *Proceedings of National Academy of Science USA*
l) *Science*
m) *Nature*
n) *Cell Biology.*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker "NOD-LRR Protein Family: Role in Innate Immunity and Disease", Osler Seminar Series in Genetics and Immunology, McGill University, Montreal, Quebec, Canada, June 26, 2006.
2. Invited Speaker "Role of NLR Inflammasomes in Innate Immunity and Disease" The 26th International Symposium of Sapporo Cancer Seminar Foundation-Innate Immunity in Cancer and Infectious Disease, Sapporo, Japan, July 23, 2006.
3. Invited Speaker "NOD like receptors in Innate Immunity and Disease" Department of Microbiology, University of Tokyo, Tokyo, Japan, July 24, 2006.
4. Invited Speaker "Role of NLR Proteins in Innate Immunity and Disease" Special Seminar, Keio University, Tokyo, Japan, July 25, 2006.
5. Invited Speaker "Role of NOD-like receptors in Innate Immunity and Disease" 3M Corporation, Minneapolis, Minnesota, August 8, 2006.
6. Invited Speaker "The NLR Protein Family: Role in Innate Immunity and Disease" Microbiology Seminar, University of Illinois at Urbana-Champaign, August 31, 2006.
7. Invited Speaker "Role of NOD-like receptors in Host Defense and Disease" Gordon Research Conference on Cell Death, Big Sky, Montana, September 11, 2006.
8. Invited Speaker "NOD-like receptors: Role in Innate Immunity and Disease" University of Vermont, Immunobiology Seminar, Burlington, Vermont, September 22, 2006.
9. Invited Speaker "Genetic Defects and Chronic Inflammation: How Do We Make the Connection to IBD?" The Cleveland Clinic's, Inflammatory Bowel Disease Summit: Ideas for the Future, Cleveland, Ohio, Oct 5, 2006.
10. Invited Speaker "Role of NLR proteins in innate immunity and disease" XXXI Meeting of the Brazilian Society of Immunologists, Buzios, Rio de Janeiro, Brazil, October 23, 2006.
11. Invited Speaker "NOD-like Receptors: Role in Innate Immunity and Disease" Joint Meeting of the Society for Leukocyte Biology and the International Endotoxin and Innate Immunity Society, San Antonio, Texas, November 11, 2006.
12. Invited Speaker "Function of NLR's in Innate Immunity" Comparative Biology of Innate Immune Systems, Cold Springs Harbor Laboratory, Long Island, New York, November 29, 2006.
13. Invited Speaker "Function of NLR's In Innate Immunity" Special Seminar-Jackson Laboratories, Bar Harbor, Maine, November 30, 2006.
14. Invited Speaker "Function of NLR's In Innate Immunity" 59th Annual Brucellosis Research Conference, Chicago, Illinois, December 3, 2006.
15. Invited Speaker "Role of NLR proteins in Innate Immunity and Disease" Research Institute for Microbial Diseases, Osaka University, Osaka, Japan, Dec 8, 2006.
16. Invited Speaker "Role of NLR proteins in Innate Immunity and Disease" Japanese Society for Immunology 26th Meeting, Osaka, Japan, December 11, 2006.
17. Invited Speaker "Role of NOD-like Receptors in Host Defense and Disease" Special Seminar for Graduate Studies in Molecular and Cellular Biology, Medical College of Ohio, Toledo, Ohio, January 25, 2007.

18. Invited Speaker "Regulation of Innate Immunity through NLR and TLRs" Special Seminar, Department of Pathology, Emory University, Atlanta, Georgia, February 6, 2007.
19. Invited Speaker "Genetic variation in several NLR genes and the development of inflammatory disorders or increased susceptibility to microbial infection" 7th World Congress on Trauma, Shock, Inflammation and Sepsis Conference, TSIS 2007, Munich, Germany, March 16, 2007.
20. Invited Speaker "Role of NOD-like Receptors in Host Defense and Disease" Special Seminar for Genome Research Institute, University of Cincinnati, Cincinnati, Ohio, March 29, 2007.
21. Invited Speaker "Role of NLR proteins in Innate Immunity and Disease" Special Seminar for Department of Biology, University of Indiana-Bloomington, Bloomington, Indiana, April 10, 2007.
22. Invited Speaker "Function of TLRs and NLRs in Immunity and Disease" Special Seminar for the Department of Microbiology and Immunology, the University of Western Ontario, London, Ontario, Canada, April 26, 2007.
23. Invited Speaker "Role of Nod-like Receptors in Innate Immunity and Disease" Special Seminar for Department of Medicine, Division of Infectious Disease, University of Massachusetts Medical School-Worcester, Worcester, Massachusetts, May 9, 2007.
24. Invited Speaker "Innate Immunity mediated by NOD-like receptors" 94th Annual Meeting for The American Association of Immunologists, Miami Beach, Florida, May 19, 2007.
25. Invited Speaker "TLR5 and NOD2 Signaling Pathways in Intestinal Inflammation and Homeostasis" AGA Institute-Microbiology & Inflammatory Bowel Disease section, Digestive Disease Week 2007, Washington D.C. May 22, 2007.
26. Invited Speaker "The Inflammasome" International Union of Immunological Societies (IUIA) and the Jeffery Modell Foundation (JMF), Symposium on Primary Immunodeficiency Diseases, Jackson Hole, Wyoming, June 8, 2007.
27. Invited Speaker "The Role of NLRs in Innate Immunity and Disease" Macrophage 2007 Conference, Shizouka, Japan, June 14, 2007.
28. Invited Speaker "Linking genetics to the etiology of IBD: The NOD2 story" IRB Barcelona BioMed Conference, Barcelona, Spain, June 22, 2007.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Masumoto J, Yang K, Varambally S, Hasegawa M, Tomlins SA, Qiu S, Fujimoto Y, Kawasaki A, Foster SJ, Horie Y, Mak TW, **Núñez G**, Chinnaiyan AM, Fukase K, Inohara N. Nod1 acts as an intracellular receptor to mediate chemokine secretion and neutrophil recruitment in vivo. *J. Exp. Med*. 23:203-213 (2006)
2. Kanneganti T-D, Özören N, Body-Malapel M, Amer A, Park J-P, Franchi L, Whitfield J, Barchet W, Colonna M, Vandenabeele P, Bertin J, Coyle A, Grant EP, Akira S, **Núñez G**. Bacterial RNA and Small Antiviral Compounds Activate Caspase-1 Through Cryopyrin/Nalp3. *Nature* 440:233-236 (2006).
3. Özören N, Masumoto J, Franchi L, Kanneganti T-D, Body-Malapel M, Ertürk I*, Jagirdar R, Zhu L, Inohara N, Bertin J, Coyle A, Grant EP, and **Núñez G**. Distinct Roles of TLR2 and the Adaptor ASC in IL-1b/IL-18 Secretion in response to *Listeria monocytogenes*. *J.Immunol* 176:4337-4342 (2006).

4. Nishito Y, Hasegawa M, Inohara N and **Núñez G.** MEX is a testis-specific E3 ubiquitin ligase that promotes death receptor-induced apoptosis. *Biochem J* 396:411-417. (2006).
5. Boughan PK, Argent RH, Body-Malapel M, Park JH, Ewings KE, Bowie AG, Ong SJ, Cook SJ, Sorensen OE, Manzo BA, Klein NJ, **Núñez G.**, Atherton JC, Bajaj-Elliott M. Nucleotide-binding oligomerisation domain-1 (NOD-1) and epidermal growth factor receptor (EGFR): Critical regulators of beta -defensins during helicobacter pylori infection. *J Biol Chem.* 281:11637-11648 (2006).
6. Franchi L, Amer A, Body-Malapel M, Kanneganti TD, Ozoren N, Jagirdar R, Inohara N, Vandenabeele P, Bertin J, Coyle A, Grant EP, **Núñez G**. Cytosolic flagellin requires Ipaf for activation of caspase-1 and interleukin 1beta in salmonella-infected macrophages.*Nat Immunol*. 7:576-582 (2006).
7. Tanabe T, Ishige I, Suzuki Y, Aita Y, Furukawa A, Ishige Y, Uchida K, Suzuki T, Takemura T, Ikushima S, Oritsu M, Yokoyama T, Fujimoto Y, Fukase K, Inohara N, **Núñez G,** Eishi Y**.** Sarcoidosis and NOD1 variation with impaired recognition intracellular Propionibacterium acnes. *Biochim Biophys Acta*, 9: 794-801 (2006).
8. Hasegawa M, Yang K, Hashimoto M, Park JH, Fujimoto Y, **Núñez G**, Fukase K, Inohara N. Differential release and distribution of Nod1 and Nod2 immunostimulatory molecules among bacterial species and environments. *J Biol Chem*. 281(39): 29054-29063 (2006).
9. Detmar J, Rabaglino T, Taniuchi Y, Oh J, Acton BM, Benito A, **Núñez G,** Jurisicova A. Embryonic loss due to exposure to polycyclic aromatic hydrocarbons is mediated by Bax. *Apoptosis*. 8:1413-1425 (2006).
10. Amer A, Franchi L, Kanneganti TD, Body-Malapel M, Ozoren N, Brady G, Meshinchi S, Jagirdar R, Gewirtz A, Akira S, **Núñez G.** Regulation of Legionella phagosome maturation and infection through flagellin and host IPAF. *J. Biol. Chem***.** 281:35217-35223 (2006).
11. Kanneganti TD, Body-Malapel M, Amer A, Park J,H., Whitfield J, Taraporewals Z, Miller, D Patton J.T., Inohara N, **Núñez G.** Critical role for cryopyrin/Nalp3 in activation of caspase-1 in response to viral infection and double-stranded RNA. *J. Biol. Chem***.** 281:36560-36568 (2006).
12. Manon F, Favier A, **Núñez 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).
13. McAllister-Lucas LM, Ruland J, Siu K, Jin X, Gu S, Kim DS, Kuffa P, Kohrt D, Mak TW, **Núñez 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).
14. Park J.-H., Kim Y.-G., McDonald C., Kanneganti T.-D., Hasegawa M., Body-Malapel M., Inohara I., and **Núñez G.** RICK/RIP2 Mediates Innate Immune Responses Induced through Nod1 and Nod2 but not Toll-like Receptors*. J. Immunology* 178:2380-2386 (2007).
15. Coussens NP, Mowers JC, McDonald C, **Núñez G,** Ramaswamy S. Crystal structure of the Nod1 caspase activation and recruitment domain. *Biochem Biophys Res Commun*. 353:1-5 (2007).
16. Lecine P, Esmiol S, Metais JY, Nicoletti C, Nourry C, McDonald C, **Núñez G,** Hugot JP, Borg JP, Ollendorff V. The NOD2-RICK complex signals form the plasma membrane. *J Biol Chem*. 2007 Mar 13; [Epub ahead of print].

17. Hasegawa M, Kawasaki A, Yang K, Fujimoto Y, Masumoto J, Breukink E, **Núñez G,** Fukkase K, Inohara N. A role of lipophilic peptidoglycan-related molecules in induction of Nod1-mediated immune responses. *J Biol Chem.* 2007 Mar 14 [Epub ahead of print].
18. Kanneganti TD, Lamkanfi M, Kim YG, Chen G, Park JH, Franchi L, Vandenabeele P, **Núñez G.** Pannexin-1-Mediated Recognition of Bacterial Molecules Activates the Cryopyrin Inflammasome Independent of Toll-like Receptors Signaling. Immunity 2007 Apr 10 [Epub ahead of print].
19. Lamkanfi M, Amer A, Kanneganti TD, Munoz-Planillo R, Chen G, Vandenabeele P, Fortier A, Gros P, **Núñez G.** The Nod-Like Receptor Family Member Naip5/Bircle Restricts Legionella pneumophila Growth Independently of Caspase-1 Activation. **J** *Immunol* 178:8022-8027 (2007).
20. Franchi L, Kanneganti TD, Dubyak GR, **Núñez 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).
21. Park JH, Kim YY, Shaw M, Kanneganti TD, Fujimoto Y, Fukase K, Inohara N, **Núñez G.** Nod1/RICK and TLR Signaling Regulate Chemokine and Antimicrobial Innate Immune Responses in Mesothelial Cells. *J Immunol.* 179: 514-521 (2007).
22. Lamkanfi L, Kanneganti TD, Franchi L, **Núñez G.** Caspase-1 inflammasomes in infection and inflammation. *J Leukoc Biol* Apr 18; [Epub ahead of print].
23. Karl E, Zhang Z, Dong Z, Neiva KG, Soengas MS, Koch AE, Polverini PJ, **Núñez G,** Nor JE. Unidirectional crosstalk between Bcl-x (L) and Bcl-2 enhances the angiogenic phenotype of endothelial cells. *Cell Death Differ*. 2007 Jun 15: [Epub ahead of print].

B. BOOKS/CHAPTERS IN BOOKS

1. Franchi L, McDonald C, Kanneganti TD, Amer A, **Nuñez G.** Nucleotide-binding oligomerization domain-like receptors: intracellular pattern recognition molecules for pathogen detection and host defense. *J. Immunology* 177:3507-3513 (2006).
2. Genetics Defects and Chronic Inflammation: How Do We Make the Connection in IBD? *Inflam Bowel Dis*. Suppl 3:S2-3 (2006).

Yijun Eugene Pang, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Cytopathology FNA and hospital services 26 weeks.
B. Gynecopathology service 3 weeks

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Signout sessions in 29 weeks clinical services on gynecopathology and cytopathology.

B. LECTURES
   1. Human papillomavirus and human cervical lesion & neoplasms.
   2. The Bethesda system.
   3. Abnormal glandular cells in Pap test.
   4. Cytology of salivary gland.

C. OTHER
   1. Slide sessions in cytology for residents; 2.
   2. Slide sessions for cytotechnologists; 2

III. Research Activities

A. SPONSORED RESEARCH – None

B. PROJECTS UNDER STUDY
   1. Can we predict the progression of low grade squamous intraepithelial lesion?
   2. Digital analysis of amyloidosis on cytology specimens under polerized microscopy.
   3. Grading follicular lymphoma with FNA specimens by correlating with information of flowcytometry.
   4. Have gynecologists been fooled by intramucosal cysts when they biopsy uterine cervices?

IV. Administrative Activities

A. DEPARTMENTAL
   1. Member, Cytopathology fellowship committee.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editor, C*ancer Cytopathology.*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. USCAP
2. CAP
3. ASCP
4. ASC

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Hall DA, Pu RT, **Pang Y**. Diagnosis of foregut and tailgut cysts by endosonographically guided fine-needle aspiration. *Diagn Cytopathol*. 2007 Jan;35(1):43-6.
2. Farnaz Hasteh, MD, **Yijun Pang, MD, PhD**, Robert Pu, MD, PhD, Claire W Michael, MD, Do We Need More Than One ThinPrep Slide to Obtain Adequate Cellularity in Fine Needle Aspiration? *Diagnostic Cytopathology*. Accepted.
3. Robert T. Pu, M.D., Ph.D. , **Yijun Pang, M.D., Ph.D.**, Claire W. Michael, M.D., Utility of WT-1, p63, MOC31, Mesothelin, and Cytokeratin (K903 and CK5/6) Immunostains in Differentiating Adenocarcinoma, Squamous Cell Carcinoma, and Malignant Mesothelioma in Malignant Effusions, *Diagnostic Cytopathology*, Accepted

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

1. Farnaz Hasteh, **Yijun Pang**, Robert Pu, Claire W Michael. Do we need more than one Thin Prep to obtain adequate cellularity in fine needle aspiration? *ASC annual meeting*, Toronto, Canada, 2006.
2. **Pang Yijun,** Brian Smola, Robert Pu, Claire Michael, Reprocessing hypocellular unsatisfactory ThinPrep Pap test specimens containing microscopic red blood cells, *ASC annual meeting*, Toronto, Canada, 2006.
3. Robert T. Pu, M.D., Ph.D. [*], **Yijun Pang, M.D., Ph.D**., Claire W. Michael, M.D., Utility of WT-1, p63, MOC31, Mesothelin, and Cytokeratin (K903 and CK5/6) Immunostains in Differentiating Adenocarcinoma, Squamous Cell Carcinoma, and Malignant Mesothelioma in Malignant Effusions, *ASC annual meeting*, Toronto, Canada, 2007.
4. **Yijun Pang,** Robert T. Pu, Claire W. Michael, Evaluation of Podoplanin and h-Caldesmon in the Diagnosis of Mesothelioma on Cytology Specimens, International Academy of Cytopathology, Vancouver, Canada, 2007
5. **Yijun Pang,** Allison L. Ciolino, Robert T. Pu, Claire W. Michael and Gladwyn Leiman, Assessment of abdominal fat pad fine needle aspiration for the diagnosis of systemic amyloidosis, International Academy of Cytopathology, Vancouver, Canada, 2007

Sem H. Phan, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. Autopsy Service

II. Teaching Activities

A. GRADUATE STUDENTS

1. Member, Various Thesis Committees

B. HOUSE OFFICERS AND FELLOWS

1. 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

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator (25% effort), "Mechanisms of pulmonary fibrosis," NIH, R37, HL28737 MERIT Award. ($200,000 annual direct costs)
2. Principal Investigator (20% effort), "Myofibroblasts in pulmonary fibrosis," NIH, R01, HL 52285 ($225,000 annual direct costs).
3. Principal Investigator (20% effort), "A novel telomerase expressing lung fibroblast phenotype," NIH, R01, HL77297 ($250,000 annual direct costs).
4. Principal Investigator (5% effort), "Bone marrow progenitor cells in airway remodeling," The Sandler Family Supporting Foundation ($250,000 annual direct costs).
5. Project Leader (20% effort), Project III, "Lung FIZZ1 expression and its regulation in fibrosis," NIH, PO-1, HL 31963 ($230,000 annual direct costs).

B. PENDING PROJECTS

1. Principal Investigator (20% effort), "Myofibroblasts in pulmonary fibrosis," NIH, R01, HL 52285 ($250,000 annual direct costs)- competitive renewal

2. Project Leader (20% effort), Project III, "Role of C/EBPbeta in pulmonary fibrosis," NIH, PO-1, ($290,000 annual direct costs). [PI: C Henke, University of Minnesota subcontract]

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

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Pathology House Officer Selection 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

V. Other Relevant Activities

A. `EDITORIAL BOARDS/REVIEWS
1. Associate Editor, *American Journal of Pathology*

B. INVITED LECTURES/SEMINARS
1. "Bone marrow derivation of lung mesenchymal cells in lung injury and fibrosis", 11th Society of Chinese Bioscientists in America annual meeting, San Francisco, CA, 2006
2. "Epithelial-interstitial crosstalk in lung injury", Gordon Conference on "Mechanisms of Toxicity", Colby College, Waterville, ME, 2006
3. "Transcriptional regulation of myofibroblast differentiation", 9th International Scleroderma Workshop, Boston, MA, 2006
4. "Bone marrow derivation of lung mesenchymal cells in lung injury", Gordon Conference on Salivary Glands, Ventura, CA, 2007
5. "Bone marrow progenitor cells in pulmonary fibrosis", Keystone Conference on Fibrosis, Tahoe City, CA, 2007
6. "Genesis of the myofibroblast in pulmonary fibrosis", Johns Hopkins University, Baltimore, MD, 2007
7. "Genesis of the myofibroblast in pulmonary fibrosis", University of California at Davis, Davis, CA, 2007
8. "Transcriptional regulation and signaling in pulmonary fibrosis", featured speaker for Minisymposium on "Novel mechanistic insights into fibrotic lung disease: Implications for therapy", American Thoracic Society Annual Meeting, San Francisco, CA, 2007

9. "Biology of fibroblast and myofibroblast", State-of-the-Art speaker, Aspen Lung Conference, Aspen, CO, 2007

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

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Hu B, Wu Z, Liu T, Ullenbruch MR, Jin H, and **Phan SH**: Gut-enriched Krüppel-like Factor represses TGFß signaling by inhibiting Smad3. Am. J. Respir. Cell Mol. Biol. 2007; 36:78-84
2. Hu B, Ullenbruch M, Jin H, Gharaee-Kermani M, and **Phan SH**: An essential role for CCAAT/enhancer binding protein beta in bleomycin-induced pulmonary fibrosis. J. Pathol. 2007; 211:455-62
3. Cutroneo KR, White SL, **Phan SH**, Ehrlich HP. Therapies for bleomycin induced lung fibrosis through regulation of TGF-beta1 induced collagen gene expression. J Cell Physiol. 2007; 211:585-9
4. Chung MJ, Liu T, Ullenbruch M, and **Phan SH**: Antiapoptotic Effect of Found in Inflammatory Zone (FIZZ) 1 on Mouse Lung Fibroblasts. J. Pathol. 2007; 212: 180-7

B. BOOKS/CHAPTERS IN BOOKS
1. Gharaee-Kermani M, Gyetko MR, Hu B, **Phan SH.** New insights into the pathogenesis and treatment of idiopathic pulmonary fibrosis: a potential role for stem cells in the lung parenchyma and implications for therapy. Pharm Res. 2007;24:819-41.
2. Hinz B, **Phan SH**, Thannickal VJ, Galli A, Bochaton-Piallat ML, Gabbiani G. The Myofibroblast. One Function, Multiple Origins. Am J Pathol. 2007; 170:1807-16

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Hu B, Wu YM, Wu Z, **Phan SH:** Nkx2.5/Csx represses myofibroblast differentiation. FASEB J. 2007; 2007;21:517.7
2. Liu T, Hu B, Chung M, Ullenbruch M, Choi M, Yu H, Lowe JB, **Phan SH:** Notch 1 signaling in FIZZ1 induction of myofibroblast differentiation.. Am. J. Resp. Crit. Care Med. 2007; 175:A335
3. Hashimoto N, Takagi Y, Matsuo M, Hashimoto I, Imaizumi K, Shimokata K, **Phan SH,** Hasegawa Y: Evidence of endothelial-derived lung fibroblasts through endothelial-mesenchymal transition. Am. J. Resp.Crit. Care Med. 2007; 175:A730

Robert T. Pu, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. Cytology sign out 24.5 weeks
B. GU surgical pathology sign out 4 weeks
C. Autopsy service: 2 weekends
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. MEDICAL STUDENTS
   1. M1 laboratories, 4 weeks, each with 2 sessions of 2-3 hours

B. HOUSE OFFICERS AND FELLOWS
   1. Responsible during the current academic year for teaching activities for the following:
      a) Teaching of FNA at FNA clinic
      b) Five 1-hour lectures on cytopathology
      c) Weekly interesting fellow cytology case conference
      d) Mentoring cytology fellows, Dr Jing and Dr. Siddiqui, for their research projects

III. Research Activities

A. SPONSORED SUPPORT
   1. **Co-director**, Cancer Center Tissue Core (10% effort) Cancer Center Support Grant-5 P30 CA46592. PI: M.S. Wicha, M.D) 6/01/06 - 5/31/11 National Institutes of Health. **$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**
9. Cytology evaluation of ThinPreps with discordant results on repeat HPV DNA test. Lagstein, A, Smola, B, Lukette, K., Newton, D, and **Pu RT** Giordano, T. and Michael, CW.

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

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Journal Reviewer
   a) *Cancer Cytopathology*
   b) *Expert Review of Clinical Immunology*
   c) *Translational OncoGenomics*
   d) *Biomarker Insights*
   e) *Diagnostic Cytopathology*

B. INVITED LECTURES/SEMINARS
1. Guest speaker, "Liquid Based Prepations in Cytopathology" and "Standard of Pap Test: The Bethesda System" at The First Henan International Diagnostic Pathology Workshop, Zhengzhou, Henan, China, June 8-10, 2007.
2. Guest speaker, "Thyroid FNA and Reecent Advances in Molecular Diagnostics" at First Affilated Hospital, Nanjing Medical University, Nanjing, China, June 12, 2007
3. Guest Lecture on "Thyroid FNA" for Endocrinology fellows and residents at the Univeristy of Michigan Hospital.(Nov. 2006)

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, R.T.,** Laitala, LE, and Clark, DP. (2006) Methylation profiling of urothelial carcinoma in bladder biopsy and urine. **Acta Cytol**. 50(5):499-506.
2. Hall, D.A., **Pu, R.T.** and Pang, Y. (2007) Diagnosis of Foregut and Tailgut Cysts by Endosonographically Guided Fine Needle Aspiration. Diagnostic Cytopathology 35(1):43-6.
3. Hasteh, F, **Pu, R.T**, and Michael, CW. (2007) A metastatic renal carcinoid tumor presenting as breast mass: a diagnostic dilemma. Diagnostic Cytopathology. 35(5):306-10.
4. **Pu, R.T.**, Shen, M., Michael, CW, Rhode, M, Clark, DP, and O'Leary, T. (2007) Methylation profile of mesothelioma vs. benign mesothelial cells in effusion fluid. Diagnostic Cytopathology (In press).
5. **Pu, R.T.**, Pang Y. and Michael, C.W. 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 (In press).

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

1. **Pu, RT**. Wei, I., Zhang, Y. Merajver, S. and Kleer, C. Promoter Methylation as a Mechanism of WISP3 (CCN6) Loss in a Subset of Breast Cancers. Modern Pathology, 19(Supplement 3):21(81A) XXVICongress of the IAP, (Montreal, Canada. Sept. 2006)
2. **Pu, RT**, Pang Y. and Michael, C.W. Utility of WT-1, p63, and MOC31 Immunostains in Differentiating Malignant Mesothelioma, Squamous Cell Carcinoma, and Adenocarcinoma in Effusions. Cancer Cytopathology 53rd Annual ASC Scientific Meeting (Toronto, Canada. 11/2006)
3. Siddiqui, M; Michael, CW; Griffith, K. and **Pu, R.T.** Tumor Size as the Main Limiting Factor in Diagnosing Papillary Thyroid Carcinoma on Fine Needle Aspiration. Cancer Cytopathology (Supplement). 108:5 (184A). The 53rd Toronto, Canada. 11/2006)
4. Hasteh, F., Pang, Y., Michael. C.W. and **Pu, R.T.** Do We Need More than One Thin Prep to Obtain Adequate Cellularity in Fine Needle Aspiration? Cancer Cytopathology (Supplement). 108:5 (151A) The 53rd Annual ASC Scientific Meeting (Toronto, Canada. 11/2006)
5. Pang, Y., Smola, B., **Pu, R.T.** and Michael. CW Reprocessing Hypocellular Unsatisfactory ThinPrep Pap Test Specimens Containing Microscopic Red Blood Cells. Cancer Cytopathology (Supplement). 108:5 (79A) The 53rd Toronto, Canada. 11/2006)
6. Wasco, M.J. and **Pu, R.T.** Utility of Anti-phosphorylated H2AX Antibody (g-H2AX) in Diagnosing Metastatic Renal Cell Carcinoma. Modern Pathology, 20 (supplement 2: 183A). Poster presentation (#832) at Annual USCAP Meeting (San Diego, 2007).

7. Jing, X, Michael C.W. and **Pu, R.T.** The Clinical and Diagnostic Impact of Using Standard Criteria of Adequacy Assessment and Diagnostic Terminology For FNA Diagnosis of Thyroid Nodules. Modern Pathology, 20 (supplement 2: 72 A). Poster Presentation (#310) at Annual USCAP Meeting (San Diego, 2007).
8. Pang, Y, **Pu**, **RT** and Michael CW**.** Evaluation of Podoplanin and h-Caldesmon in the diagnosis of mesothelioma on cytology specimens. 2007. ACTA Cytologica 51(supplement 2):p120. Poster presentation at ICC meeting, May 2007, Vancouver.
9. Pang, Y. Ciolino, A. **Pu**, **RT,** Michael CW and Leiman G. Assessment of Abdominal Fat Pat Fine Needle Aspiration for the Diagnosis of Systemic Amyloidosis. 2007. ACTA Cytologica 51(supplement2):p121. Poster presentation at ICC meeting, May 2007.
10. Vancouver. (Supplement). 108:5 (187A) The 53 Annual ASC Scientific Meeting (Annual ASC Scientific Meeting)

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. M2 Pathology Lab – 70 hours
  2. Applied Clinical Anatomy Musculoskeletal System – 4 hours
  3. M-1 Histopathology Lectures – 6 hours
  4. M-1 Histopathology Lab –16 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 of Autopsy Services

V. Other Relevant Activities
- A. HONORS AND AWARDS
  1. AMSA Golden Apple Award – 2007

VI. Publications
- A. BOOKS/CHAPTERS IN BOOKS
  1. **S. Ramsburgh**. *Surgical Pathology: A Reference* (ASCP publication pending Fall 2007)

Rodolfo Rasche, M.D.

Assistant Professor of Pathology
Associate Director of MLabs

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Coverage of M-Labs cases.

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 (Ipsilanti) 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.JamesFrench 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
1. Leukemia/Lymphoma Program
2. Myeloma Program
3. Cutaneous Lymphoma Program
4. 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, Dental School Pathology 630

C. HOUSE OFFICERS AND FELLOWS
1. Sign-out of bone marrow biopsies, aspirates, blood smears, and body fluids in Hematology Laboraory.
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 Mortality Conference.

D. LECTURES
1. "Priniciples of Laboratory Hematopathology", invited lectures for Clinical Trials Office personnel.

E. OTHER
1. Continuing Medical Education for clinical laboratory staff.

III. Research Activities

A. SPONSORED SUPPORT - None

B. PENDING PROJECTS
1. Therapeutic trial of PKC412 for systemic mastocytosis (co-investigator with Cem Akin, M.D.).
2. Pathogenesis of idiopathic anaphylaxis (co-investigator with Cem Akin, 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. The morphologic and immunophenotypic spectrum of diffuse aggressive lymphomas harboring the t(8;14)(q24;32) or equivalent translocations (co-investigator with Michael Hayes, M.D. and William Finn, M.D.).
5. 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.).
6. 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.).
7. Tissue Procurement Protocol for patients with multiple myeloma and other plasma cell disorders (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
8. 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.).
9. Myeloproliferative Disease Repository (co-investigator with Moshe Talpaz, M.D.).

10. Descriptive investigation of post-transplant lympoproliferative dis-orders (co-investigator with Douglas Blayney, M.D.).
11. 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.

B. REGIONAL/NATIONAL/INTERNATIONAL
1. American Society for Clinical Pathology, CheckPath Expert Review Panel, Hematopathology.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Reviewer, Journal of Neuro-ophthalmology.

B. 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, Councillor 1986-1995; President, Alumni Association, 1995-2001

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Bakshi NA, Finn WG, Schnitzer B, Valdez R, **Ross, CW**. Fascin Expression in Diffuse Large B-Cell Lymphoma, Anaplastic Large Cell Lymphoma, and Classical Hodgkin Lymphoma. Arch Pathol Lab Med 2007; 131:742-747.
2. **Ross CW,** Ouillette PD, Saddler C, Shedden KA, Malek SN. Genomic Profiling of Follicular Lymphoma (FL) Identifies Novel High-Frequency Copy-neutral Loss of Heterozygosity on Chromosomes 1p and 6p and Identifies Candidate Genes Involved in FL Biology. Clin Cancer Res, accepted for publication.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Malek SN, Ouillette PD, Saddler CM, Shedden KA, **Ross CW.** Genomic Profiling of Follicular Lymphoma (FL) Identifies Novel High-Frequency Copy-neutral Loss of Heterozygosity on Chromosomes 1p and 6p and Identifies Candidate Genes Involved in FL Biology. Blood 2006; 108(11): 682a. 2006 ASH Annual Meeting.
2. Isaacson T, Jakubowiak A, Stoolman L, Kota U, Finn W, **Ross C**. Evaluation of a 5-color flow cytometric technique for immunophenotyping and quantitation of plasma cell myeloma in post-therapy bone marrows. Blood 2006; 108(11): 348b.

3. Jeong DK, Fauman K, **Ross C,** Akin C, Mody R. Successful Treatment of Systemic Mastocytosis Associated with AML-M2t(8;21) in a Child Using MRC-based AML Chemotherapy along with Gemtuzumab. J Allergy Clin Immunol 2007; 119(1):S207.
4. Kaminski MS, Estes J, Tuck M, **Ross CW**, Wahl RL. I 131-tositumomab monotherapy as frontline treatment for follicular lymphoma: Updated results afer a median follow-up of 8 years. J Clin Onc 2007 ASCO Annual Meeting Proceedings Part 1. Vol 25, No. 18S(June 20 supplement), 2007: 8033

Diane Roulston, Ph.D.

Associate Professor of Pathology
Director of Cytogenetics Laboratory

I. Clinical Activities

A. Director, Clinical Cytogenetics Laboratory

II. Teaching Activities

A. GRADUATE STUDENTS

1. Rotations in Cytogenetics: Genetic Counseling Master's candidate.

B. HOUSE OFFICERS AND FELLOWS

1. Rotations in Cytogenetics
   a) Pathology resident (N=1)
   b) Hematology/Oncology fellow (N=1)
   c) Hematopathology fellow (N=1)

C. LECTURES

1. Clinical Cytogenetics teaching
   a) Cytogenetics Technical Conference and Case Review: for technologists, residents, fellows, and faculty (Monthly)
   b) Leukemia Conference (Bi-weekly)
   c) Medical Genetics Conference (Monthly)
   d) Clincial Pathology Grand Rounds: "Cytogenetics of hematologic malignant diseases" and "Molecular cytogenetics for hematologic malignancies"
   e) Hematopathology Education Conference "Cytogenetics of acute lymphoblastic leukemia"
   f) “Clinical Cytogenetics" Human Genetics 641 Applied Clinical Genetics
   g) Cytogenetics in Reproductive Medicine", Human Genetics HG643 Reproductive Genetics
   h) Hematology/Oncology Fellows Conference "Cancer cytogenetics: a practical guide" (1 hr)

III. Research Activities

A. SPONSORED SUPPORT – None

B. PROJECTS UNDER STUDY

1. FISH for gene fusions in prostate cancer.

2. Small round cell tumors with rare EWS gene fusions: identification of a novel EWS-SP3 fusion.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Clinical Cytogenetics Laboratory
2. Faculty Search, Cytogenetics Laboratory Assistant Director
3. Interviewer
   a) Hematopathology Faculty Candidates
   b) Molecular Diagnostics Laboratory Director Candidates
   c) Pathology residents
   d) Clinical Pathology faculty candidate

B. INSTITUTIONAL
1. Interviewer: Pediatric Genetics Laboratory Director Candidate

C. REGIONAL/NATIONAL/INTERNATIONAL
1. American Board of Medical Genetics
   a) Extended Maintenance of Certification participant
2. Fellow, American College of Medical Genetics
3. Children's Oncology Group (COG)
   a) Cytogenetics Committee member and Young Investigator
   b) Director of an Approved Laboratory; submit clinical cases for review.
   c) Cytogenetics Committee Workshop: educating laboratory directors to attain Approved Laboratory status.
   d) Approved and pilot laboratory for use of FISH panels for treatment stratification.
   e) Germ Cell Tumor Study, Cytogenetics coordinator.
4. 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 Review: Pediatric Hematology and Oncology

B. INVITED LECTURES/SEMINARS
1. March, 2007, "Challenging COG Reviews", COG Cytogenetics Workshop,St. Louis, MO.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Board of Medical Genetics
   a) Extended Maintenance of Certification participant.
2. Fellow, American College of Medical Genetics.
3. Children's Oncology Group (COG).
4. Southwest Oncology Group (SWOG).
5. Member, American Society for Human Genetics, American Association for the Advancement of Science

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Mobley BC, **Roulston D**, Shah GV, Bijwaard KE, McKeever PE Peripheral primitive neuroectodermal tumor/Ewing's sarcoma of the craniospinal vault: case reports and review. Human Pathol. 37(7):845-53, 2006.
2. Ruffin, MT 4th, Bailey JM, **Roulston D**, Lee DR, Tucker RA, Swan DC, Unger ER. Human papillomavirus in amniotic fluid. BMC Preg Child 4(6)28, 2006.
3. Heerema NA, Raimondi SC, Anderson JR, Biegel J, Camitta BM, **Roulston D**., et al. Specific extra chromosomes occur in a modal number dependent pattern in pediatric acute lymphoblastic leukemia. Genes Chromosomes Cancer 46(7):684-93, 2007.
4. Tomlins SA, Laxman B, Dhanasekaran SM, Helgeson BE, Cao X Morris DS, Menon A, Jing X, Cao Q, Han B, Yu J, Wang L, Montie JE, Rubin MA, Pienta KJ, **Roulston D,** Shah RB, Varambally S, Mehra R, and Chinnaiyan AM. Distinct classes of chromosomal rearrangements create oncogenic ETS gene fusions in prostate cancer. Nature, accepted.

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 signout, Room 1, 4 weeks.
3. Surgical pathology frozen section call, 4 weeks.
4. CVC frozen section coverage, part time, 6 days.
5. Placental pathology signout, 3 weeks.

B. HEMATOPATHOLOGY
1. Hematopathology signout, 8 weeks.
2. Flow cytometry signout, 3.5 weeks.
3. Consult case signout, 0.5 weeks.

C. AUTOPSY SERVICES
1. Consultant, pediatric autopsy pathology, full time.
2. Autopsy pathology, 16 days, including 1 call weekend.

D. TERATOLOGY
1. Consultant, fetal histopathology, full time.

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 Pathology Laboratory (~20 contact hours).
2. M4 Pathology Elective in Dervelopmental/Pediatric Pathology
   a) Suntrea Goodeau, July 2006 (~40 contact hours)
   b) Ann Poznanski, May 2007 (~40 contact hours)
   c) M4 Radiology, Pathology course, pediatric section (~6 contact hours)

B. HOUSE OFFICERS AND FELLOWS
1. Pathology Teaching Conferences (2 hours).
2. Surgical Pathology Signout (4 weeks x 6 hours/day).
3. Hematopathology Signout (8 weeks x 6 hours/day).
4. Pediatric Autopsy Pathology cases and signout (variable).
5. Pediatric Surgical Pathology Cutting Manual revision (ongoing).
6. Pediatric GI Fellow Tutorials (variable).

7. Pediatric Hematology Oncology Fellow Pathology Tutorials (variable).
8. 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

A. SPONSORED SUPPORT – None

B. PROJECTS UNDER STUDY
1. Collaboration with Dr. Peter Ehrlich, Pediatric Surgery, on chronic acalculous gallbladder dysfunction, abstract presented.
2. Case report with Dr. Lisa Allred and Dr. Steven Donn of Neonatal-Perinatal Medicine, on intractable respiratory failure in a newborn, manuscript submitted.
3. Case report with Ann Poznanski, M4, on teratoma associated with hepatoblastoma in a child.
4. Case report with Dr. Suntrea Hammer, PGY-1, and Dr. Mason Barr, Teratology, on giant hemangiopericytoma in a fetus.

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, *Journal of Neuroopthalmology*.

B. INVITED LECTURES/SEMINARS
1. 25th MLabs Symposium, "Immunohistochemistry in the Daily Practice," topics presented included introduction to immunohistochemistry and pediatric small round blue cell tumors, Ann Arbor, MI, April 21, 2007.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Society for Pediatric Pathology.
2. Member, United States and Canadian Academy of Pathology.
3. Member, American Society of Clinical Pathology.

4. Member, American Society for Investigative Pathology.
5. Member, Association for Molecular Pathology.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Jarzembowski JA, **Ruiz RE.** Squamous cell carcinoma arising in a pediatric intra- and para-vertebral teratoma. Pediatric and Developmental Pathology, 9:328, 2006.

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

1. Jarzembowski JA, Thomas DG, Perry A, **Ruiz RE**. Nestin expression in neuroblastoma does not correlate with MYCN amplification or proliferation index. Presented at the Society for Pediatric Pathology Spring Meeting, San Diego, CA, March 2007.

J. Vidya Sarma, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Marco Hoesel, M.D. (postdoctoral fellow)
2. Daniel Rittirsch, M.D. (postdoctoral fellow)
3. Michael Flierl, M.D. (postdoctoral fellow)
4. Hongwei Gao, M.D., Ph.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)
   d) Brian Schmidt (undergraduate student)

III. Research Activities

A. SPONSORED SUPPORT

1. Co Investigator: **J. Vidya Sarma**, Principal Investigator: John Younger, C5a in defense against murine Gram-negative pneumonia. RO1 GM069438-01A1-07/01/04 – 06/30/09 (10%) $200,00/yr.
2. Co Investigator: **J. Vidya Sarma**, Principal Investigator: Peter Ward, Lung injury by Oxygen Metabolites. RO1-GM029507-07/01/01 – 06/30/09 (30%) $312,396/yr.
3. Co Investigator: **J. Vidya Sarma**, Principal Investigator: Peter Ward, Protective effects of anti-C5a in Sepsis. 2 RO1-GM061656-05A1-09/25/06 – 08/31/10 (30%) $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).

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript reviewer
   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. Gao, H., Hoesel, L.M., Guo, R.F., Rancilio, N.J., **Sarma, J.V.** and Ward, P.A.: Adenoviral-mediated overexpression of SOCS3 enhances IgG immune complex-induced acute lung injury. J. Immunol. 2006 177:612-620.
2. Guo, R.F., Riedemann, N.C., Sun, L., Gao, H., Reuben, J.S., **Sarma, J.V.**, Zetoune, F.S., and Ward, P.A.: Divergent signaling pathways in leukocytes during sepsis. J Immunol. 2006 177:1306-1313.
3. **Sarma, J.V.**, Huber-Lang, M. and Ward, P.A.: Complement in lung disease. Autoimmunity. 2006 39:387-394.
4. Guo, R.F., Sun, L., Gao, H., Shi, K.X., Rittirsch, D., **Sarma, J.V**., Zetoune, F.S. and Ward, P.A.: In vivo regulation of neutrophil apoptosis by C5a during sepsis. J. Leukoc. Biol. 2006 Sept. 22 [Epub ahead of print] 2006; 80:1575-1583.
5. Sun, L., Gao, H., **Sarma, J.V.**, Guo, R.F., and Ward, P.A.: Adenovirus-mediated in vivo silencing of anaphylatoxin receptor C5aR. J Biomed Biotechnol. 2006 4:28945.
6. 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.

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, 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.

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

1. Generation of C5a in the absence of C3: a new complement activation pathway.**J.V. Sarma,** M. Huber-Lang, F.S. Zetoune, D. Rittirsch, J.D. Lambris, S.M. Drouin, R.A. Wetsel, P.A. Ward. Presented at the International Complement workshop held in Beijing, China October 2006.

Bertram Schnitzer, M.D.

Professor of Pathology

I. Clinical Activities

A. Diagnostic Hematiopathology: Bone marrow biopsies, aspirates, lymph node interpretation, extranodal lymphoid proliferations, peripheral blood smears, and body fluids in Hematology (6 months).
B. Sign-out of Hematopathology consultation cases (12 months).
C. Sign-out of M-labs Hematopathology cases (6 months).

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Bone marrow biopsies, blood smears, aspirate smears, body fluids in Hematology Laboratory.
2. Sign-out of lymph node biopsies.
3. Review of consultation and M-Labs cases.
4. Unknown slide conferences.
5. Lectures on benign lymphadenopathies and lymphomas.
6. Lymphoma Conference (weekly)
7. Leukemia Conference (bi-weekly)
8. Hematology Conference (bi-weekly)

B. LECTURES
1. Benign lymphadenopathies
2. Non-Hodgkin's lymphomas
3. Hodgkin lymphoma

III. Research Activities – None

IV. Administrative Activities – None

V. Other Relevant Activities – None

VI. Publications – None

Rajal B. Shah, M.D.

Assistant Professor of Pathology
Director of Genitourinary Pathology Service

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, 18 wks/yr
2. Genitourinary TS cases, 13 wks/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 wks/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 Residents
2. Wednesday Consultation Conferences, 3/yr
3. GU Clinical Pathology Resident teaching, 18 wks
4. General Surgical Pathology Resident teaching, 4 wks
5. Urology Resident Pathology lectures, 4/yr

C. POSTDOCTORAL FELLOWS
1. Rohit Mehra, 12 months

III. Research Activities

A. SPONSORED SUPPORT

1. University of Michigan Prostate SPORE (Specialized Program for Research Excellence), $251,033 – **Co**- **Principal Investigator**, Tissue and Serum Core Resource Grant -NIH- P50 CA69568 (Pienta)- 07/01/03-05/31/08-20% salary support
2. Molecular Changes Associated with Prostate Carcinoma, **Co-investigator**, 1 R01 CA102872-01 (K. Pienta), $222,500 – 9/24/03-8/31/07-5% salary support
3. Molecular profiling of prostate cancer, **Co-investigator**, W81XWH-05-1-0173 (PI-A. Chinnaiyan), $61,858 – 2.5% salary support
4. Evaluation & Development of Non-peptide MDM2 inhibitors in the treatment of metastatic prostate cancer. **Co-investigator**, P50 CA069568 (PI-Pienta/Shaomeng Wang), $150,000 - 5% salary support
5. Prostate Cancer Imaging for Radiation. **Co-investigator**, P50 CA069568 (PI-Piert), $40,286-2% salary support

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. Director, Tissue Core, Prostate SPORE, 2 months.
6. Translational research/pathology consultant for Genitourinary research, 12 months

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. Defining Prostate Cancer Progression by Molecular Profiling of Laser Capture Micro dissected Prostate tissues. The SPORE meeting, Baltimore, July 21, 2006
2. "Immunophenotype of Prostate Cancer: Biomarkers of early detection to end-stage metastatic prostate cancer" – guest lecturer, Department of Pathology, Stanford University Hospital, California, October 2, 2006
3. "Comprehensive assessment of TMPRSS2 and ETS gene fusion assessment in clinically localized prostate cancer"- The American urology association (AUA) meeting, Anaheim, CA, May 22, 2007 (Selected as AUA highlights)
4. "Comprehensive assessment of TMPRSS2 and ETS gene fusion assessment in clinically localized prostate cancer"- The 3rd Michigan Urology Symposium (AUA), Ann Arbor, MI, June 12, 2007
5. Interpretation of Prostate Needle Biopsies: Critical Issues and Emerging Markers" – Short course, course director, United States and Canadian Academy of Pathology, San Diego, CA.
6. "Select diagnostic difficulties and contemporary issues in Urologic Pathology" - guest lecturer, Department of Pathology, Stanford University, California

B. HONORS AND AWARDS

1. 2007 Short course faculty, United States and Canadian Academy Pathology

2. 2007 Urologic Pathology Abstract Review Board - United States and Canadian Academy of Pathology National Meeting Program 2007, 1st inaugural American Association of Cancer research (AACR) team science award for prostate cancer gene fusion work.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Heavner SB, **Shah RB**, and Moyer JS. Sclerosing mucoepidermoid carcinoma of the parotid gland. *Eur Arch Otorhinolaryngol,* 263 (10):955-9, 2006.
2. Bakshi N, Kunju L, Giordano T, **Shah RB**. Expression of Renal Cell Carcinoma Antigen (RCC) in Renal Epithelial and Non-Renal Tumors: Diagnostic Implications. In press, Applied Immunohistochemistry.
3. Havens AM, Jung Y, Sun YX, Wang J, **Shah RB**, Buhring HJ, Pienta KJ, Taichman RS. The Role of Sialomucin CD 164 (MGC-24y or Endolyn) in Prostate Cancer Metastasis. *BMC Cancer,* 6:195, 2006.
4. Hollingsworth JM, Miller DC, Daignault S, **Shah RB**, Hollenbeck BK. Variable Penetrance Of A Consensus Classification Scheme For Renal Cell Carcinoma. *Urology* 69(3):452-6, 2007.
5. Laxman B, Tomlins SA, Mehra R, Morris DS, Wang L, Helgeson BE, **Shah RB**, Rubin MA, Wei JT, Chinniayan AM. Noninvasive Detection of TMPRSS2:ERG Fusion Transcripts in the Urine of Men with Prostate Cancer. *Neoplasia* 8(10):885-8, 2006.
6. Perner S, Hofer MD, Kim R, **Shah RB**, Li H, Moller P, Hautmann RE, Gschwend JE, Kuefer R, Rubin MA. Prostate-Specific Membrane Antigen (PSMA) Expression as a Predictor of Prostate Cancer Progression. *Hum Pathol*, 38(5); 696-701. Epub 2007 Feb 22, 2007.
7. Tomlins SA, Mehra R, Rhodes D, Cao X, Wang L, Dhanasekaran S. M, Wei JT, Rubin MA, Pienta KJ, **Shah RB**, Chinnaiyan AM**.** Integrative Molecular Concepts Modeling of Prostate Cancer Progression. *Nature Genetics*, 39(1):45-51, 2007 (Co-senior authorship).
8. Mehra R, Tomlins SA, Shen R, Naddem O, Wang L, Wei JT, Pienta KJ, Ghosh D, Rubin MA, Chinniayan AM and **Shah RB**. Comprehensive Assessment of *TMPRSS2* and *ETS* Family Gene Aberrations in Clinically Localized Prostate Cancer. *Mod Pathol,* 20(5):538-44, Epub 2007 Mar 2, 2007.
9. Lee IH, Roberts R, **Shah RB**, Wojno K, Wei JT, Sandler H. Perineural invasion is a marker for pathologically advanced disease in localized prostate cancer. *Int. J Radiat Oncol Biol Phys,* Mar 28, 2007 (Epub ahead of print).
10. Splading AC, Daignault S, Sandler HM, **Shah RB**, Pan CC and Ray ME. Percent Positive Biopsy Cores as a Prognostic Factor for Prostate Cancer Treated with External Beam Radiation. *Urology*, 69(5); 936-40, 2007.
11. Miller DC, Wei JT, **Shah RB**, Spencer BA, Ritchey J, Stewart AK, Dunn RL and Litwin MS. The quality of pathological care for men treated with radical prostatectomy in the United States. *Cancer,* 109(12):2445-53, 2007.
12. Morris DS, Tomlins SA, Rhodes DR, Mehra R, **Shah RB**, Chinnaiyan AM. Integrating biomedical knowledge to model pathways of prostate cancer progression. *Cell Cycle*, 6(10):1177-87, 2007.

13. Wasco M, Daignault S, Zhang Yingxi, Kunju LP, Kinnaman M, Braun T, Lee CT and **Shah RB**. Urothelial Carcinoma with Divergent Histological Differentiation (Mixed Histology) is an Independent Predictor of the Presence of Extravesical Tumor When Detected at Transurethral Resections. In press, Urology.
14. Przybycin C, Kunju LP, Wu AJ, **Shah RB**. Partial Atrophy in Prostate Needle Biopsies: A Detailed Analysis of Morphology, Immunophenotype,and Cellular Kinetics. In press, *Am J Surg Pathol.*
15. Kunju LP, Wojno K, Wolf S Jr, Cheng L and **Shah RB**. Papillary Renal Cell Carcinoma with Oncocytic Cells and Non-overlapping Low-Grade Nuclei: Expanding the Morphologic Spectrum with Emphasis on Clinico-pathologic, Immunohistochemical and Molecular Features. In press, Human Pathology.
16. Tomlins SA, Laxman B, Dhanasekaran SM, Helgeson B, Cao X, Han B, Yu J, Way L, Montie JE, Rubin MA, Pienta KJ, Roulston D, **Shah RB**, Varambally S, Mehra R, Chinnaiyan AM. Distinct Classes of Chromosomal Rearrangement Create Oncogenic ETS Gene Fusions in Prostate Cancer. In Press, *Nature*.

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

1. Wu AJ, Friedman J, Hussain M, **Shah RB**. Neoadjuvant Docetaxel and Capecitabine in Patients with High Risk Prostate Cancer: Morphologic Features and Immunoprofile of Postchemotherapy Specimens. Mod Pathol, 20(2): 184A, March 2007.
2. Wu AJ, Kunju LP, **Shah RB**. Renal cell carcinoma in children and young adults: Clinico-pathological Spectrum with an Emphasis on Translocation Associated Carcinomas**.** Mod Pathol, 20(2): 183A, March 2007.
3. Przybycin C, Kunju LP, Wu AJ, **Shah RB**. Partial Atrophy in Prostate Needle Biopsies: A Detailed Characterization of Morphology, Immunophenotype, and Proliferation Status. Mod Pathol, 20(2): 171A, March 2007.
4. Mehra R, Tomlins S, Shen R, Wang L, Wei JT, Pienta KJ, Rubin M, Chinniayan AM, **Shah RB**. Molecular Signature and Clinical Implications of *TMPRSS2* and *ETS* Transcription Family Genes Fusions in a Surgical Cohort of American Men Treated for Clinically Localized Prostate Cancer. Mod Pathol, 20(2); 163A, March 2007.
5. Fine SW, Trock B, Reuter VE, Ayala G, Cheville JC, Fearn P, Jenkins RB, Knudsen BS, Loda M, Netto GJ, Said J, **Shah RB**, Simpko J, Troncoso P, True LD, Yang XJ, Rubin MA, DeMarzo AM. Effects of tissue processing on biomarker Analysis in Prostate Needle Biopsies: A Multiinstitutional Study. Mod Pathol, 20(2): 146A, March 2007.
6. Hall CL, **Shah RB**, Keller ET. Dickkopf-1 expression increases early in prostate cancer development and decreases during progression from primary tumor to metastasis, American Association of Cancer Research Centennial Meeting, April 12, Los Angeles, CA -2007.
7. Weizer AZ, Ye Z, Hollingsworth JM, Gilbert SM, Dunn RL, **Shah RB,** Wolf JS Jr, Wei JT, Montie JE, Hollenbeck BK. Adoption of New Technology and Health Care Quality: Surgical Margins Following Robotic Prostatectomy. J Urol, 177(4):557, April, 2007.
8. Miller DC, Litwin MS, **Shah RB**, Madison R, Saigal CS. Trends in the use of intraoperative pathological consultation during radical prostatectomy. J Urol, 177(4):563, April, 2007.

9. Miller DC, Wei JT, **Shah RB**, Spencer BA, Ritchey J, Stewart AK, Dunn RL and Litwin MS. The quality of pathological care for men treated with radical prostatectomy in the United States. J Urol, 177(4):1033, April, 2007.
10. Hollingsworth JM, Miller DC, Daignault S, **Shah RB**, Hollenbeck BK. Variable Penetrance Of A Consensus Classification Scheme For Renal Cell Carcinoma. J Urol, 177(4):649, April, 2007.
11. Morris DS, Tomlins SA, Laxman B, Mehra R, **Shah RB**, Rubin MA, Wei JT, Chinniayan AM. J Urol, 177(4):1703, April, 2007.
12. Mehra R, Tomlins S, Shen R, Wang L, Wei JT, Pienta KJ, Rubin M, Chinniayan AM, **Shah RB**. Comprehensive assessment of *TMPRSS2* and *ETS* Transcription Family Genes Fusions in a Surgical Cohort of American Men Treated for Clinically Localized Prostate Cancer. J Urol, 177(4):1436, April, 2007 (Abstract selected as AUA highlight).
13. Wolf JS Jr, Wei JT, Montie JE, Hollenbeck BK. Adoption of New Technology and Health Care Quality: Surgical Margins Following Robotic Prostatectomy. J Urol, 177(4):557, April, 2007.

Douglas M. Smith, M.D., Ph.D.

Professor of Pathology
Director of Histocompatibility Laboratory

I. Clinical Activities

A. Director, Clinical Histocompatibility Laboratory
B. Back up coverage for Dr. Davenport & Cooling in the Blood Bank

II. Teaching Activities

A. GRADUATE STUDENTS
   1. Graduate student supervision in my laboratory
      a) Yu Joo Lee is a visiting graduate student from South Korea

B. HOUSE OFFICERS AND FELLOWS
   1. Post-Doctoral Research Fellow
      a) Chak Sum Ho
   2. Pathology Resident Rotation
      a) One resident on rotation for the CPE rotation in the clinical histocompatibility lab
   3. Clinical Pathology Grand Rounds x 2
   4. Lectures for Heart Transplant cardiology fellows x 2

C. 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

D. OTHER
   1. Training of 1 new clinical laboratory technologist
   2. Training of a new serology section supervisor

III. Research Activities

A. SPONSORED SUPPORT

1. Title: A Survey of SLA Haplotypes in 10 Lines of Commercial Pigs" PI: Douglas M. Smith Amount: $35,000 Funding period: 2006-7 Source: Pig Improvement Company.
2. Title: Integrated Control and Elimination of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) in the U.S. PI: Michael Murtaugh, Co-I: Douglas M. Smith Proposal #: 2003-05164 Amount: $4,400,000 (my project is allocated $100,000) Funding Period: 01/01/04- 2/31/07 Source: US Dept of Agriculture CSREES.

B. PROJECTS UNDER STUDY

1. A USDA CSREES grant proposal on SLA/peptide tetramers for PRRSV (fall 2007)
2. A Gift of Life Foundation study on Epitope Analysis of HLA Antibodies and Improving the Virtual Lymphocyte Crossmatch

IV. Administrative Activities

A. REGIONAL/NATIONAL/INTERNATIONAL

1. College of American Pathologists, Histocompatibility/Identity Testing Resource Committee
2. International Society for Animal Genetics, SLA Nomenclature Committee (Chair)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad Hoc Reviewer
   a) *Journal of Immunology*
   b) *Human Immunology*
   c) *Immunogenetics*
   d) *Xenotransplantation*
   e) *Transplantation*
   f) *Veterinarni Medicina (Czech)*
   g) *Yonsei Medical Journal (S. Korea)*
   h) *Human Biology*
   i) *Transplant Immunology*
   j) *Digestion*

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. **Smith DM,** Agura ED, Levy MF, Melton LB, Domiati-Saad R, Klintmalm GB. "Graft versus Host Disease following Kidney Transplantation using a "0 HLA antigen mismatched" Donor" Nephrology Dialysis Transplantation 21(9):2656-9, 2006.

2. **Smith DM,** Agura ED, Ausloos K, Ring WS, Domiata-Saad R, Klintmalm GB "Graft versus Host Disease as a Complication of Lung Transplantation" Journal of Heart Lung Transplantation 25(9):1175-7, 2006.
3. Bryan CF, Polesky H, Eisenbrey AB, Sesok-Pizzini, Luger AM, **Smith DM,** Susskind BM. "Implication of ABO Error Rates in Proficiency Testing for Solid Organ Transplantation" Transplantation 82(6):733-736, 2006.
4. Ho CS, Rochelle E, Martens GW, Schook LB, **Smith DM** "Characterization of swine leukocyte antigen polymorphism by sequence-based and PCR-SSP methods in Meishan pigs" Immunogenetics 58(11):873-82, 2006.
5. Chinnakotla S, **Smith DM,** Domiati-Saad R, Agura ED, Watkins DL, Netto G, Uemura T, Sanchez EQ, Levy MF, Klintmalm GB. "Acute Graft versus Host Disease after Liver Transplantation: Role of Withdrawal of Immunosuppression in Therapeutic Management" Liver Transplantation 13(1):157-161, 2006.
6. **Smith DM,** Gardner WB, Baker JE, Kresie LA "A New HLA A31 null Allele" Tissue Antigens 68(6):526-7, 2006.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. **Smith DM**, Kresie LA "Preventing Transfusion Associated Graft Versus Host Disease" Tranfusion 47(1):173-4, 2007.

Arun Sreekumar, Ph.D.

Research Assistant Professor

I. Clinical Activities None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Barry Taylor (MS student under Arul Chinnaiyan)

B. OTHER

1. TM Rajendiran, Ph.D. (Research Investigator, collaborative project between Profs. Kent Johnson and Arul Chinnaiyan)
2. Sameera Nadimpalli ((High School Rotation Student)

III. Research Activities

A. SPONSORED SUPPORT

1. 5 P50 CA069568 (Pilot Grant : PI Sreekumar)07/01/07 – 06/30/08 4.2 calender months NIH/NCI $50,000/yr Profiling Prostate Cancer Interactome using Protein Microarrays and Mass Spectrometry University of Michigan Comprehensive Cancer Center Prostate SPORE In this project we attempt to study prostate cancer metabolome using mass spectrometry and define potential diagnostic/prognostic targets.
2. R01 CA106402 (PI: Lubman) 06/15/04 – 05/31/09 4.2 calender months NIH/NCI $83,694/yr Protein Microarrays for the humoral Response of Cancer In this project we attempt to study the humoral response signature in prostate cancer sera using two-dimensional liquid phase fractionation and protein microarrays. One of the major goals of this project is to identify diagnostic and prognostic humoral response targets. Role: Co-Investigator.
3. Award # NA (PI: Sreekumar) 01/01/2007-12/31/2007 0 calendar months University of Michigan Comprehensive Cancer Center $25,000/yr. Fund for Discovery Goals: In this project we attempt to use Multiple Reaction Monitoring (MRM) multiple reaction monitoring) to identify fusion proteins in prostate cancer specimens.
4. PO#085P5200304 MEDC GR-687 (PI: Omenn, G.) 09/01/2005-08/31/2008 1.2 calendar months Michigan Economic Development Corporation $165,000/yr Proteomics Alliance for Cancer Research Michigan Technology Tri-Corridor Fund Goals: In this project we attempt to study proteomic alterations caused by Androgen in prostate cancer. Role: Co-Investigator.

5. RO1 GM 49500. (PI: Lubman) 07/01/06-06/30/11 2.4 calender months NIH $200,000/yr Differential Mapping of Posttranslational Modifications in Tumors Cells Goals: In this project we attempt to study post translational modifications in proteins using a combination of protein microarrays and mass spectrometry Role: Co-Investigator.

B. PENDING PROJECTS
1. CTSA Pilot Grant (PI Sreekumar, scored in the top quartile) 07/01/07-06/30/08 3.6 calender months Michigan Institute of Clinical Health Research $100,000/yr Goals: In this project we attempt to integrate matched transcriptomics, proteins and metabolomics data to obtain a systems over view of prostate cancer progression.
2. R01CA000000-00 (PI: Sreekumar) 04/01/2008 - 09/30/2010 3 calendar months NIH 250,000/yr Integrative Metabolomics of Prostate Cancer Progression Goals: In this project we attempt to profile the metabolome of prostate cancer and define pathway alterations.
3. PC073501 (PI: Sreekumar) 10/01/2007 – 09/30/2010 3 calendar months Department of Defense, New Investigator Award $75,000/yr Metabolomic Markers for Prostate Cancer Progression Goals: In this project we propose to integrate "omics" data for prostate cancer progression.

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. DEPARTMENTAL
1. Managed and directed the Protein Mass Spectrometry facility for the Department of Pathology from June 2006-January 2007.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Reviewer
   a) *Cancer Investigation*
   b) *Cancer Research*
2. Grant reviewer for:
   a. US Army Medical Research and Material Command (USAMRMC)

B. INVITED LECTURES/SEMINARS
1. Invited to deliver a lecture at the IMPaCT meeting which is a forum to highlight the accomplishments of the Department of Defense (DOD) Prostate Cancer Research Program (PCRP) in funding high-impact research, addressing health disparities, and training the next generation of prostate cancer researchers. The meeting will also serve as a forum for the prostate cancer community to discuss current topics in prostate cancer and to explore new avenues of research.

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. None

B. BOOKS/CHAPTERS IN BOOKS
1. **Sreekumar A***, Taylor BS, Wang X, Lubman DM and Chinnaiyan AM. Humoral Response Profiling Using Protein Microarrays. In *Functional Protein Microarrays: From Pathways to Drug Discovery*, (Paul Predki ed) Taylor and Francis Group, USA, pg 301* Corresponding author

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Slany RK, Mueller D, Bach C, Zeisig D, Garcia-Cuellar MP, Monroe S (Monroe, Sara), **Sreekumar A**, Zhao R, Nesvizhskii A, Chinnaiyan A, Purification of an MLL partner associated complex (MPAC) suggests a common role for MLL fusion partners in transcriptional elongation. BLOOD 108 (11): 231A-231A 770 Part 1, NOV 16 2006.
2. Taylor BS, **Sreekumar A**, Pal M ,Yu J, Shen R, Zhao R, Wei JT, Ghosh D, Lubman DM, Chinnaiyan AM. Identification and analysis of differential humoral response targets in prostate cancer MOLECULAR & CELLULAR PROTEOMICS 5 (10): S306-S306 1110 Suppl. S OCT 2006.

D. PATENTS AWARDED
1. UM 2146: - Expression Profile of Prostate Cancer, Filed: UMOTT 3740 : Metabolomic Profiling of Prostate Cancer: Identification of Potential Metabolomic Biomarkers for Prostate Cancer Development/Progression".

Lloyd M. Stoolman, M.D.

Professor of Pathology

I. Clinical Activities

A. Flow Cytometry Diagnostic Service
1. Triage and interpret cell surface marker studies in the evaluation of hematologic disorders, primary and secondary immune deficiencies and autoimmune processes.
2. 60-70% coverage of diagnostic flow cytometry service and education
3. Primary responsibility for fellow/resident training on diagnostic software and technical aspects of flow cytometry
4. Technical management of laboratory activities

B. Autopsy Service (weekend and holiday coverage)

II. Teaching Activities

A. MEDICAL STUDENTS
1. Co-director, lecturer and seminar leader, M2 Hematology Sequence (11th year).
   a) Administrative oversight increased due to addition of novice course director.
   b) Authored the 10th generation of The Virtual Microscope-Hematopathology Interactive Syllabus (http://141.214.6.12/virtualheme99).
   c) Lecturer and Seminar leader M1 Host Defense Sequence (11th year).
   d) Lecturer D1 Host Defense Sequence (11th year).

B. RESIDENTS AND FELLOWS
1. Flow cytometry service, with emphasis on technical aspects of procedures and analytic tools.
2. Autopsy service, piloted high-resolution digital slide scans for case presentations.

C. RESEARCH EDUCATION AND TRAINING
1. Supervised research activities of post-graduate (3) and undergraduate (3) investigators.
2. Provided consultation services to faculty, fellows, residents and research investigators using Flow Cytometry and Digital Microscopy Core laboratories.
3. Instructor in Pathology 581 and Graduate Seminar in Immunology.
4. Thesis committees (3) in the Immunology Program.

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator- T Cell Trafficking in Adoptive Cellular Immunotherapy; NIH, R01CA73059; no-cost extension until Mar. 2008.

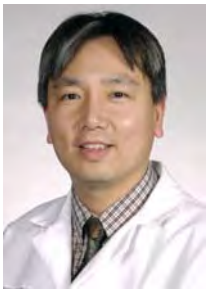
IV. Administrative Activities – None

V. Other Relevant Activities – None

VI. Publications - None

Lyndon Su,

Associate Professor of Pathology And Dermatology



I. Clinical Activities

A. Dermatopathology Service – (University Hospital and Transfer cases) – 12 months

B. Dermatopathology Consultation Service (including personal and M-Labs consultations) – 12 months

C. Direct Immunofluorescence Interpretation of Skin Biopsies--(6 months)

II. Teaching Activities

A. MEDICAL STUDENTS
1. Medical students – (on elective rotation in dermatopathology)
2. Instructor in medical student laboratories

B. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology daily sign-out (rotating dermatology and pathology residents)
2. Review of interesting dermatopathology consultation material and transfer cases (with rotating dermatology and pathology residents)
3. Dermatopathology Teaching conference – (dermatology residents-1 per month)
4. Dermatopathology Teaching conference – (pathology residents-4 per year)
5. Dermatology Core Conference- (1 per year)
6. Anatomic Pathology Core Conference – (1 per year)
7. Anatomic Pathology Consultation Conference – (2 per year)
8. Annual Michigan Dermatological Society Case Presentations-(1 per year)

C. OTHER
1. Diagnostic Conference, Department of Dermatology – (1 per month)
2. Cutaneous T-Cell Lymphoma Conference—(1 per month)
3. Merkel Cell Carcinoma Tumor Board--(3 per year)

III. Research Activities

A. SPONSORED SUPPORT – None

B. PROJECTS UNDER STUDY

1. University of Michigan (UMMC 2000-0713): Molecular, biochemical, and cellular basis of melanoma and other melanocytic lesions: Tissue Bank. Johnson TM, Wang TS, Schwartz JL, Voorhees JS, Dlugosz A, Lowe L, Su LD, Fullen DR, Bradford C, and Cimmino V.

IV. Administrative Activities

A. DEPARTMENTAL
1. Co-director, Dermatopathology Service
2. Co-director, Dermatopathology Fellowship Program

B. REGIONAL/NATIONAL/INTERNATIONAL – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc manuscript reviewer
   a) *Journal of Cutaneous Pathology*
   b) *Journal of the Academy of Dermatology*
   c) *Cancer*
   d) *Journal of Pediatrics*
   e) *American Journal of Dermatopathology*
   f) *Applied Immunohistochemistry and Molecular Morphology*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Program Committee of the American Society of Dermatopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Mchugh JL, **Su L**, Griffith KA, Schwartz JL, Wong SL, Cimmino V, Chang AE, Johnson TM, Sabel MS. Significance of multiple lymphatic drainage basins in truncal melanoma patients undergoing sentinel lymph node biopsy. Ann Surg Oncol. 2006 Sep;13(9):1216-23. Epub 2006 Sep 3.
2. Fullen DR, Poynter JN, Lowe L, **Su LD**, Elder JT, Nair RP, Johnson TM, Gruber SB. BRAF AND NRAS mutations in Spitzoid melanocytic lesions. Mod Pathol. 2006 Oct;19(10):1324-32. Epub 2006 Jun 23.
3. Denoyelle C, Abou-Rjaily G, Bezrookove V, Verhaegen M, Johnson TM, Fullen DR, Pointer JN, Gruber SB, **Su LD**, Nikiforov MA, Kaufman RJ, Bastian BC, Soengas MS. Anti-oncogenic role of the endoplasmic reticulum differentially activated by mutations in the MAPK pathway. Nat Cell Biol. 2006 Oct;8(10):1053-63. Epub 2006 Sep 10.
4. Kroon HM, Lowe L, Wong S, Fullen D, **Su L**, Cimmino V, Chang AE, Johnson T, Sabel MS. What is a sentinel node? Re-evaluating the 10% rule for sentinel lymph node biopsy in melanoma. J Surg Oncol. 2007;95(8):623-38.
5. Olsen SH, **Su LD,** Thomas D, Fullen DR. Telomerase expression in sebaceous lesion of skin. J Cutan Pathol 2007;34(5):386-91
6. McHugh JB, Fullen DR, Ma L, Kleer CG, **Su LD**. Expression of polycomb group protein EZH2 in nevi and melanoma. J Cutan Pathol 2007 published online.

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

1. Gudjonsson JE, **Su L,** Anderson TF. "Syringotropic Cutaneous T-cell lymphoma evolving from follicular mucinosis." Oral case presentation at the American Academy of Dermatology 65th Annual Meeting, Gross and Microscopic Session, February 2-6, 2007.
2. Carvalho JC, Fullen D, Lowe L, **Su L,** Ma L. "Diagnostic value of CD23 in Merkel cell carcinoma and Small cell carcinoma." Poster presentation at the 96th annual meeting of the United States and Canadian Academy of Pathology, March 2007, San Diego, CA.

James Varani, Ph.D.

Professor of Pathology

I. Clinical Activities None.

II. Teaching Activities

A. UNDERGRADUATE STUDENTS

1. Diana Spahlinger – 3rd year undergraduate, Kenyon College (June 2005-September 2005).
2. Kevin Fay – 4th year undergraduate, University of Michigan (June 2004-present).
3. Andrew Hanosh – 4th year undergraduate/U of M graduate (January 2006-present).
4. Monica Demming – 1st year undergraduate, Michigan State University (June 2006-present).
5. Sid Goyal – 1st year undergraduate, Kalamazoo College (June 2006–present).

B. POST-DOCTORAL STUDENTS

1. Kamalakar C. Nerusu, M.D. (April 2002-present).
2. Mohammad Nadeem Aslam, M.D. (June 2002-present).
3. Mehandranth Reddy (April 2004-Present).

C. RESEARCH FACULTY

1. Narasimharao Bhagauathula, Ph.D. (April 2000-present).

D. OTHER

1. Course director – Pathology 581: Tissue, cellular and molecular basis of disease.
2. Instructor – Pathology 581: Tissue, cellular and molecular basis of disease.
3. Instructor – Interdisciplinary Dental School course.
4. Instructor – Pathology 582: Tissue, cellular and molecular basis of disease – Part II.
5. Instructor – Pathology 553: Cancer Biology.

III. Research Activities

A. SPONSORED SUPPORT

1. AR49621 NIH/NIAID Non-irritating retinoids for the treatment of skin aging
2. GM77724 NIH/NIAMS .Wound-healing properties of a non-irritating retinoid.
3. AG024824 (P30) NIH/ Older Americans Independence Center Epidermal growth control in aged mice (development project)
4. Pfizer Inc., Ann Arbor, MI Comparison of whole skin organ culture with human skin equivalent for in vitro evaluation of corrosivity/irritancy and contact sensitization

5. Pfizer Inc., Ann Arbor, MI Use of whole skin organ culture with human skin with hair follicles for assessment of biomarkers of hair growth.
6. AR50330 NIH/NIAMS New Topical Treatment for Psoriasis
7. AR052889 NIH/NIAMS Amphiregulin in Psoriatic Epidermal Hyperplasia

B. PENDING PROJECTS
1. GM77724 NIH/NIAMS Wound-healing properties of a non-irritating retinoid
2. HL70797-04 MMP-1 and MMP-3 in Acute Lung Injury and Its Consequences

C. PROJECTS UNDER STUDY
1. The biology of collagen destruction and repair in diabetic skin.
2. Role of MMP-3 in acute and chronic lung injury.
3. Topical PPAR-γligands 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. Development of microcarriers with synthetic collagen surface.

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
1. Member of Medical School Institutional Review Board (IRBMED) (A2).
2. Member of Medical School Institutional Review Board task force on adverse event reporting.
3. Member, Program in Biomedical Sciences (PIBS) Steering Committee.
4. Member, Program in Biomedical Sciences (PIBS) Curriculum Committee.
5. Member, Department of Dermatology Research Training Grant Steering Committee.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board, *Expert Review of Dermatology.*
2. Manuscript Review
   a) *American Journal of Pathology.*
   b) *Cancer Research.*
   c) *Journal of Investigative Dermatology.*

B. INVITED LECTURES/SEMINARS
1. Invited speaker: Pfizer, Inc., Ann Arbor, MI, July 27, 2005.
2. Invited speaker: Williamsburg Bioprocessing Foundation Symposium: Biological Products Development and Safety. Tysons Corner, VA, August 10, 2005.
3. Invited speaker: Molecular Design International, Memphis, TN, February 22, 2006.
4. Invited speaker. PCITX Product Development Conference, New York City, NY, April 18, 2006.

5. Invited speaker. PCITX Product Development Conference, New York City, NY, September 13, 2006.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Bhagavathula N, Kelley EA, Reddy M, Nerusu KC, Leonard C, Fay K, Chakrabarty S, **Varani J.** Up-regulation of calcium sensing receptor and mitogen-activated protein kinase signaling in the regulation of growth and differentiation in colon cancer. *Brit. J. Cancer* 93:1364-1371, 2006.
2. Aslam MN, Lansky EP, **Varani J.** Pomegranate fractions: Differential effects on human epidermal keratinoycte and human dermal fibroblast function. *J. Ethnopharmacol*. 103:311-318, 2006.
3. Fligiel SEG, Standiford T, Fligiel SEG, Strieter RW, Tashkin D, Warner RL, Johnson KJ, **Varani J.** Matrix metalloproteinases (MMPs) and MMP Inhibitors in acute lung inflammation. *Human Pathol*. 37:422-430,2006.
4. **Varani J**, Dame MK, Rittie L, Fliigiel SEG, Kang S, Fisher GJ, Voorhees JJ. Decreased collagen production in chronologically-aged skin: Roles of age-dependent alterations in fibroblast function and defective mechanical stimulation. *Amer. J. Pathol*. 168:1861-1868, 2006.
5. Rittié L, **Varani J**, Kang S, Fisher GJ, Voorhees JJ: Retinoid-induced epidermal hyperplasia is mediated by epidermal growth factor receptor activation *via* specific induction of its ligand heparin binding-EGF and amphiregulin in human skin *in vivo*. *J. Invest. Dermatol*. 126:732-739 2006.
6. Bhagavathula N, Nerusu KC, Hanosh A, Appelman H, Chakrabary S, **Varani J**. Regulation of E-cadherin and b-catenin by Ca2+ is dependent on calcium sensing receptor in colon carcinoma cells. *Int. J. Cancer*. (in press) 2007.
7. 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. 143:155-63, 2007.
8. Kafi R, Kwak HSR, Schumacher WE, Cho S, Hanft VN, Hamilton TA, King AY, Neal JD, **Varani J,** Fishere GJ, Voorhees JJ, Kang S. Vitamin A (improves) naturally aged skin. Arch. Dermatol. 143:606-612, 2007.
9. **Varani J**, Fay K, Perone P. MDI-301: A non-irritating retinoid, induces changes in organ-cultured human skin that underlie repair. Arch. Dermatol. Res. 298:439-448, 2007.
10. **Varani J.** Ex vivo methods for the preclinical evaluation of potential anti-psoriatic therapeutics. *Bioprocess. J*. (in press) 2007.
11. Warner RL, Bhagavathula N, Nerusu K, Hanosh A, McClintock SD, Naik M, Johnson KJ, **Varani J.** MDI-301, a non-irritating retinoid, improves abrasion wound healing in damaged/atrophic skin. Wound Repair Regen. (in press) 2007.
12. **Varani J** Bhagavathula N, Fay K, Warner RL, Aslam MN, Hanosh A, Barron AG, Miller RA. Inhibition of retinoic acid-induced skin irritation in calorie-restricted mice. Arch. Dermatol. Res. (in press) 2007.
13. **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. (in press) 2007.

14. Reichrath J, Lehmann B, Carlberg C, **Varani J**, Zouboulis CC. Vitamins as hormones. Hormone and Metabolism Res. 11:1-14, 2007.
15. **Varani J**, Bhagavathula N, Ellis CN, Pershadsingh HA. Thiazolidinediones as potential therapeutics for the treatment of psoriasis. Exp. Opinion on Invest. Drugs. 15:1453-1468, 2006.
16. **Varani J.** Control of normal and abnormal proliferation in the epidermis. Exp. Opinion Dermatol. (in press) 2007.
17. Nerusu KC, Warner RL, Bhagavathula N, McClintock SD, Johnson KJ, **Varani J.** Matrix metalloproteinase-3 (stromelysin-1) in acute inflammatory tissue injury. Exp. Molec. Pathol. (in press) 2007.

B. BOOKS/CHAPTERS IN BOOKS
1. **Varani J**. A sold foundation is important for healthy looking skin. In. Nutritional Cosmetics. A Tabor and RM Blair (eds) William Andrew Publishing, New York, 2007.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Bhagavathula N, Nerusu KC, Chakrabarty S, **Varani J.** Role of Calcium Sensing Receptor in promoting differentiation in colon carcinoma cells. AACR 2006.
2. Nerusu KC, Bhagavathula N, Chakrabarty S, **Varani J.** . Calcium induced differentiation in colon carcinoma: Altered b-catenin production and distribution. AACR 2006.
3. **Varani J.** Matrix metalloproteinases (MMPs) and MMP Inhibitors in acute lung inflammation. Exp. Biol. 2007. Warner RL, Johnson KJ, Varani J. Increased elastin production in human skin/human skin fibroblasts with extracts of ginger and curcumin. Exp. Biol. Abs #1232, 2007.

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: 6 weeks
C. Breast Service: 11 weeks
D. Gyn Service: 4 weeks
E. Intra-Operative Consultation (On-Call): 4 weeks
F. Outside consultations: 183 (VI & MY)

II. Teaching Activities

A. MEDICAL STUDENTS
   1. M2 Lab Instructor (9/06-4/07)

B. HOUSE OFFICERS AND FELLOWS
   1. Breast Pathology, 3 seminars, 1 hr each

C. LECTURES
   1. U of M Breast Care Educational Forum, 2 Lectures, 1 hr each

III. Research Activities

A. SPONSORED SUPPORT - None

B. PENDING PROJECTS – None

IV. Administrative Activities

A. DEPARTMENTAL
   1. Director of Surgical Pathology
   2. Medical Director of Histology and Pathologists Assisstants

B. INSTITUTIONAL
   1. UM Medical School Admissions Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board: *Human Pathology*

B. INVITED LECTURES/SEMINARS
1. Tri-State Thoracic Conference, Sept 8-10, 2006, Egg Harbor WI.
2. Practical Surgical Pathology Conference, Sept 14-16, 2006, Mayo Clinic, Rochester MN.
3. 2006 State-of-the-Art Multidisciplinary Care of Breast Disease, Sept 22-23, 2006, Mayo Clinic, Rochester MN.
4. Scientific Symposiums Intl., Surgical Pathology of Problem Breast, Endocrine, Female Genital and Central Nervous System Lesions, October 16-19, 2006, Honolulu HI.
5. Pathology Leaders Club, Feb 9-11, 2007, Asheville, NC.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. USCAP (sustaining member)

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 3rd, Reynolds CA, Hartmann LC. Stratification of Breast Cancer Risk in Women with Atypia: A Mayo Cohort Study. J Clin Oncol. 2007 Jun 11.
2. Zhang L, **Visscher D**, Rihal C, Aubry MC. Pulmonary veno-occlusive disease as a primary cause of pulmonary hypertension in a patient with mixed connective tissue disease. Pheumatol Int. 2007 (May 23)
3. Goetz MP, Knox SK, Suman FJ, Rae JM, Safgren SL, Ames MM, **Visscher DW**, Reynolds C, Couch FJ, Lingle WL, Weinshilboum RM, Fritcher EG, Nibbe AM, Desta Z, Nguyen A, Flockhart DA, Perez EA, Ingle JN. The impact of cytochrome P450 2D6 metabolism in women receiving adjuvant tamoxifen. Breast Cancer Res Treat. 2007 Jan;101(1):113-21.
4. Milanese TR, Hartmann LC, Sellers TA, Frost MH, Vierkant RA, Maloney SD, Pankratz VS, Degnim AC, Vachon CM, Reynolds CA, Thompson RA, Melton LJ 3rd, Goode EL, **Visscher DW.** Age-related lobular involution and risk of breast cancer. J Natl Cancer Inst. 2006 Nov 15; 98(22):1600-7.
5. **Visscher DW,** Myers JL. Histologic spectrum of idiopathic interstitial pneumonias. Proc Am Thorac Soc. 2006 Jun; 3(4):322-9
6. Perez EA, Suman VJ, Davidson NE, Martino S, Kaufman PA, Lingle WL, Flynn PS, Ingle JN, **Visscher D**, Jenkins RB. HER2 testing by local, central, and reference laboratories in specimens from the North Central Cancer Treatment Group N9831 intergroup adjuvant trial. J Clin Oncol. 2006 Jul 1; 24(19):3032-8.
7. Lewis JT, Hartmann LC, Vierkant RA, Maloney SD, Pankratz S, V. Allers TM, Frost MH, **Visscher DW.** An analysis of breast cancer risk in women with single, multiple, and atypical papilloma. Am J Surg Pathol. 2006 Jun; 30(6):665-72.
8. Goetz MP, Suman VJ, Ingle JN, Nibbe AM, **Visscher DW**, Reynolds CA, Lingle WL, Erlander M, Ma XJ, Sgroi DC,Perez EA, Couch FJ. A two-gene expression ratio of homeobox 13 and interleukin-17B receptor for prediction of recurrence and survival in women receiving adjuvant tamoxifen. Clin Cancer Res. 2006 Apr 1; 12(7 Pt 1):2080-7.

9. Nassar H, Qureshi H, Volkanadsay N, **Visscher D.** Clinicopathologic analysis of solid papillary carcinoma of the breast and associated invasive carcionmas. Am J Surg Pathol. 2006 Apr; 30(4):501-7.
10. **Visscher DW**, Myers JL. Bronchiolitis: The pathologist's perspective. Proc Am Thorac Soc. 2006; 3(1):41-7.
11. Kato I, Ren J, **Visscher DW**, Djuric Z. Nutritional predictors for cellular nipple aspirate fluid: Nutrition and Breast Health Study. Breast Cancer Res Treat. 2006 May; 97(1):33-9.

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

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) Hongwei Gao
   b) Laszlo Marco Hoesel
   c) Daniel Rittirsch
   d) Michael Flierl

B. OTHER

1. Firas S. Zetoune, Research Associate
2. UROP Undergraduate Students
   a) Anthony Chen
   b) Danielle Day
   c) Brian Schimdt
   d) Brian Nadeau
   e) Rachel List

III. Research Activities

A. SPONSORED SUPPORT

1. Principal Investigator, "Inflammatory Cells and Lung Injury" NIH/NHLBI P01-HL31963, (Project 1), $264,827 /yr. (25%) 02/01/05 – 01/31/10.
2. Principal Investigator; "Lung Injury by Oxygen Metabolites (MERIT) R01- GM29507 NIH/NIGMS, (20%) $312,396/yr, 07/01/05 – 06/30/09.
3. Principal Investigator, "Protective Effects of Anti-C5a in Sepsis," NIH/NIGMS R01-GM61656, (20%) $404,314/yr; 09/25/06 – 08/31/10.
4. Principal Investigator, "Mechanisms and Prevention of Lung Injury Caused by Exposure to Mustard Gas" W18XWH-06-2-0044 USAMRMC, (5%), $348,514/yr; 08/21/06 – 08/31/08.

IV. Administrative Activities

A. INSTITUTIONAL

1. Undergraduate Research Opportunity Program
2. Conflict of Interest Advisory Committee.

3. Russel Award and Lectureship Selection Committee.
4. Chair, Conflict of Interest Oversight Committee for VPR, (COF).
5. HUMES Oversight Committee.
6. Grant Review - University of Michigan Institute for Clinical and Health Research
7. Funding Review for OVPR

B. REGIONAL/NATIONAL/INTERNATIONAL
1. 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) Austrian Science Fund
h) Astma Fonds Lucht Voor Het Leven
i) Canada Foundation for Innovation
j) Site Visit Baylor College of Medicine and St. Luke's Episcopal Hospital, Baylor Texas
k) Site Visit Cincinnati Hospital, Pathobiology & Molecular Medicine

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
2. Reviewer
a) *American Journal of Pathology*
b) *American Journal of Pathology – Cell Physiology*
c) *American Journal Respiratory Critical Care Medicine*
d) *Biomarkers in Medicine*
e) *Critical Care Medicine*
f) *European Journal of Immunology*
g) *Free Radical Biological and Medicine*
h) *Immunological Investigations*
i) *Journal of Investigative Surgery*
j) *Journal of Clinical Investigation*
k) *Journal of Experimental Biology*
l) *Journal of Immunology*
m) *Journal of Leukocyte Biology*
n) *Journal of Inflammation*
o) *Journal of Surgical Research*
p) *Nature*

q) *Nature Medicine*
r) *SHOCK*

B. INVITED LECTURES/SEMINARS

1. Chair and Speaker, Ischemia Workshop/Astra Zeneca, Ann Arbor, MI, August 8, 2006.
2. Invited Speaker, "Molecular Determinants of Sepsis", 12th Biennial Congress of the European Shock Society, Ulm, Germany, September 15, 2006.
3. Invited Speaker, "Molecular Events in Sepsis", 4th Annual "Advances in Inflammation Research" Symposium, September 21, 2006.
4. Invited Speaker, "Diverse Roles of Complement and C5a Receptors in Sepsis", XXI International Complement Workshop, Beijing China, October 24, 2006.
5. Invited Keynote Lecturer, "Understanding the molecular mechanisms of sepsis: Lessons we have learned and lessons we have lost", Symposium on Basic Science and Clinical Aspects of Sepsis, Hannover, Germany, December 13, 2006.
6. Invited Expert, Sepsis Expert Input Forum (Merck & Co), Whitehouse Station, NJ, January 22, 2007.
7. Invited Speaker, "Complement and its Effects in Sepsis", 36th Critical Care Congress, Orlando, FL, February 18, 2007.
8. Invited Speaker, Four talks, Trauma, Shock, Inflammation & Sepsis – TSIS 2007, Munich, Germany, March 15-16, 2007.
9. Invited presentation Medical Countermeasures for Radiation Combined Injury: Radiation with Burn, Blast, Trauma and/or Sepsis, sponsored by DAIT, NIAID, NIH, Washington DC, March 26 - 27, 2007.
10. Invited Mediator, American Society Transplant Congress Meeting, San Francisco, CA, May 6-9, 2007.
11. Invited Keynote Lecturer, A satellite meeting of the 14th Annual Meeting of the Psychoneuroimmunology Research Society, Bordeaux, France, May 28-29 2007.
12. Invited Keynote Lecturer, Association pour la Neuro-Psycho-Pharmacologie (ANPP), Arcachon, France, May 30 2007.
13. Invited Speaker, Aegean Conference, 4th International Workshop on Complement Associated Diseases, Animal Models, and Therapeutics, Porto Heli, Greece, June 9-16, 2007.

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 and Finance Committee.
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, Chair, 2006-present.

13. Society of Leukocyte Biology
14. Society of Critical Care Medicine

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Leinhase, I., Holers, V.M., Thurman, J.M., Harhausen, D., Schmidt, O.I.,Pietzcker, M., Taha, M.E., Rittirsch, D., Huber-Lang, M., Smith, W.R., **Ward, P.A**., and Stahel, P.F.: Reduced neuronal cell death after experimental brain injury in mice lacking a functional alternative pathway of complement activation. BMC Neuroscience. 2006 7:55.
2. Sarma, J.V., Huber-Lang, M. and **Ward, P.A.**: Complement in lung disease. Autoimmunity. 2006 39:387-394.
3. Toledo-Pereyra, L.H., Lopez-Neblina, F., Lentsch, A.B., Anaya-Prado, R., Romano, S.J., and **Ward, P.A**.: Selectin inhibition modulates NF-kappa B and AP-1 signaling after liver ischemia/reperfusion. J. Invest. Surg. 2006 19:313-322.
4. Guo, R.F., Sun, L., Gao, H., Shi, K.X., Rittirsch, D., Sarma, J.V., Zetoune, F.S. and **Ward, P.A.**: In vivo regulation of neutrophil apoptosis by C5a during sepsis. J. Leukoc. Biol. 2006 Sept. 22 [Epub ahead of print] 2006; 80:1575-1583.
5. Sun, L., Gao, H., Sarma, J.V., Guo, R.F., and **Ward, P.A.**: Adenovirus-mediated in vivo silencing of anaphylatoxin receptor C5aR. J Biomed Biotechnol. 2006 4:28945.
6. Rittirsch, D., Hoesel, L.M., and **Ward, P.A**.: The disconnect between animal models of sepsis and human sepsis. J. Leukoc. Biol. 2006 Oct 4 [Epub ahead of print] 2007;81:137-143.
7. Ishida-Okawara, A., Nagi-Miura, N., Oharaseki, T., Takahashi, K., Okumra, A., Tachikawa, H., Kashiwamura, S., Okamura, H., Ohno, N., Okada, H., **Ward, P.A.**, Suzuki, K.: Neutrophil activation and induce by *C. albicans* water-soluble mannoproteins-β-glucan complex (CAWS). Exp. Molecul. Path. Exp Mol Pathol. 2007 Jan 4; [Epub ahead of print]
8. Exp Mol Pathol. 2007; 82:220-226. Hoesel, L.M., Niederbichler, A.D., and **Ward, P.A**.: Complement-related molecular events in sepsis leading to heart failure. Mol. Immunol. 2006 July 26, [Epub]. 2007 44:95-102.
9. 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.
10. 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.
11. 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.
12. Guo, R.F., **Ward, P.A**.: C5a, a therapeutic target in sepsis. Recent Patents on Anti-Infective Drug Discovery, 2006, 1:57-65.

13. Hoesel, L. M., Gao, H., **Ward, P.A**.: New insights into cellular mechanisms during sepsis. Immunol Res 2006, 34:133-142. McDonald, J.M., Siegal, G.P., Ward, P.A.: Editorial: Introducing biological perspectives. Am. J. Pathol. 2006; 169:337.
14. **Ward, P.A.**: New therapeutic approaches for influenza A H5N1 infected humans. Crit Care Med. 2007; 35:1437-1438.
15. Guo, R.F. (correspondent author), Sun, L, Gao, H., Shi, K.**,** Reuben, J.S., **Ward, P.A**. Mechanism of priming of lung for CXC chemokine production during sepsis. J Immunol, 2006; *in press*.
16. Flierl, M.A., Rittirsch, D., Hoesel, L.M., Gao, H., Zetoune, F.S., Huber-Lang, M.S., and **Ward, P.A**.: Acute lung injury: A challenging transfer from bench to bedside. *Accepted* MHR. 2006.

B. BOOKS/CHAPTERS IN BOOKS

1. Warren, J.S., and **Ward, P.A**.: The inflammatory response. Lichtman, M., Beutler, E., Kipps, T.J., Seligsohn, U., Kaushansky, K., Prchal, J.T. (eds) 7th Edition Williams Hematology. McGraw-Hill, New York, N.Y. pp 221-230, 2006.
2. Gao, H., Neff, T., and **Ward, P.A.**: Regulation of lung inflammation in the model of IgG. Annual Review of Pathology: Mechanisms of Disease. Abbas, Downing, Kumar (co-eds). Annu. Rev. Pathol. Mech. Dis Vol 1.2006, pp 215-242.
3. 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. 2006.
4. Murphy, H.S., Varani, J., and **Ward, P.A**.: Biology of endothelial cells. In Middleton's Allergy Principles & Practice, Adkinson, Jr., N.F., Busse, W.W., Bochner, B.S., Holgate, S.T., Simons, F.E.R. and Lemanske, Jr., R.F. (eds). 7th Edition, Mosby,Philadelphia, PA. pp.385-398, 2007.
5. Hoesel, L.M., and **Ward, P.A.**: The role of endothelium in systemic inflammatory response syndrome and sepis. In Endothelial Biomedicine. Aird, W.C. (ed). Cambridge, Cambridge University Press, pp.1294-1302, 2007.
6. 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, 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.

Roscoe L. Warner, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. RESEARCH INVESTIGATOR

1. Thekkelnaycke Rajendiran Ph.D. UM Investigator, Time in Laboratory 26 Months, Contact hours: 12 hrs

B. RESEARCH ASSISTANTS

1. Shannon McClintock, B.S. 40 hrs. per week
2. Adam Barron, B.S. 40 hrs. per week
3. Daniela Bickel, B.S. 40 hrs per week

III. Research Activities

A. SPONSORED SUPPORT – None

B. PENDING PROJECTS

1. "Wound healing properties of a non-irritating novel 9-cis retinoic acid derivative", NIH Phase-II Grant submitted through "Molecular Design International" building upon the Phase-I grant (GM-77724; P.I. Dr James Varani).Submitting P.I.s Dr. James Varani and Dr. Roscoe Warner.

C. PROJECTS UNDER STUDY

1. Development of a Human and a Rat Antibody Microarray
2. Determination of Biomarkers in Human Vasculitis and Rodent Models of Vasculitis
3. Mechanisms of MMP-3 Action in Acute Lung Injury
4. Mechanisms of MMP-3 Action in Bleomycin induced Airway Thickening
5. Mechanisms of Action of a Benzodiazepine Derivative in Rodent Models of Granulomatous Disease
6. Screening of Botanicals compounds for dermatological improvement in dermal wounds.
7. Wound healing properties of MDI-301 (non-irritating novel 9-cis retinoic acid derivative) in dermal injury models

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. Huber-Lang M., Sarma J.V., Zetoune F.S., Rittirsch D., Neff T.A., McGuire S.R., Lambris J.D., **Warner R.L.**, Flierl M.A., Hoesel L.M., Gebhard F., Younger J.G., Drouin S.M., Wetsel R.A., Ward P.A. (2006) Generation of C5a in the absence of C3: a new complement activation pathway. *Nat Med.* 12(6):682-687.
2. McClintock, S.D., Barron, A.G., Olle, E.W., Deogracias, M.P., **Warner, R.L.**, Opp, M.R., Johnson, K.J., (2006) Role of interleukin-6 in a glucan induced model of granulomatous vasculitis *Exp. Molec. Pathol.* 82(2):203-209.
3. Johnson, D., **Warner, R.**, Shih, A.J. (2007) Surface roughness and material removal rate in machining using microorganisms. J. Manuf. Sci Engineer. 129:223-227.
4. Flight, S.M., Johnson, L.A., **Warner, R.L.**, Trabi, M., Gaffney, P.J., Lavin, M.F., De Jersey, J., Masci, P.P. (2007) Inhibition of palsmin and kallikrein by textillinin-1 and aprotinin: Implications for control of bleeding. Arterioscler Thromb Vasc Biol. (in press).
5. **Warner., R.L.**, McClintock, S., D., Barron, A., G., de la Iglesia, F. (2007) Hemostatic properties of a venomic protein in rodent dermal injuries. Exp. Molec. Pathol. (in press).
6. **Warner, R.L**., Bhagavathula, N., Nerusu, K., Hanosh, A., McClintock, S.D., Naik, M.K., Johnson, K.J., Varani, J. (2007) MDI 301, a non-irritating retinoid, improves abrasion wound healing in damaged / atrophic skin. Wound Repair Regen. (accepted).

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

1. Use of Small Semi-Quantitative Antibody Arrays for Rapid Multiple Protein Analysis in Models of Vasculitis Daniela Bickel[1], Michael P. Deogracias[1], Christina Roffi[2], Shannon McClintock[1], **Roscoe L. Warner**[1], Joseph Paulauskis[2], Timothy D. Anderson[2], and Kent J. Johnson[1]. Department of Pathology[1], University of Michigan Medical School, Ann Arbor, Michigan, 48109. Pfizer GR&D[2], Ann Arbor, Michigan, 48105 Experimental Biology, April 2007. Washington DC. Abstract Number: 870.7.
2. Members of the Family Zingiberaceae Promote Tropoelastin and Procollagen Type 1 Synthesis in Cultured Human Fibroblasts Adam G Barron, **Roscoe L Warner,** Narasimharao Bhagavathula, Marissa Dasilva, Kent J Johnson and James Varani. Department of Pathology, University of Michigan Medical School, Ann Arbor, MI, 48109. Experimental Biology, April 2007. Washington DC. Abstract Number:710.3.
3. Role of Macrophage Metalloelastase (MMP-12) in Remodeling Following Bleomycin Induced Pulmonary Fibrosis Shannon D. McClintock, Adam Barron, Roscoe L. Warner, Kamalakar C. Nerusu, Narasimharao Bhagavathula, James Varani, and Kent J. Johnson. Department of Pathology, University of Michigan Medical School, Ann Arbor, MI 48109. Experimental Biology, April 2007. Washington DC. Abstract Number: 516.17.
4. Hemostatic Properties of a Venomic Protein (Q8009) in Rodent Organ Injuries **Roscoe L. Warner**, Shannon D. McClintock, Adam G. Barron. Department of

Pathology, University of Michigan Medical School, Ann Arbor, Michigan, 48109. Experimental Biology, April 2007. Washington DC. Abstract Number: 863.9.

5. Matrix metalloproteinase-1 (interstitial collagenase) and matrix metalloproteinase-3 promote disease progression in acute lung injury. Varani J, Nerusu KC, **Warner RL**, Bhagavathula N, McClintock, SD, Johnson KJ, Standiford T. Departments of [1]Pathology and [2]Internal Medicine, The University of Michigan, Ann Arbor, Michigan 48109. Experimental Biology, April 2007. Washington DC. Oral Presentation Number: 34.9.
6. Flight, S.F, **Warner R.L.,** Lavin, M.F, de Jersey J, Masci, P. P. A Factor Xa-like enzyme from *Pseudonaja textilis* venom is a powerful procoagulant that reduces blood loss in a topical anti-bleeding model. Intl. Soc. Toxinology, July 24 2006, Glasgow Scotland, Oral Presentation Number K3.17.

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, May 1993-present.
B. Director, Clinical Immunopathology Service; September 1989-present.
C. Microbiology Laboratory; review of peripheral blood parasite smears; July 1996-present.
D. Molecular Diagnostics laboratory; signout of cases (3 weeks/year); July 1997-present.
E. Director, Pathology Phlebotomy Service, July 2001-present.

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: "Pulmonary hypertension in scleroderma"(12-19-06).
3. Immunopathology signout: 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: "Pulmonary hypertension in scleroderma" (12-19-06).
3. Pathology Management Series: "The Part A Transfer" (8-25-06).
4. "Rheumatology-Pathology Case Conference": pathology residents, rheumatology fellows and faculty (1 time/month).
5. Immunopathology signout: pathology residents, M4 medical students,medical technology students (3 times/week; 48 weeks/year).
6. Immunopathology component of Block E (Clinical Pathology); ad hoc topical reviews: pathology residents (73 contact hours).
7. Supervision of Research activities for:Anjali Desai, Ph.D. (Research Investigator); (6/15/96-5/31/07).
8. Biofluid Repository Laboratory (Kun Li, M.D.);(4/15/05-6/8/07).

III. Research Activities

A. SPONSORED RESEARCH – None

B. 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.
3. Pathophysiologic role of oxidants in uremia and its complications (collaboration with Rajiv Saran, M.D., Department of Internal Medicine, University of Michigan Medical School).

IV. Administrative Activities

A. DEPARTMENTAL

1. Interviewer of Pathology Residency Candidates, 1989-present.
2. Chairman, Laboratories Communications Committee, 1993-present.
3. Chairman, Department of Pathology Quality Assurance Committee,1993-present.
4. Clinical Associate and Advisory Committee for Medical TechnologyProgram, Eastern Michigan University, 1993-pressent

B. INSTITUTIONAL

1. Member, Steering Committee; Orders Management Project,University of Michigan Health System (25% effort funded);(1/15/05-3/15/07).
2. Member, Center for Genetics in Health and Medicine Steering Commmittee, University of Michigan, 2005-present.
3. Promotion Reader, University of Michigan Provost, 2006-present.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, Council for Diagnostic Immunology and Molecular Pathology,American Society of Clinical Pathologists, 1998-2007.
2. Member, Diagnostic Immunology Rescource Committee, College of American Pathologist, 2000-present.
3. Member, Test Committee for Molecular Genetic Pathology; American Board of Pathology, 2006-present.

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, Lankford H, **Warren JS:** Nitric oxide suppresses EPO-induced monocyte chemoattractant protein-1 in endothelial cells: implication for atherogenesis in chronic renal failure. Lab Invest 86:369-379, 2006.
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 (in press).
3. Desai A, Zhao Y, **Warren JS:** Development of atherosclerosis in Balb/c Apo E (-/-) mice. Cardiovascular Pathology (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. **Warren JS:** Immunoglobulin Quantification and Viscosity Measurement,in Keren DF (ed) Manual of Molecular and Clinical Laboratory Immunology, 7th Edition, American Society of Microbiology Press, Washington, DC, 69-74, 2006.
2. **Warren JS:** Bennette PD, Pomerantz RJ: Immunopathology, in Rubin R, Strayer DS (eds). Pathology, 5th Edition, Lippinoctt,-Williams and Wilkins, Philadephia, PA 99-136, 2007.
3. **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, (in press).

Thomas E. Wilson, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. Assistant Director of the Molecular Diagnostics Laboratory (through 9/06).

B. Interim Director of the Molecular Diagnostics Laboratory (10/06-6/07).

II. Teaching Activities

A. GRADUATE STUDENTS

1. Mentor, graduate student fellows (2)
   a) PhillipPalmbos (MSTP, CMB; successfully defended, in medical school)
   b) James Daley(CMB; successfully defended, advanced to research fellowship)
2. Mentor, rotation student (1)
   a) Dave Pai (PIBS)
3. Member, thesis committees (7)
   a) Marc Prindle(CMB)
   b) Sandra Durkin (Human Genetics)
   c) Rebecca Hausler (Biological Chemistry)
   d) Matthew Pratt-Hyatt (Biological Chemistry)
   e) Jessica O'Konek (Pharmacology)
   f) Graham Brady (Pathology)
   g) Kevin Hicks (Pharmacology)
4. Member, preliminary examination committees (1)
   a) Lara Kelley (Pathology)
5. Path 850, Coursemaster, research seminar for MCP graduate students
6. PIBS 507/508, Introduction to Translational Research, Co-coursemaster (first offering Winter term, 2008, currently co-chairing course planning committee)

B. HOUSE OFFICERS AND FELLOWS

1. Coordinator for Molecular Diagnostic component of Pathology Block E resident rotation.
2. Coordinatorfor Molecular Diagnostics rotation of HemePath fellows.
3. Coordinatorfor Molecular Diagnostics rotation of GI Path fellow.
4. University of Michigan Physician Postdoctoral Research Training Program: Two week full-time course in molecular biology and DNA repair for physician fellows

C. LECTURES
1. Path 581, lecture and exam on pathogenesis of neoplasia
2. EHS 583, lecture and exam on double-strand break repair in radiation biology
3. Genetics 541, two lectures and exam on mechanisms of recombination
4. Cancer Biology 553, lecture on DNA repair and cancer

D. OTHER
1. Mentor, postdoctoral fellows (3)
   a) RajashreeDeshpande (graduated to new fellowship)
   b) Dongliang Wu
   c) William Kittleman
2. Mentor, undergraduate students (2)
   a) CatherineDinh (received UROP summer fellowship)
   b) Natasha Pacheco (UROP)
3. CME coordinator for physicians, Pathology Research Seminar

III. Research Activities

A. SPONSORED SUPPORT
1. Principal Investigator, "Systematic Genetic Analysis of Yeast NHEJ", NIH/NCI 1 R01 CA102563-01 (30% effort), $157,500/current year ($787,500/five years), 8/1/2004-7/31/2009.
2. Principal Investigator, "Mechanism(s) of Resection at Double-Stranded Chromosome Breaks", University of Michigan OVPR Faculty Grants and Awards Program (0% effort; research funding only, no salary support), $15,000 direct costs over one year, 12/1/2005-11/30/2006.
3. Principal Investigator, "Mechanism(s) of Resection at Double-Stranded Chromosome Breaks", University of Michigan Rackham Faculty Grant (0% effort; research funding only, no salary support), $15,000 direct costs over one year, 4/1/2006-3/31/2007.
4. Mentor, University of Michigan Summer Biomedical Research Fellowship, Catherine Dinh, 5/1/2007-8/31/2007.

B. PENDING PROJECTS
1. Principal Investigator, "Mechanisms of mutagenesis during nonhomologous end joining", NIH/NIGMS, 1 R01 GM080658-A1 (30% effort), $225,000/year ($1,125,000/five years), 12/1/2007-11/30/2012.(1st round priority score 200, 37.8%)
2. Principal Investigator, "Structure-function analysis of NHEJ DNA polymerases", NIH/NIGMS, new R01 (30% effort), $200,000/year ($1,000,000/five years), 4/1/2008-3/31/2013.
3. Co-investigator (PI: Donna Shewach), "Enhancing suicide gene therapy through mechanism-based approaches", NIH/NCI, 2 R01 CA76581 (5% effort), $250,000/year ($1,250,000/five years), 7/1/2007-6/30/2012.

C. PROJECTS UNDER STUDY
1. My laboraotory studies basic mechanisms of DNA double-strand break repair, predominantly using yeast as a model organsism, but with extension to both human as well bacterial human pathogens. Specific interests in different supported and pending projects include delineation of the molecular mechanisms of nonhomologous end joining, including both the core structural proteins and enzymes, especially DNA polymerases, the nature of mechanisms of associated mutations and

chromosome rearrangements, and finally the importance of these and other DNA damage response pathways to efficancy of DNA-damaging chemotherapeutic agents. In unsupported work we continue to make major contributions to descriptions of prokaryotic end joining systems.

IV. Administrative Activities

A. DEPARTMENTAL

1. Chair and organizer, Pathology Research Seminar Series
2. Member, Pathology Graduate Program Curriculum Committee
3. Alternate, Pathology Graduate Program Preliminary Examination Committee
4. Pathology student/resident recruitment activities

B. INSTITUTIONAL

1. Member, MSTP Career Advisory Panel
2. MSTP student interviews
3. Faculty candidate interviews/recruitment
4. Member, University of Michigan Biomedical Research Council (BMRC)
5. Grant review, CTSA pilot project grants
6. Member, Cellular and Molecular Biology Program Steering Committee (term now ended)
7. PIBS student interviews and recruitment dinners
8. Member, Biomedical Scholars Program Symposium planning committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc manuscript review, numerous journals including
   a) *Nature*
   b) *Molecular*
   c) *Cell*
   d) *MCB*
   e) *Genetics*
   f) *Structure*
   g) *DNA Repair*

B. INVITED LECTURES/SEMINARS

1. "The influence of protein interactions and DNA joint structures on outcomes of yeast nonhomologous end joining". Mutagenesis Gordon Research Conference, SalveRegina University, Rhode Island, August, 2006.
2. "Introduction to nonhomologous end joining". Environmental Mutagen Society Annual Meeting, Vancouver, Canada, September 20, 2006.
3. "Nonhomologous end joining: reconciling the conflict between repair enzyme action and theinstability of double-strand break substrates". University of Minnesota, Biochemisty, Molecular Biology and Biophysicslecture series, Minneapolis, Minnesota, Nov. 1 2006.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. College of American Pathologists
2. American Association for the Advancement of Science
3. American Society for Microbiology

4. American Association of Cancer Research
5. Association for Molecular Pathology
6. Genetics Society of America
7. Enviornmental Mutagen Society
8. American Society for Biochemistry and Molecular Biology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Pratt-Hyatt MJ, Kapadia1 KM, **Wilson TE**, Engelke DR. Increased recombination between active tRNA genes. DNA and Cell Biology. 25: 359-64 (2006).
2. Pitcher RS, Tonkin LM, Daley JM, Palmbos PL, Green AJ, Velting TL, Brzostek A, Korycka-Machala M, Cresawn SC, Dziadek J, Hatfull GF, **Wilson TE,** Doherty AJ. Mycobacteriophage exploit prokaryotic NHEJ to facilitate genome circularization. Mol Cell. 23:743-8 (2006).
3. Hentges P, Ahnes P, Pitcher RS, Bruce CK, Kysela B, Green A, Bianchi J, **Wilson TE,** Jackson SP, Doherty AJ. Evolutionary and functional conservation of the DNA nonhomologous end-joining protein XLF/Cernunnos J. Biol. Chem. 281:37517-37526 (2006).
4. Deshpande R, **Wilson TE.** Modes of interaction among yeast Nej1, Lif1 and Dnl4 proteins and comparison to human XLF, XRCC4 and Lig4. DNA Repair. In press (2007).

B. BOOKS/CHAPTERS IN BOOKS

1. **Wilson TE**. Nonhomologous end joining: mechanisms, conservation, and relationship to illegitimate recombination. Topics in Current Genetics 17: 487-512 (2007)

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

1. Daley JM, **Wilson TE**. Redundant mechanisms of 5' end processing in yeast NHEJ associated with Pol4-dependent and –independent gap filling. Midwest DNA Repair Symposium, Ohio State University, Columbus, Ohio, May 2007.
2. Wu D, Topper LM, **Wilson TE.** Recruitment and dissociation of NHEJ proteins at a DNA double strand break in Saccharomyces cerevisiae. Midwest DNA Repair Symposium, Ohio State University, Columbus, Ohio, May 2007.

Anuska Andjelkovic Zochowska, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. LECTURES

1. PIBS 503 (Research Responsibility and Ethics) small group moderator

B. OTHER

1. Svetlana Stamatovic , MD, Ph.D. (postdoctoral fellow)
2. Oliver Dimitrijevic, M.D. (postdoctoral fellow)
3. Muhammad Alghanem (undergraduate student, UROP project)
4. Ivana Jankovic (undergraduate student, UROP project)
5. Melina Imshaug (undergraduate student, UROP project)
6. Member, Neuroscience Graduate Program
7. Member, Pathology Graduate Program

III. Research Activities

A. SPONSORED SUPPORT

1. “Chemokine effects on blood-brain barrier permeability" (Role: PI - 70% effort) Principal Investigator: Anuska Andjelkovic-Zochowska Agency: National Institute of Neurological Disorders and Stroke Type: R01 (NS 044907) Period December 2003-November 2007.
2. "Endothelial preconditioning and ischemic brain injury" (Role: Co-Investigator 30% effort) Principal Investigator: Richard F. Keep Agency: National Institute of Neurological Disorders and Stroke Type: R01 (NS 34709) Period June 2003-May 2008.
3. "The Role of Endocytosis of Junctional Proteins in Regulation of Vascular Permeability" Principal Investigator: Anuska Andjelkovic-Zochowska (0% effort) OVPR Faculty Grants and Awards Program, University of Michigan Period: July 2006-June 2007.

B. PENDING PROJECTS

1. "Nicotine aggravates brain ischemia-reperfusion injury" Principal Investigator: Anuska Andjelkovic-Zochowska (10% effort) Agency: American Heart Association Great Midwest Affiliate Type: Grant in Aid Period July 2007-June 2009.

2. "Chemokine effects on blood-brain barrier permeability" (Role: PI - 50% effort) Principal Investigator: Anuska Andjelkovic-Zochowska Agency: National Institute of Neurological Disorders and Stroke Type: R01 (NS 044907-A2) Period October 2007-November 2011.
3. “Nicotine and brain ischemia reperfusion injury” Principal Investigator: Anuska Andjelkovic-Zochowska (10% effort) Agency: Philip Morris external research Period: 01/01/2007-12/31/2010.

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
   a) Journal of Neuroscience
   b) Journal of Neurochemistry
   c) European Journal of Cell Biology
   d) European Journal of Neuroscience
   e) Stroke
   f) Brain Research
   g) Experimental Neurology
   h) Experimental Cell Research

B. INVITED LECTURES/SEMINARS
1. EXTRAMURAL INVITED PRESENTATIONS
   a) "Chemokines and Blood Brain Barrier" 8th International Conference of Neuroimmunology, BBB and inflammation symposium, Nagoya, Japan, October 15-19, 2006 (October 19, 2006)
   b) "CNS inflammation: New insight in the role of chemokine" Department of Immunology, University of Nis, Serbia, April 5, 2007
   c) "Chemokine network and angiogenesis" 7th cerebral Vascular Biology International Conference, Ottawa Canada, June 24-28, 2007 (June 27 2007)
   d) "Inflammation and Brain edema: new insight into role of chemokines and their receptors", International Symposium on Hyperammonemia and hepatic encephaolopathy, September 9-12, 2007
   e) "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.
2. INTERNAL INVITED PRESENTATIONS
   a) “Molecular mechanisms modulating the permeability of blood brain barrier" Neuroscience retreat, University of Michigan, September 2006.

b) "CNS inflammation: New insight in the role of chemokine" PIBS lecture, University of Michigan, October 2006.
c) "Tight junction and brain endothelial cell-cell interaction", Pathology retreat, University of Michigan, October 2006.
d) "Molecular basis of Brain endothelial barrier regulation", seminar Neuroscience program University of Michigan, March 29, 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

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Stamatovic SM Keep RF, Mostarica-Stojkovic M and **Andjelkovic AV**: (2006) CCL2 regulates angiogenesis via activation of Ets-1 transcription factor. J.Immunology 177(4): 2651-61.
2. Dimitrijevic OB, Stamatovic SM, Keep RF, **Andjelkovic AV** (2007): Absence of CCR2 play protective role in brain ischemia/reperfusion injury. Stroke, 38(4):1345-53.
3. Stamatovic SM, Keep RF, **Andjelkovic AV** 2007: Brain endothelial cell-cell junctions: How to "open" the blood brain barrier? Current Neuropharmacology invited review (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Andjelkovic AV** and Stamatovic SM: The critical role of CCL2/CCR2 axis in murine glioma progression Keystone symposium (B6) Mechansim linking Inflammation and Cancer, Santa Fe, NM USA February 10-15, 2007.
2. **Andjelkovic AV,** Stamatovic SM: "Nicotine aggrevate post-ischemic inflammatory response" International Stroke Conference 2007February 7 - 9, 2007, San Francisco, California.
3. SM Stamatovic, RF Keep, M Wong S Kunkel and **AV Andjelkovic:** CCL2 induced opening of brain endothelial barrier via endocytosis of tight junction proteins claudin-57th Cerebral Vascular Biology International Conference, Ottawa Canada, June 24-28, 2007.

RESEARCH INVESTIGATORS

Research Investigators

Venkatesha Basrur, Ph.D. .....Elenitoba-Johnson Laboratory

Research Focus: The primary research interest is cancer proteomics with a goal of understanding the molecular changes that drive a cell to become transformed and to develop biomarkers/therapeutic targets for various cancers. In addition, as the Manager of the Department of Pathology's Proteomics Resource Facility, he will assist faculty in the quantitative, differential protein expression analysis, characterization of post-translational modifications on proteins and identification of protein-protien interactions using mass spectrometry-based techniques.

Narasimharao Bhagavathula, Ph.D. ..... J. Varani Laboratory

Research Focus: The four primary areas of research include:

1. Role of Calcium sensing receptor in colon cancer.
2. Role of MMP-3 in acute and chronic lung injury.
3. Topical PPAR-ligands for treatment of psoriasis.
4. Development of a non-irritating retinoid replacement of RA in therapy of skin aging and as a wound-healing agent.

Corrado Caslini, Ph.D. .....J. Hess Laboratory

Research Focus: The three primary areas of research include:

1. Targeting of MLL-menin interaction as therapeutic strategy for MLL-mediated leukemia.
2. Functional characterization of MLL binding with telomeric and centromeric heterochromatin.
3. BMI1-mediated silencing of differentiation-determining GATA genes in ovarian cancer.

Bo-Chin Chiu, Ph.D. .....S. Chensue Laboratory

Research Focus: Understanding of the innate immune response in the respiratory system in old age using the mouse model. The goal is to enhance protective immunity in the elderly by mobilizing the innate immune response through intranasal vaccination.

Saravana Mohan Dhanasekaran, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus:

1. Genomic profiling studies using microaray profiling.
2. Profiling prostate cancer by array comparative genomic hybridization.
3. Breakpoint characterization of gene fusions in prostate cancer.
4. Androgen regulated gene expression in human prostate
5. Roleof EZH2 in prostate cancer.

Gonzalo G. Garcia, Ph.D. ..... R. Miller Laboratory

Research Focus: Immunosenescence. Molecular mechanism of age-related changes in

James Harper, Ph.D. ..... R. Miller Laboratory

Research Focus: The three primary areas of research include:

1. Role of early postnatal undernutrition in the determination of stress resistance and life span in mice.
2. Pharmacological manipulation of the GH/IGF axis as a modulator of stress resistance and aging in mice.
3. 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: Optimizing protocols for the Adoptive Immunotherapy of Cancer. Seeking to manipulate the trafficking of CD8 T-cells to lymph nodes and to tumor vasculature by transducing T-cells with L-selectin and CD49d-MMLV vectors.

Tianju Liu, M.D., Ph.D. ..... S. Phan Laboratory

Research Focus: The three primary areas of research include:

1. A novel telomerase expressing lung fibroblast phenotype; to elucidate molecular regulation of telomerase expression in fibroblasts from injured/fibrotic lungs and to analyze its role in fibrogenesis.
2. Lung FIZZ1 expression and its role in fibrosis; to evaluate the expression and role of FIZZ1 in bleomycin-induced pulmonary fibrosis, inflammation and myofibroblast differentiation.
3. Notch signaling in myofibroblast differentiation; to address the role of notich signaling in lung fibrosis, identify the cells exhibiting such signaling, and evaluate its potential role in myofibroblast differentiation.

Thekkelnaycke Rajendiran, Ph.D. ..... K. Johnson Laboratory
..... A. Chinnaiyan Laboratory

Research Focus: The four primary areas of research include:

1. Metabolite identification
    a. Indentification and validation of metabolites in tissues, body fluids and cell-lines of prostate cancer using gas chromatography mass spectrometry (GC-MS)
    b. Identification and validation of isoliquiritigenin (a drug known to inhibit prostate cancer cell growth) by liquid chromatography mass spectrometry (LC-MS/MS)
2. Immunoprecipitation: Identification of auto antibodies produced in inflammatory disease serum.
3. Human response: Identification of auto immuno antibody signatures and protein-protein interaction in vasculitis.
4. Proteomic profiling: Proteomic profiling of inflammatory diseases serum using 2D-gel electrophoresis and LC-MS/MS.

Dafydd G. Thomas, Ph.D. .....T. Giordano

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 also currently 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.

Photography by Elizabeth Walker

Department of Pathology
The University of Michigan Medical School
5240 Medical Science I
1301 Catherine Road
Ann Arbor, MI 48109-5602

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair
Phone: 734-763-6384
Fax: 734-763-4782