

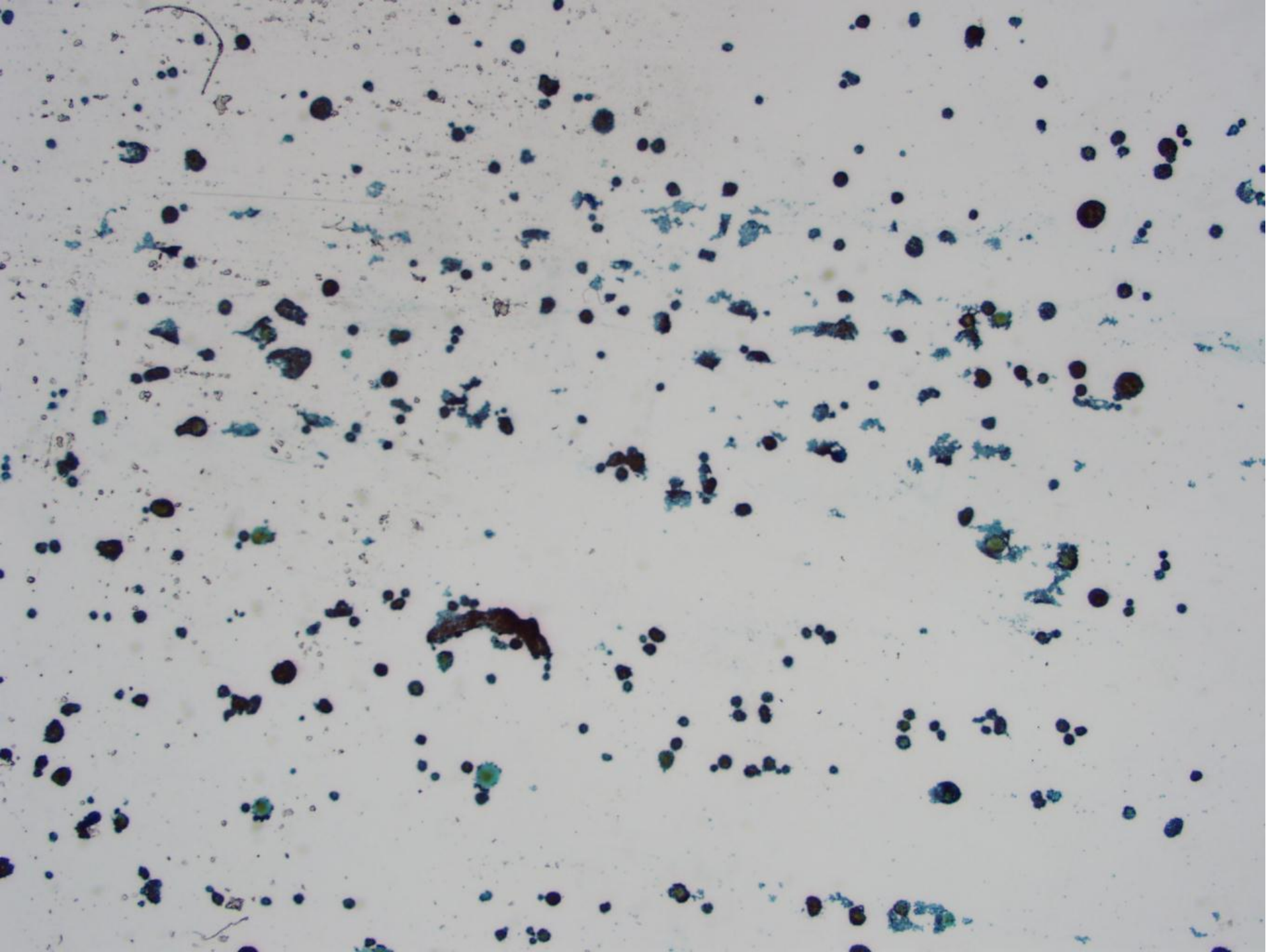
Interesting Case Conference

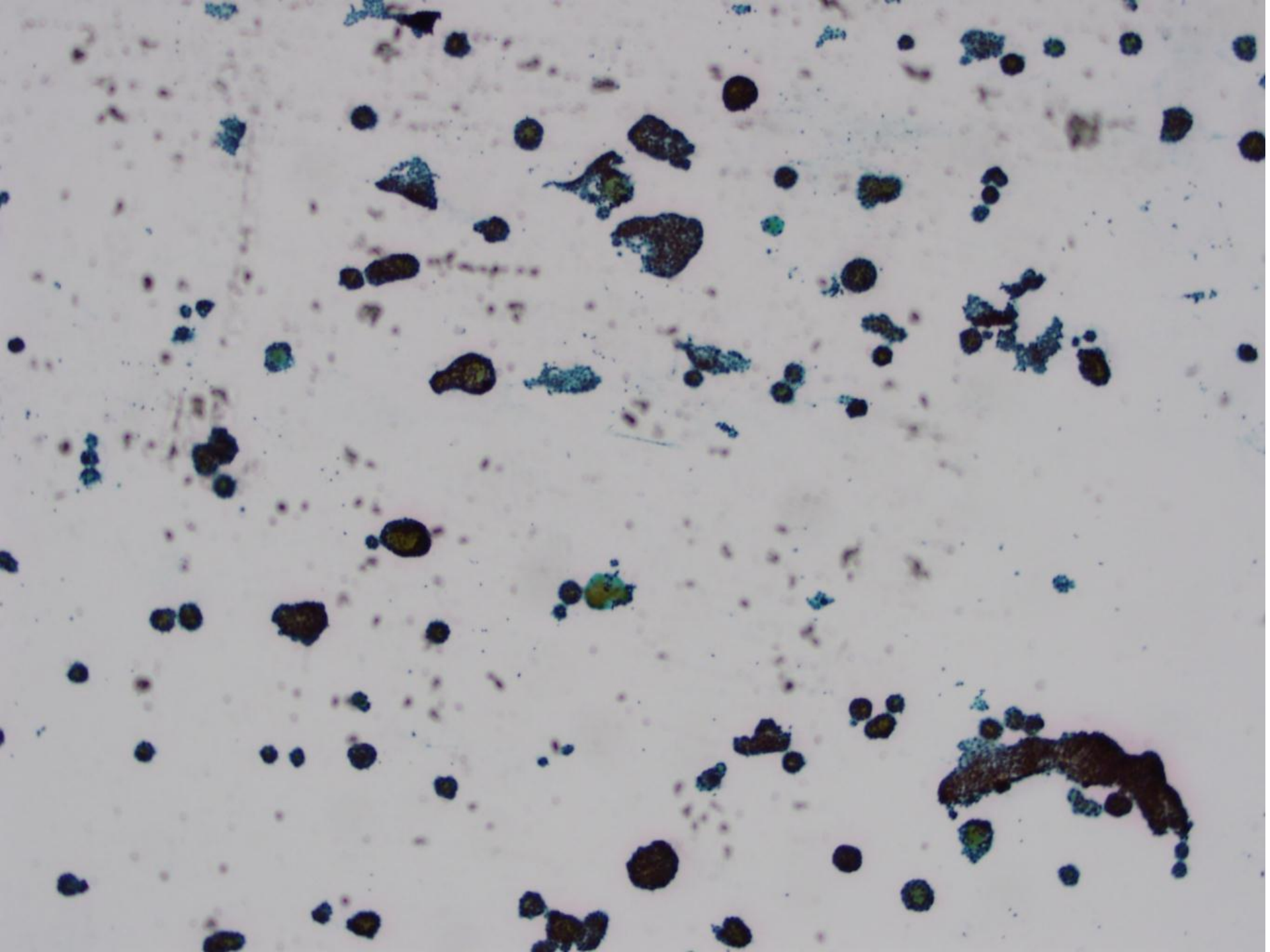
Pleural Fluid

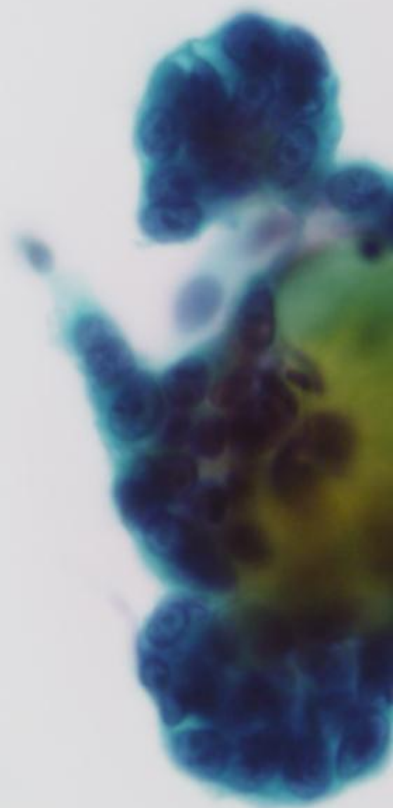
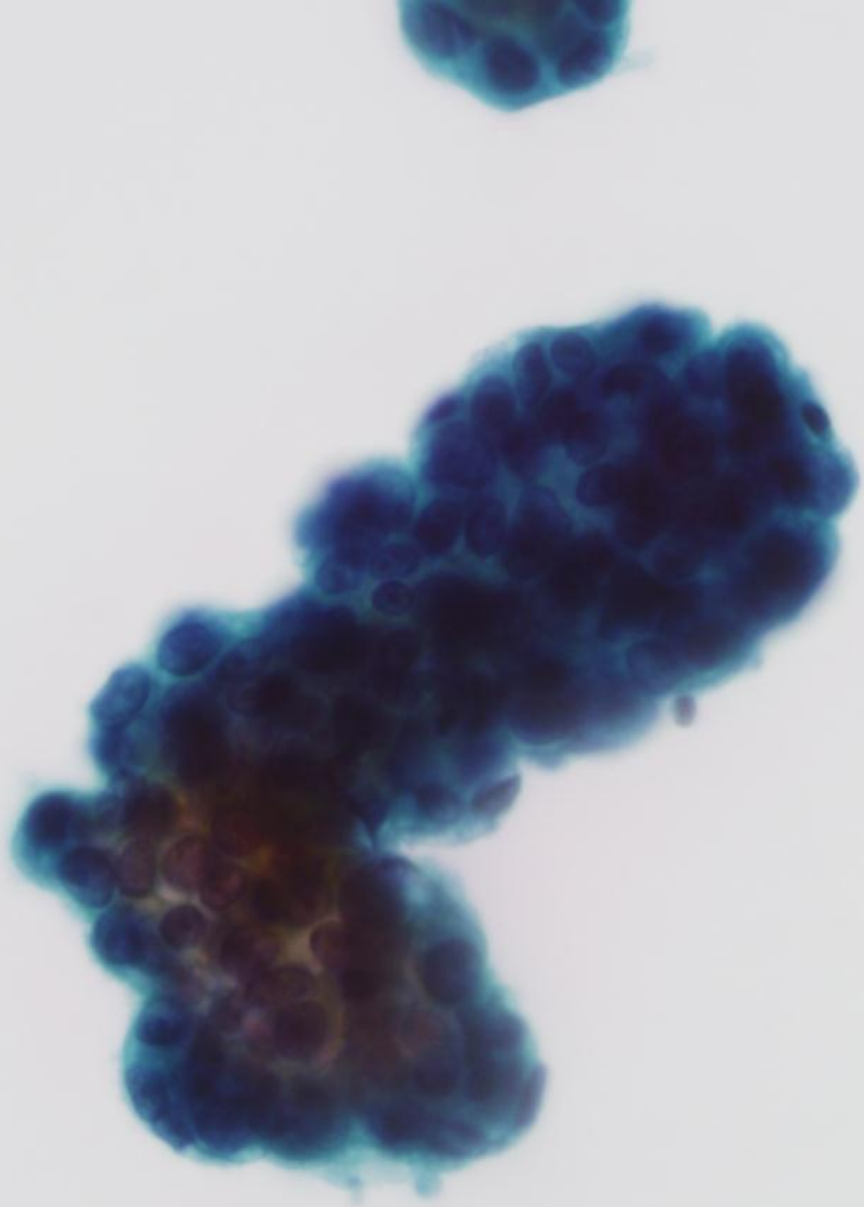
78 year old man with progressive shortness of breath.
Large right pleural effusion.

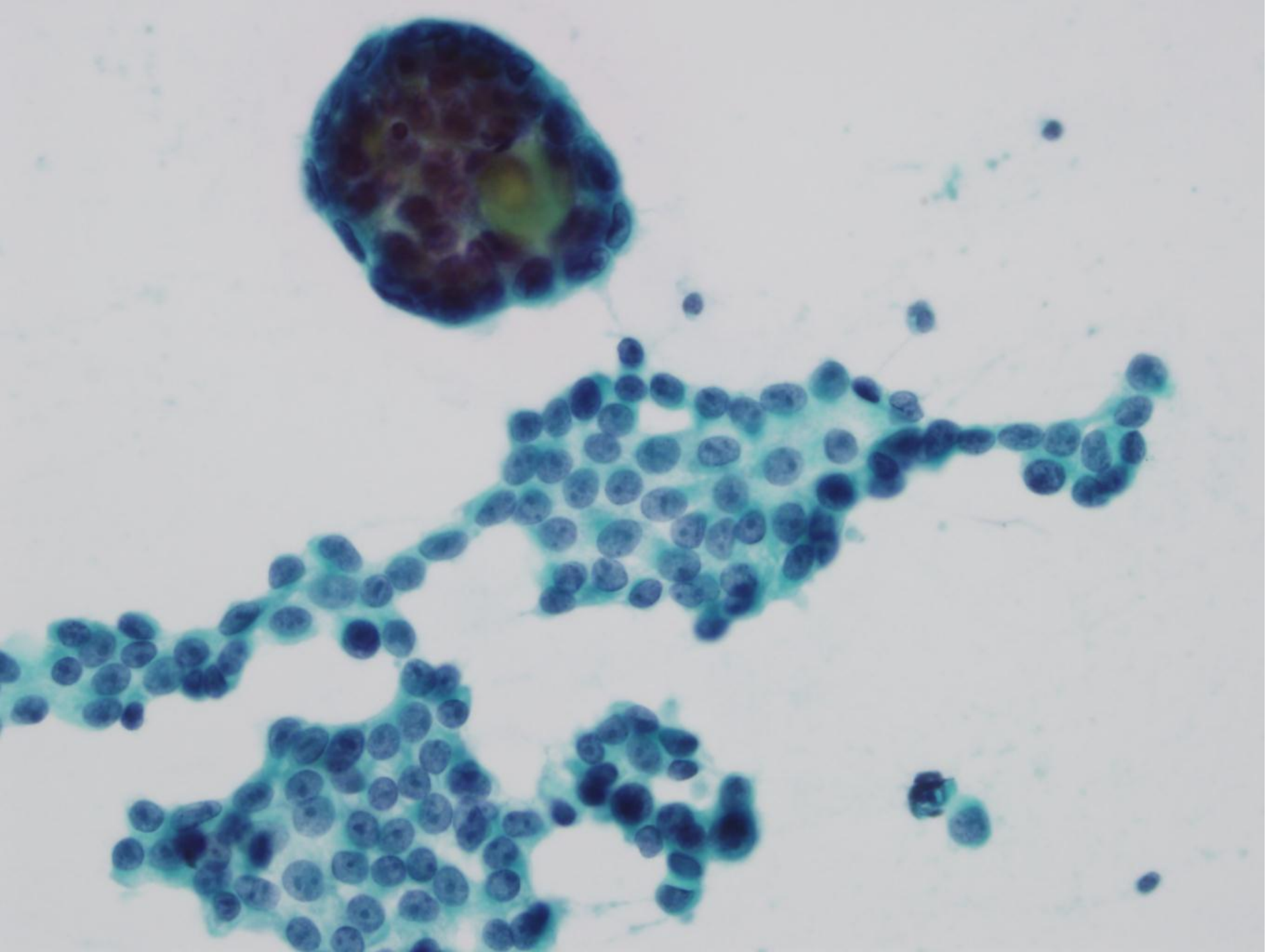
Never smoker.

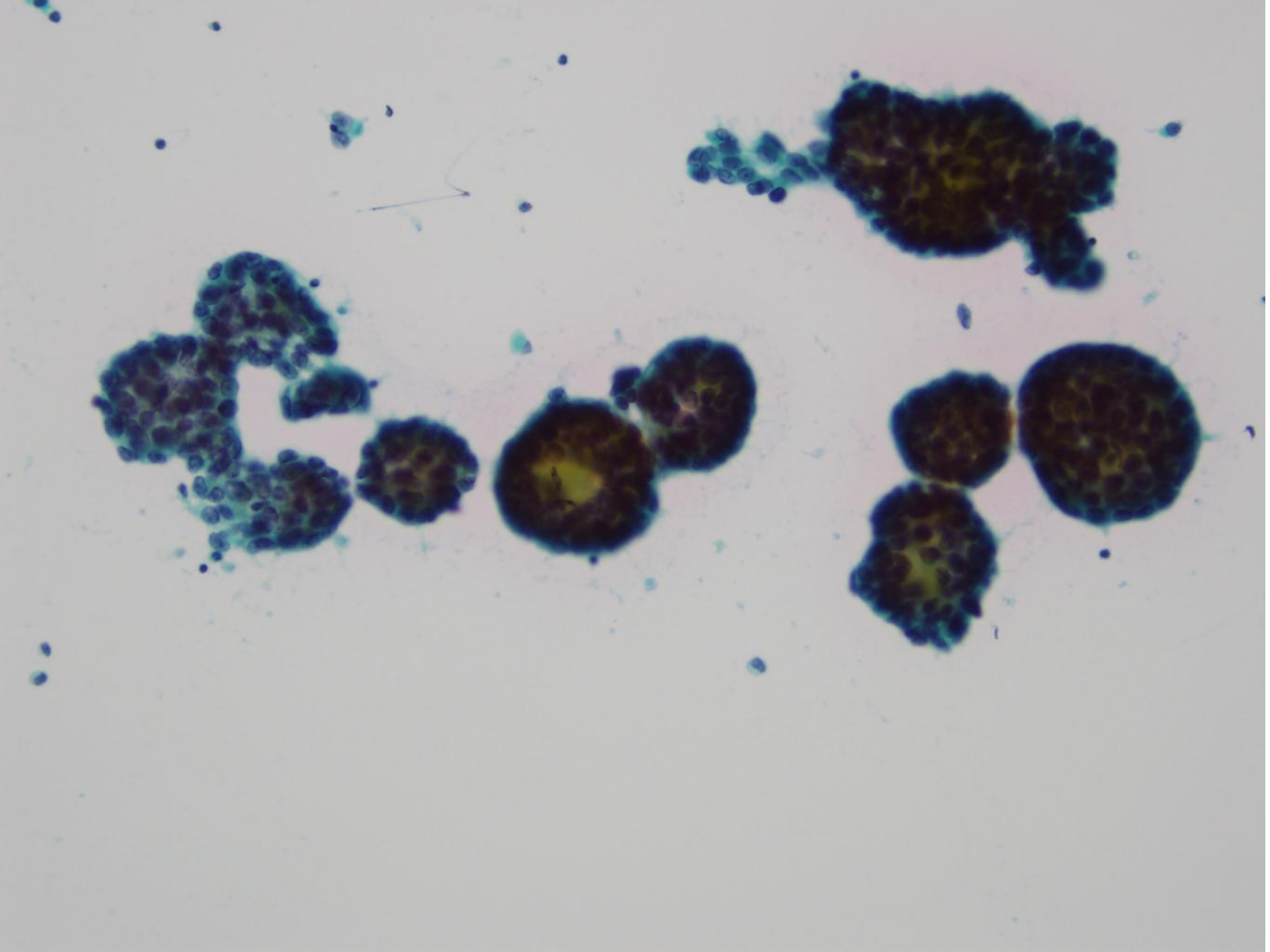
History of asbestos exposure in his 60's.

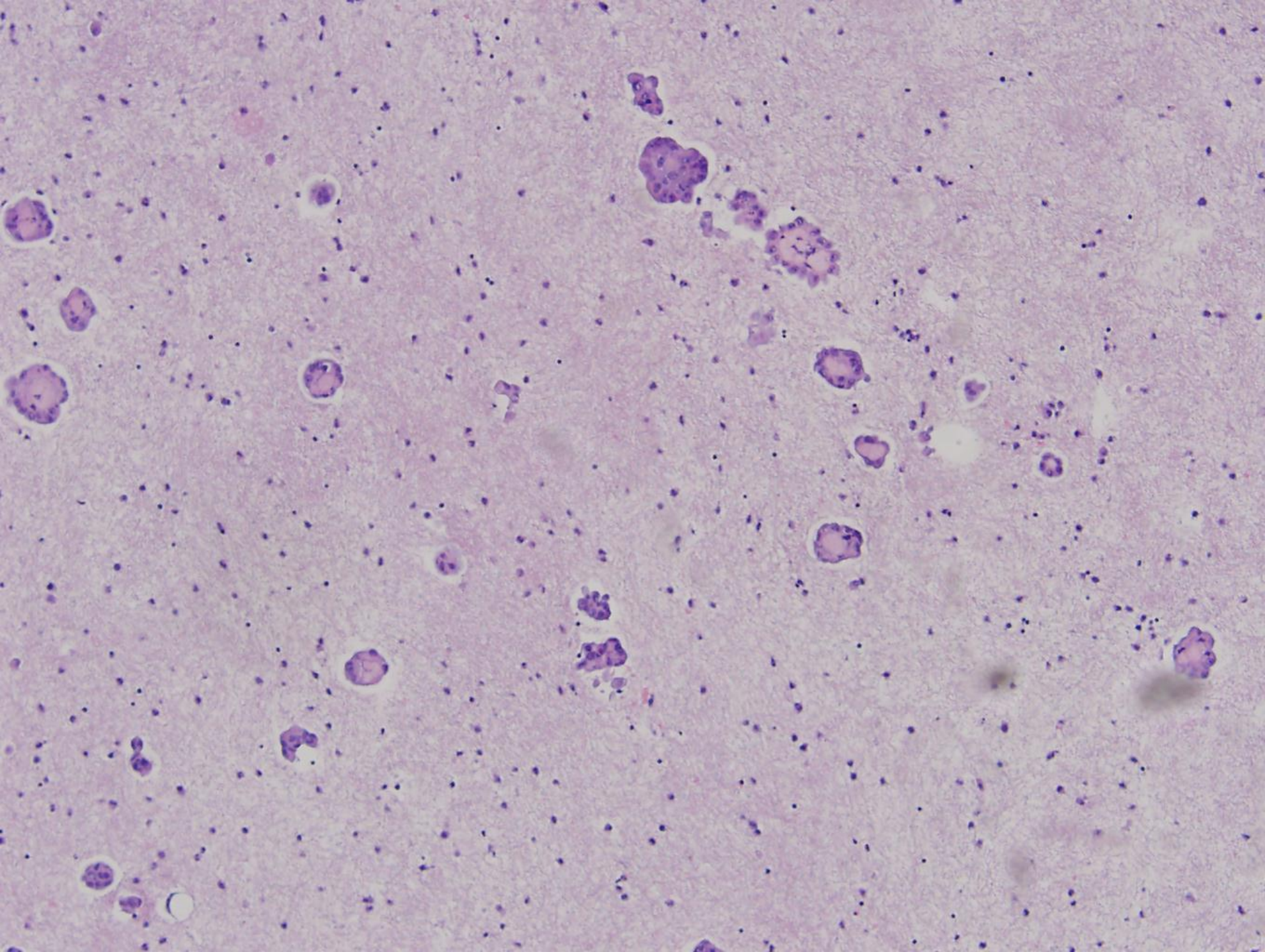


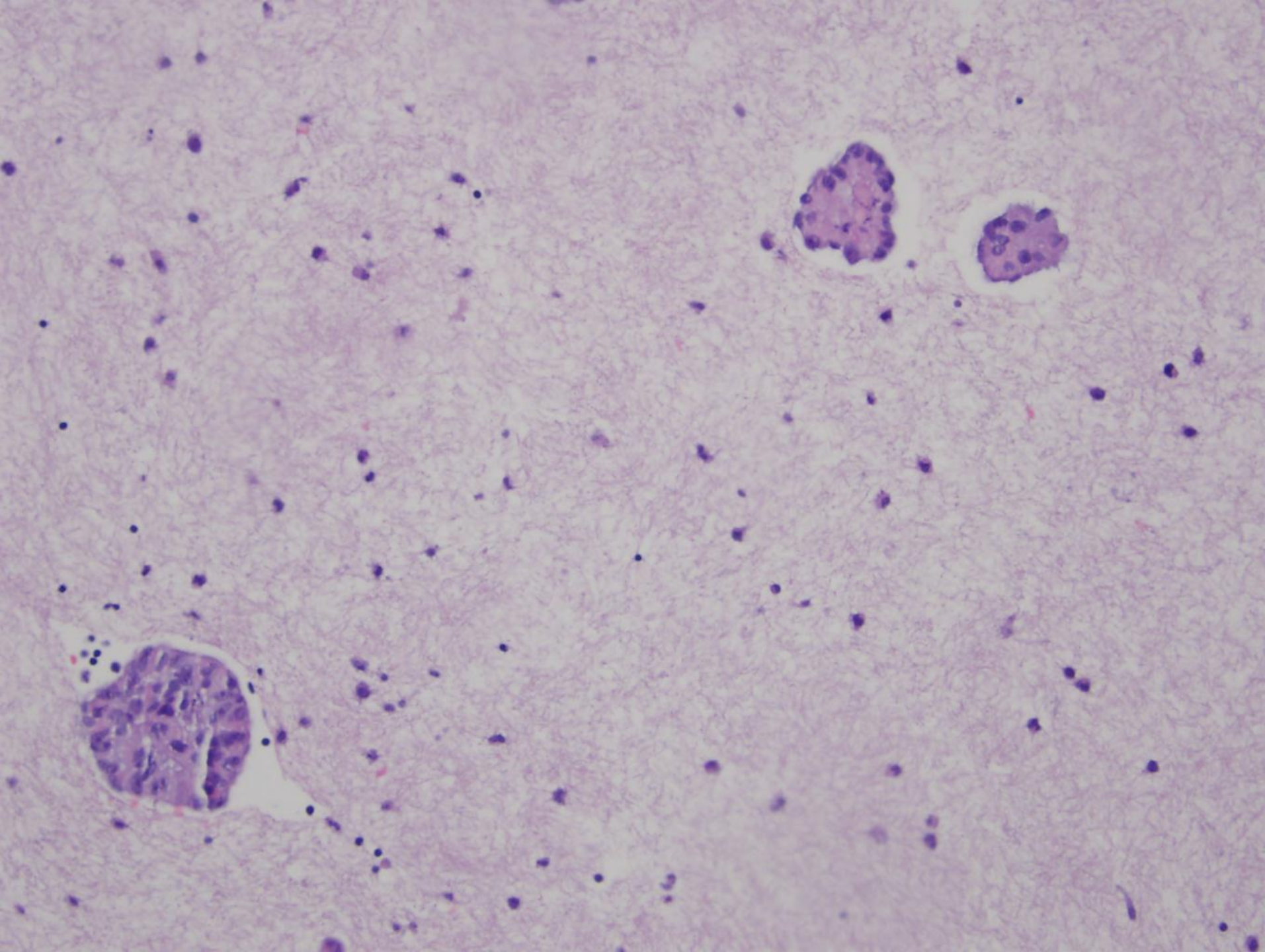


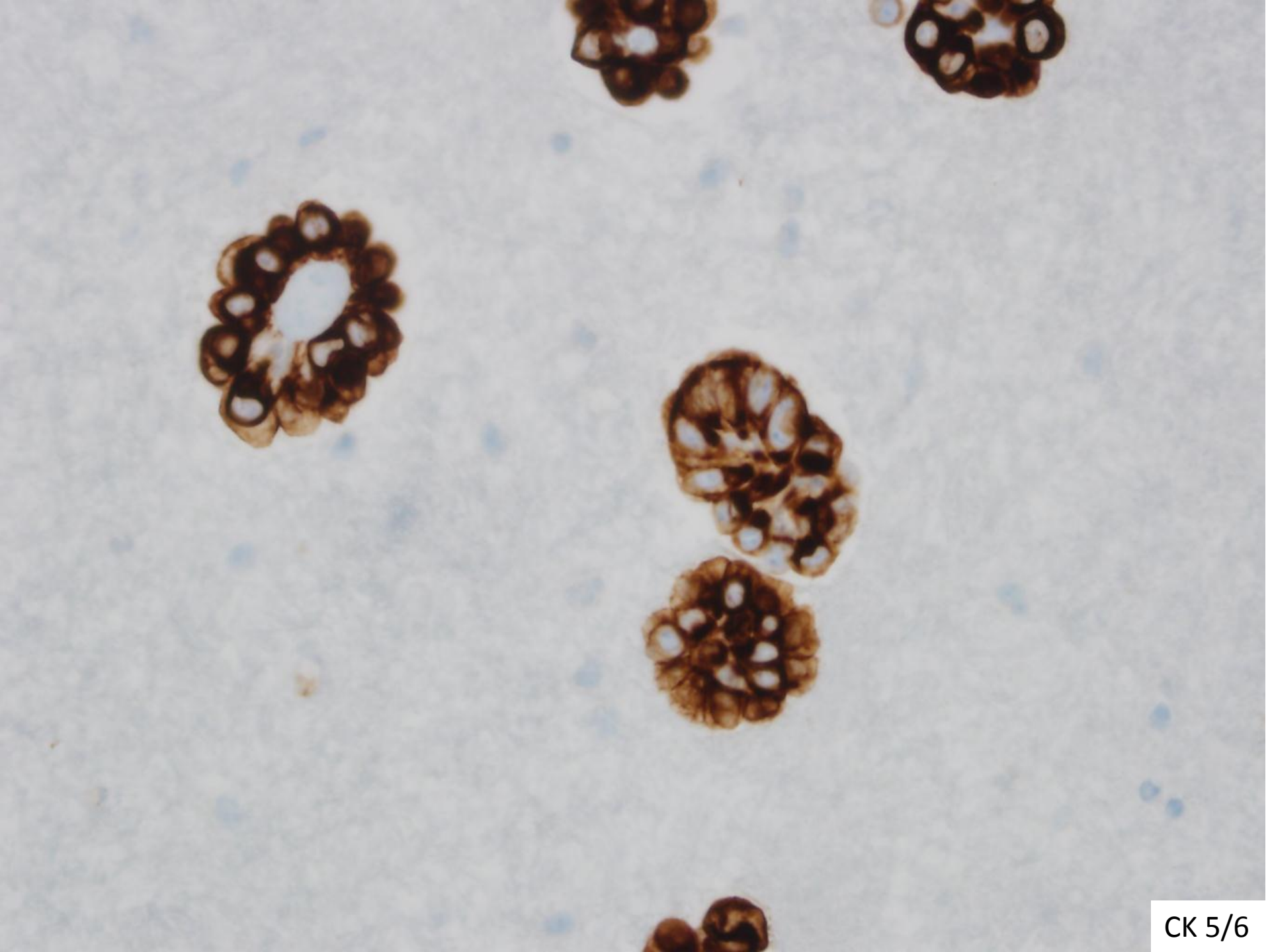




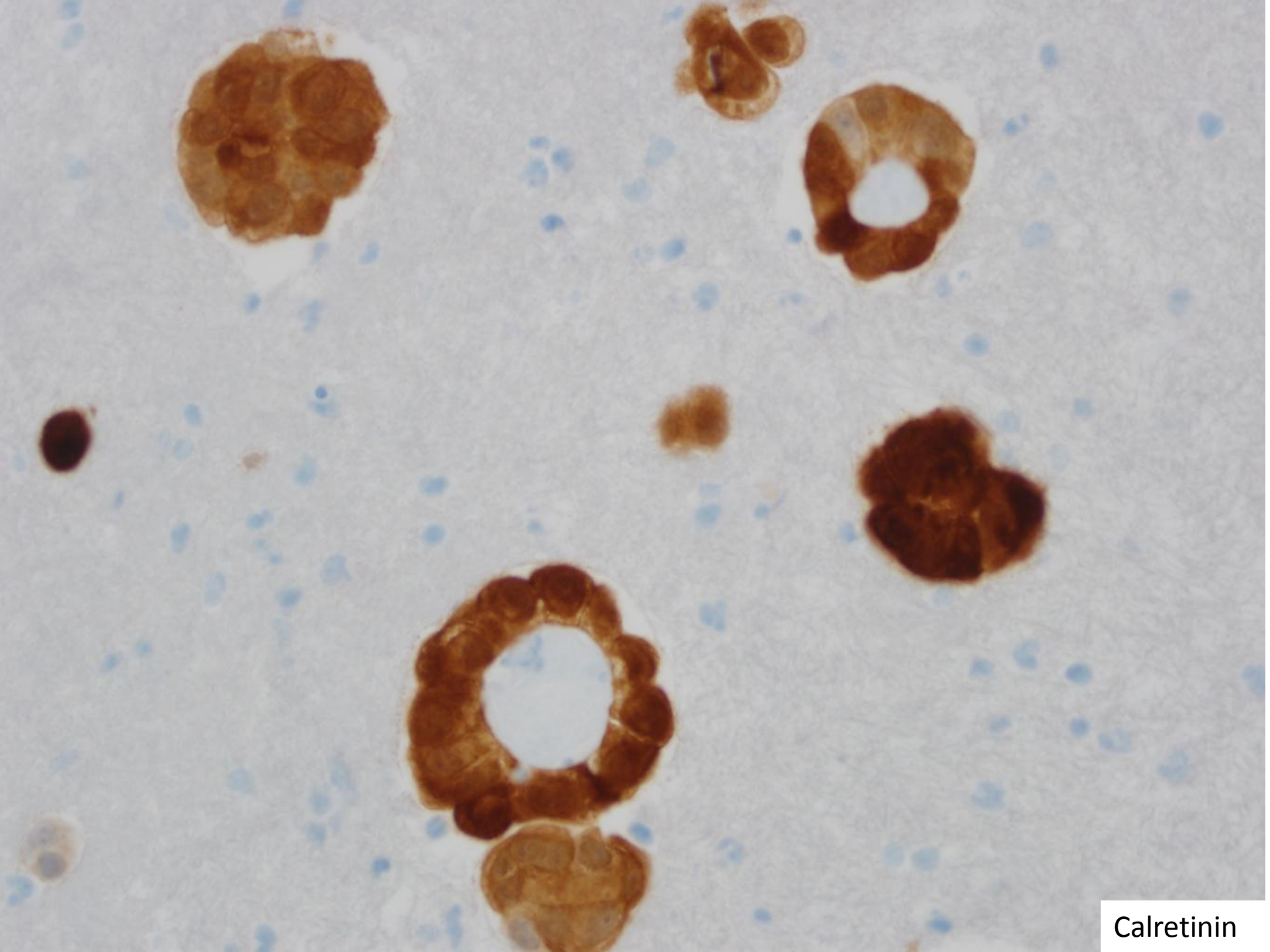




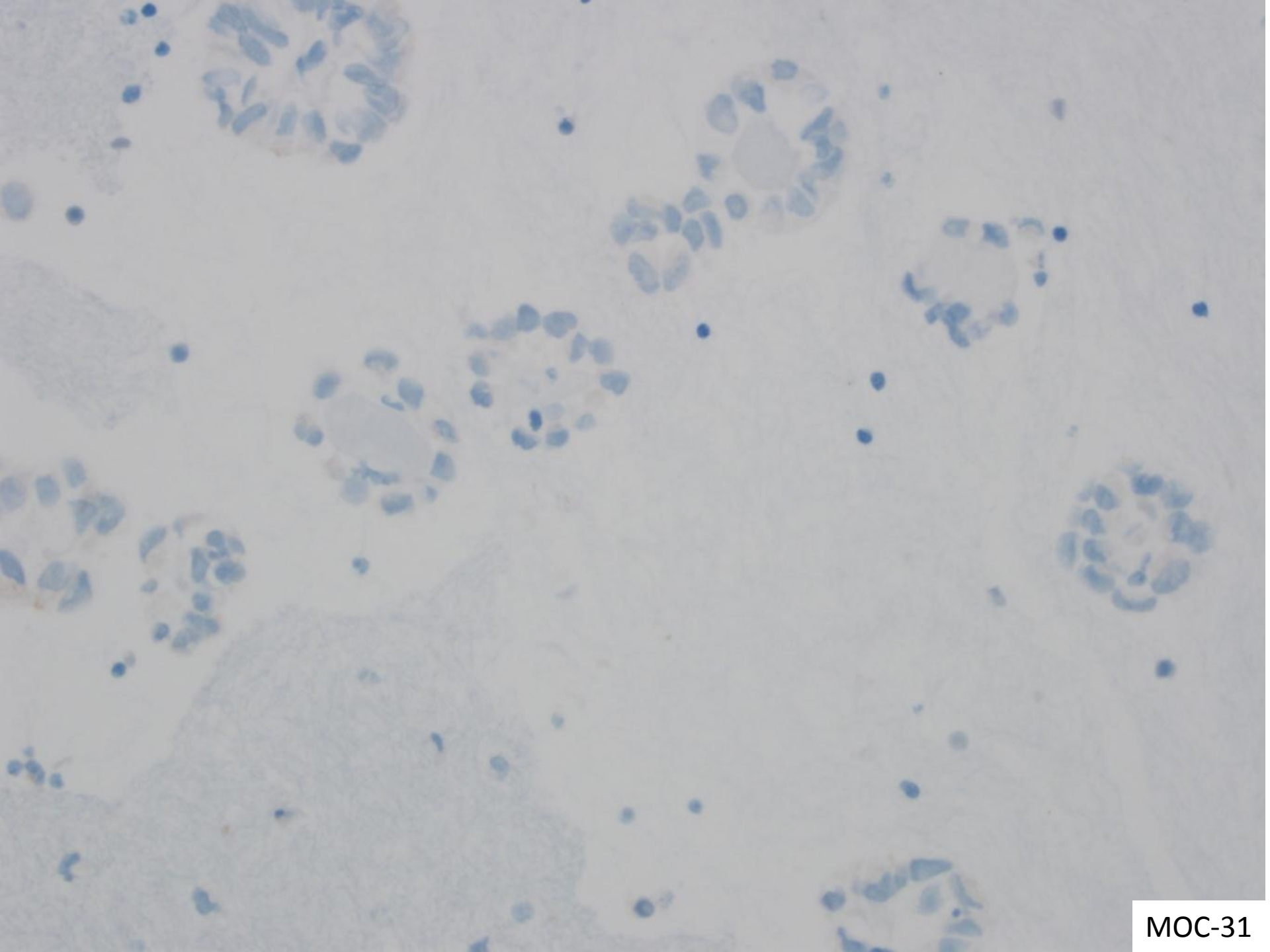


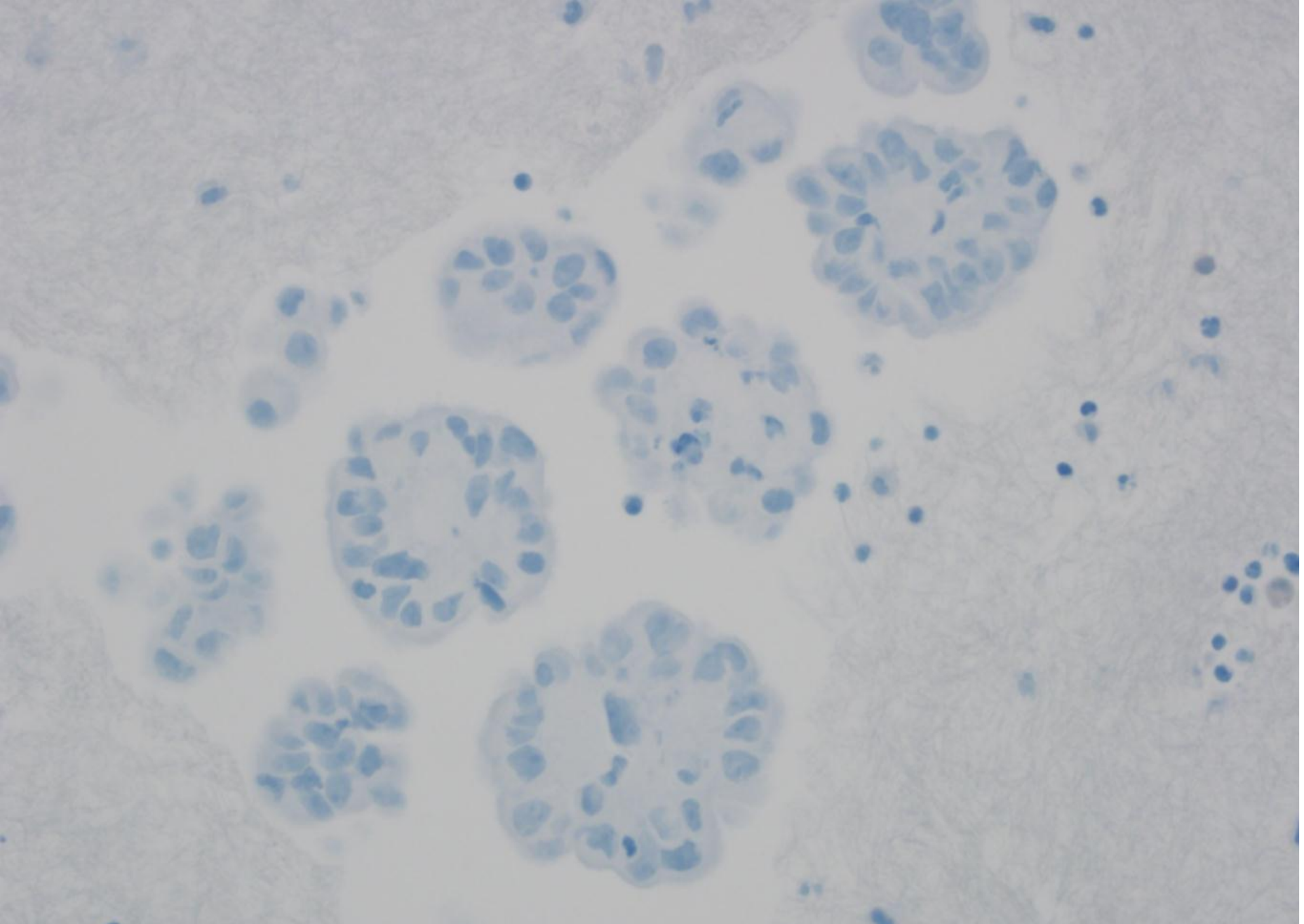


CK 5/6

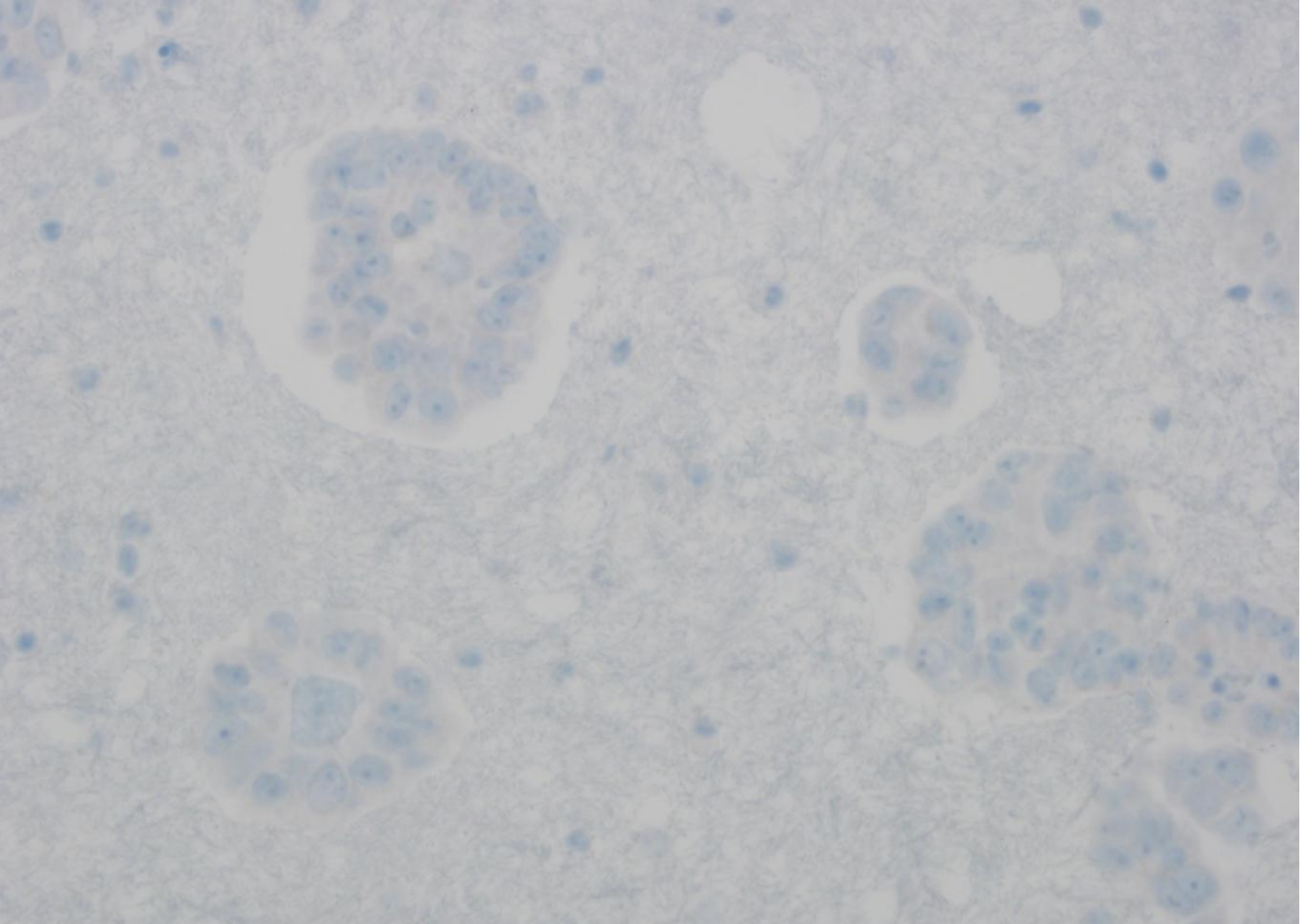


Calretinin

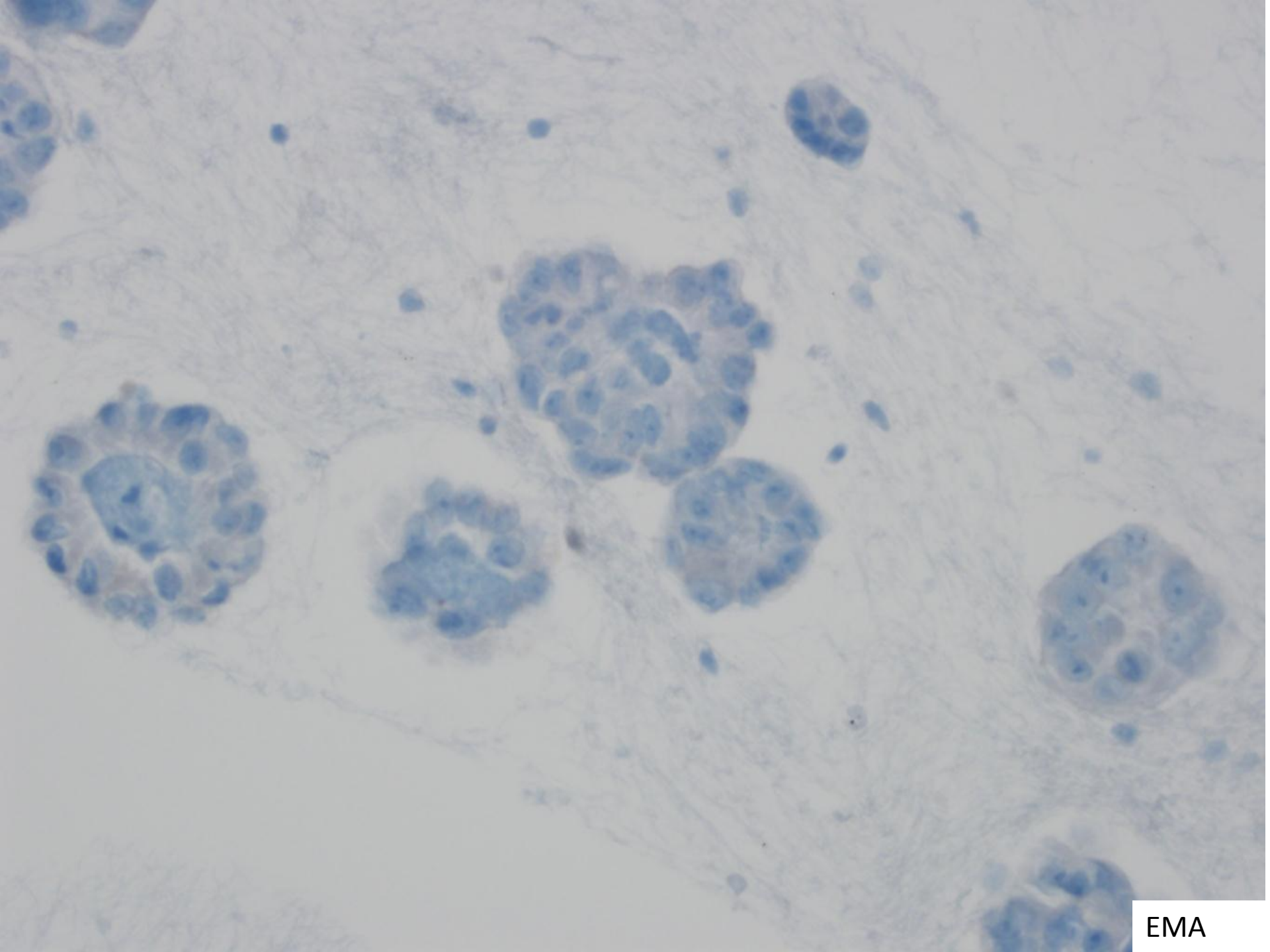




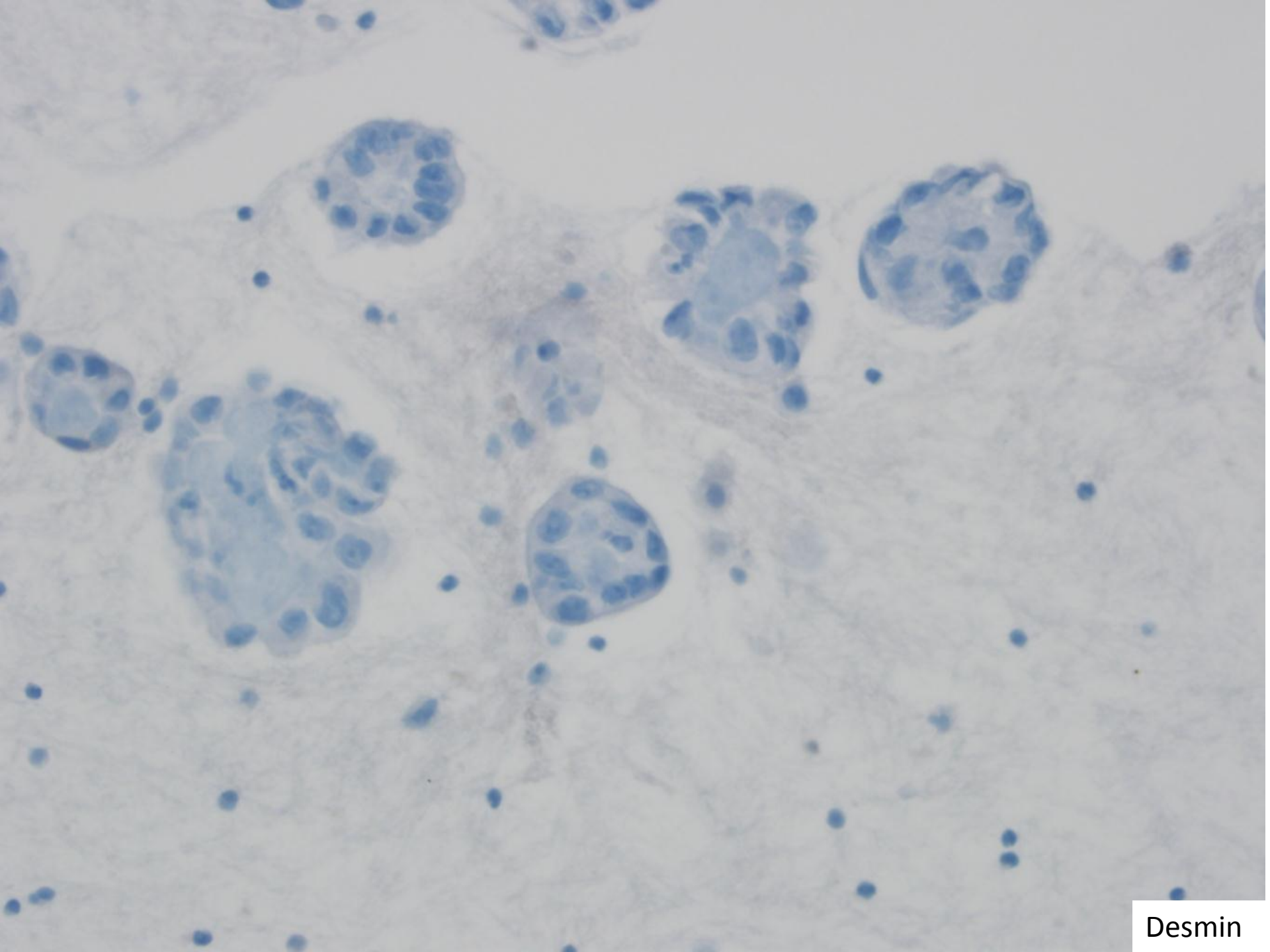
CEA



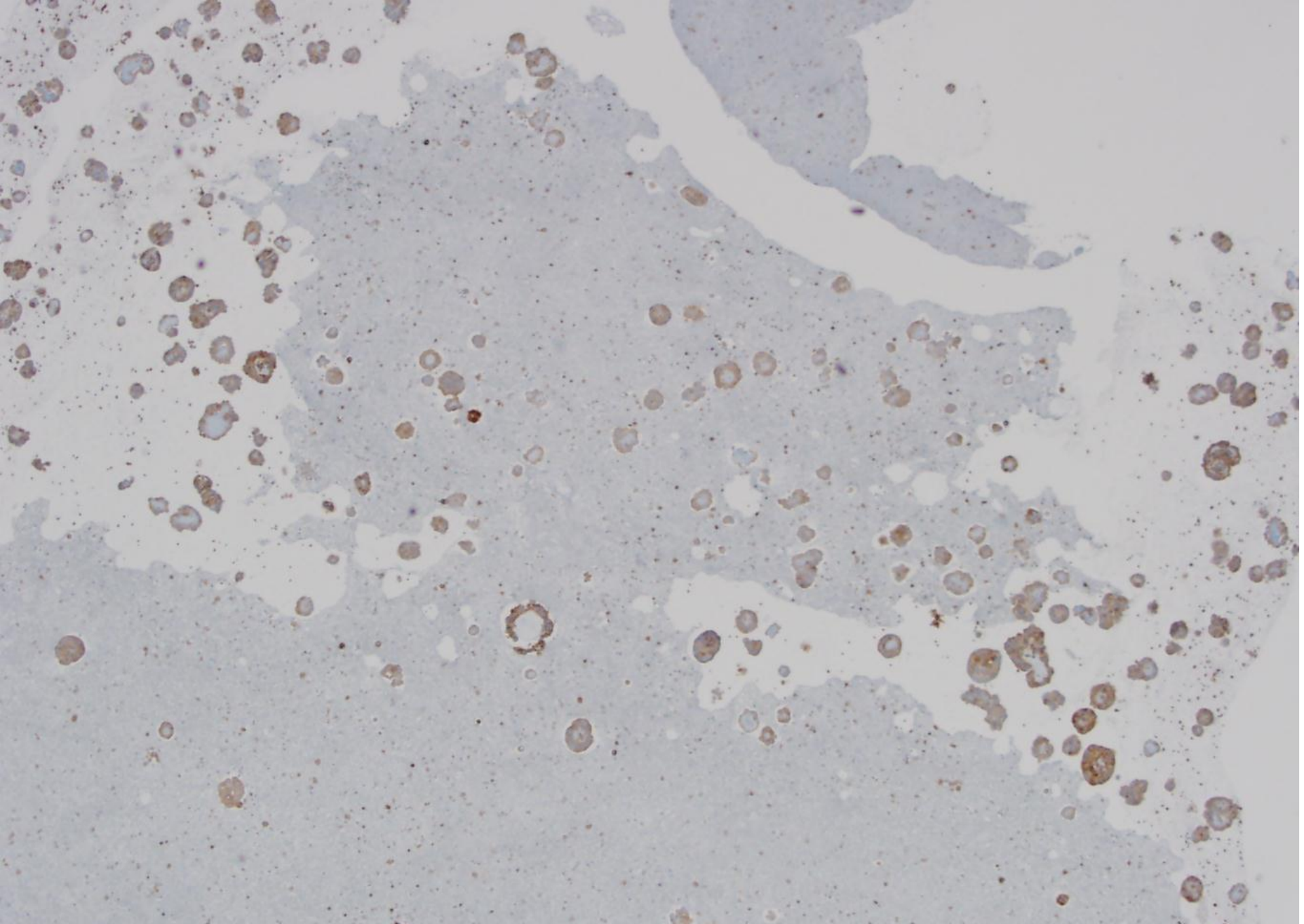
TTF-1



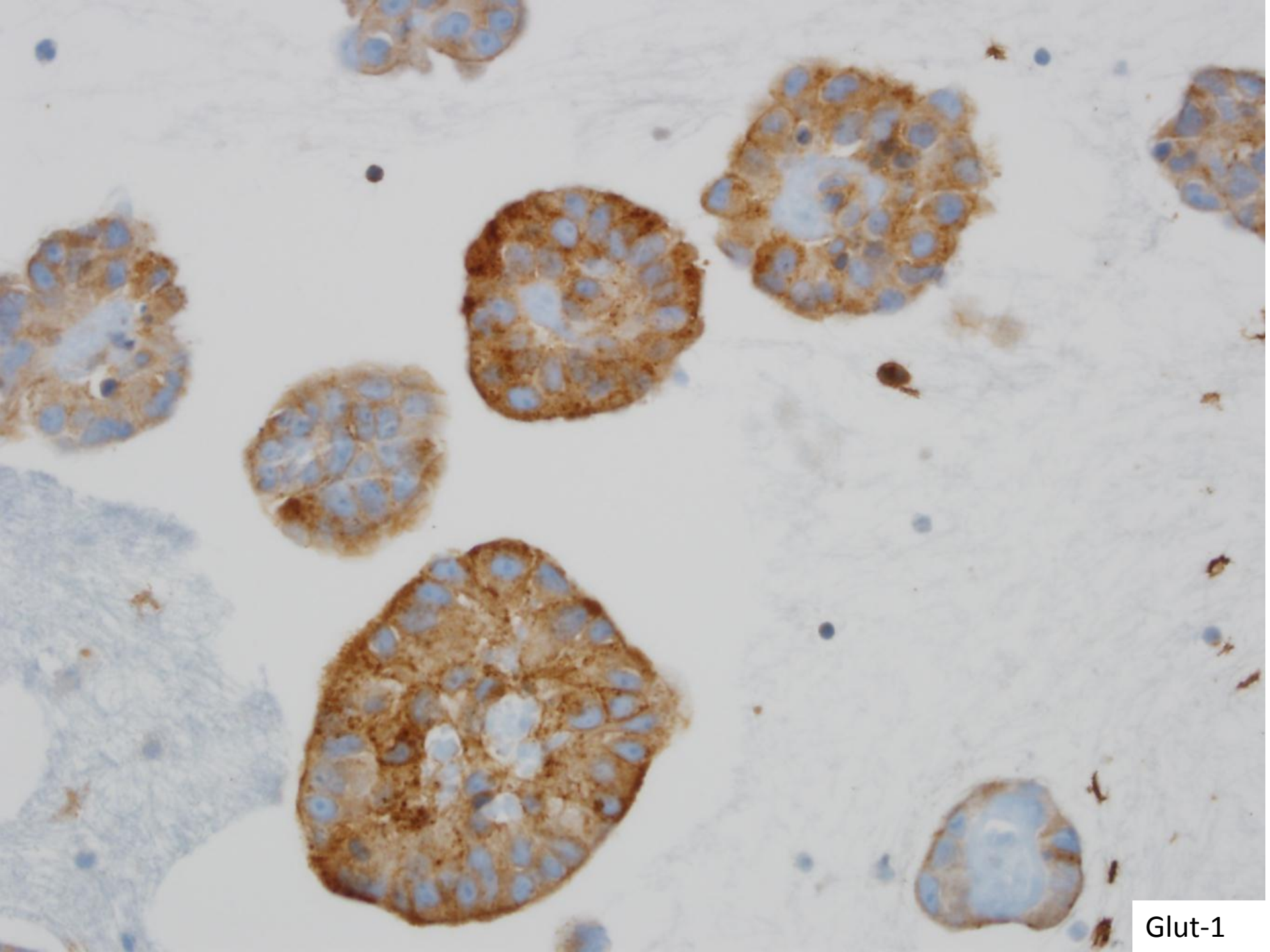
EMA



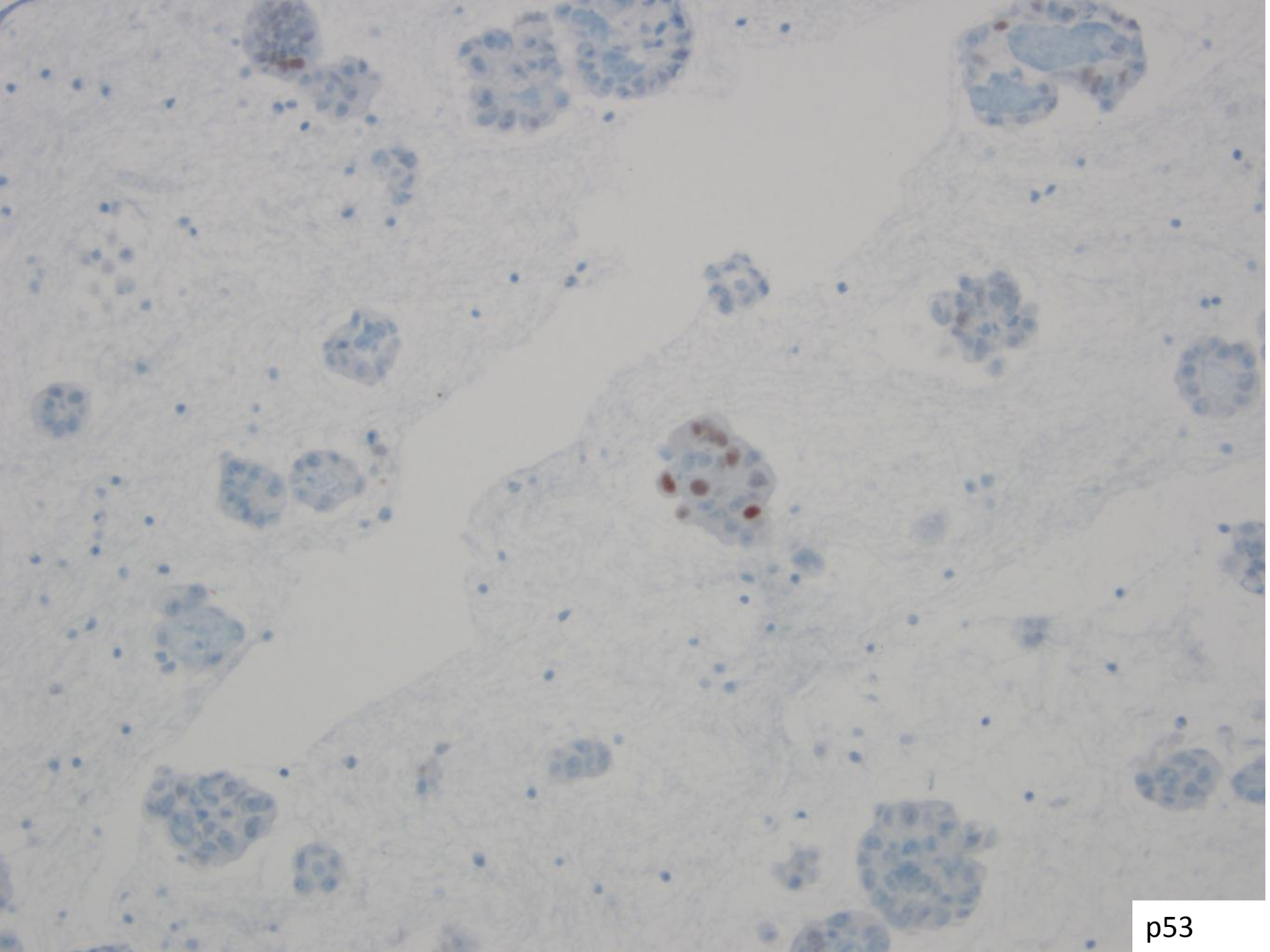
Desmin



Glut-1



Glut-1



p53

Clinical Recommendations

- Pleurectomy
- Radiology - No discrete pleural nodules or masses are identified. There is a small calcified plaque in the right anterior pleura.

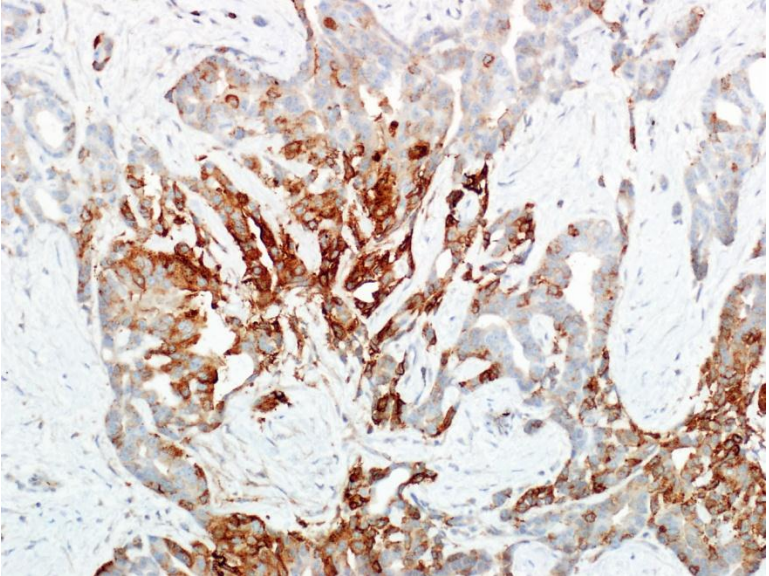
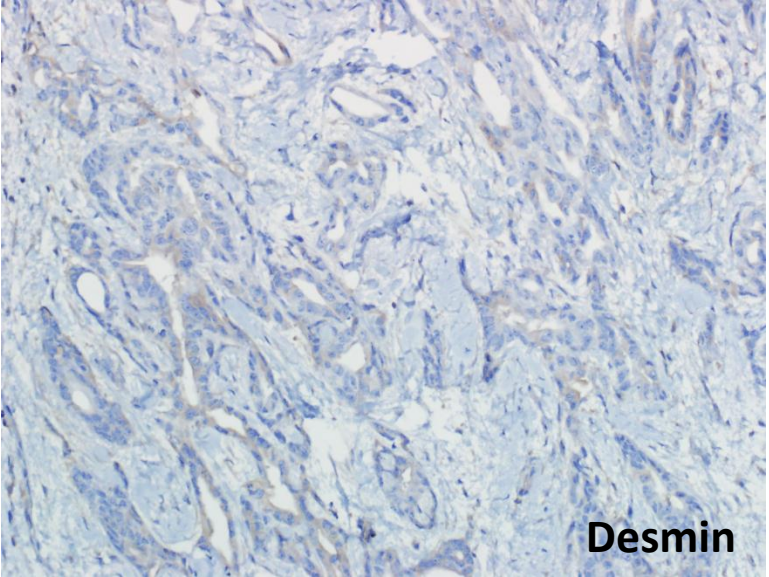
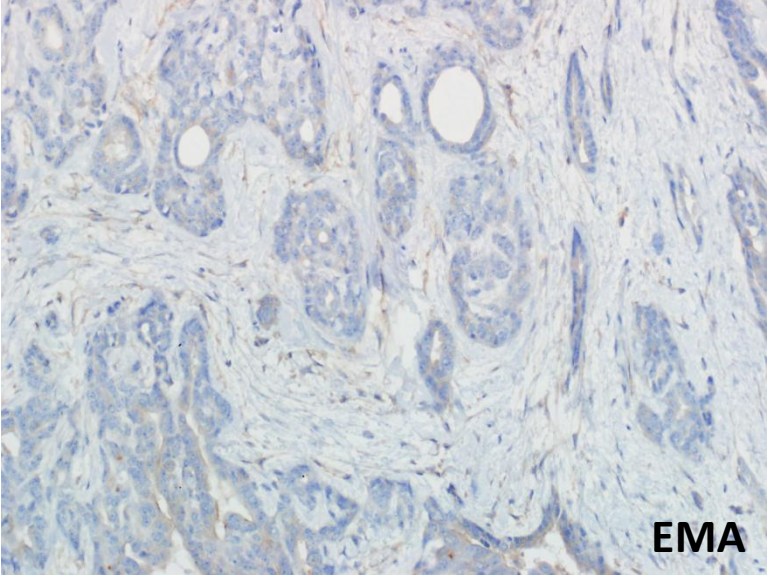
Operative Findings

- Complete encasement of the right lung with tumor.
- Procedure: Right pleurectomy and decortication with right lower lobe wedge resection

Final diagnosis

- Epithelioid mesothelioma.

Surgical Pathology Immunophenotyping



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Stain	Reactive mesothelium	Mesothelioma
Desmin	84% +	6% +
EMA	9% +	100% +
GLUT-1	12% +	47% +
p53 (strong)	2%	47%
Ki-67 (>40%)	9%	16%
EMA+/Desmin-	2%	98%
EMA-/Desmin+	86%	0%

No report of desmin negative and EMA negative cases

Usefulness of EMA, GLUT-1, and XIAP for the Cytologic Diagnosis of Malignant Mesothelioma in Body Cavity Fluids

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Key Words: Malignant mesothelioma; Cytology; Benign effusion; Epithelial membrane antigen; EMA; Glucose transporter-1; GLUT-1; X-linked inhibitor of apoptosis; XIAP

Table 2
Summary of Immunohistochemical Results in Benign Effusions and Effusions Caused by Malignant Mesothelioma*

Marker/Staining	Malignant Mesothelioma (n = 35)	Benign Effusion (n = 38)
EMA		
-	5 (14)	33 (87)
1+	4 (11)	4 (11)
2+	1 (3)	1 (3)
3+	6 (17)	0 (0)
4+	19 (54)	0 (0)
XIAP		
-	6 (17)	15 (39)
1+	6 (17)	7 (18)
2+	7 (20)	8 (21)
3+	5 (14)	4 (11)
4+	11 (31)	4 (11)
GLUT-1m		
-	13 (37)	31 (82)
1+	8 (23)	5 (13)
2+	2 (6)	0 (0)
3+	8 (23)	2 (5)
4+	4 (11)	0 (0)
GLUT-1p		
-	6 (17)	24 (63)
1+	5 (14)	4 (11)
2+	6 (17)	7 (18)
3+	5 (14)	3 (8)
4+	13 (37)	0 (0)

EMA, epithelial membrane antigen; GLUT-1, glucose transporter-1 (m, monoclonal; p, polyclonal); XIAP, X-linked inhibitor of apoptosis.

* Data are given as number (percentage). -, 0% of cells staining; 1+, <25% of cells staining; 2+, 25%-49% of cells staining; 3+, 50%-74% of cells staining; and 4+, 75%-100% of cells staining.

Table 3
Sensitivity and Specificity of EMA, XIAP, GLUT-1m, and GLUT-1p for the Effusions Caused by Malignant Mesothelioma*

% of Cells Staining/ Sensitivity and Specificity	EMA	XIAP	GLUT-1m	GLUT-1p
≥1 (1+)				
Sensitivity	0.86	0.83	0.63	0.83
Specificity	0.87	0.40	0.82	0.63
≥25 (2+)				
Sensitivity	0.74	0.66	0.40	0.67
Specificity	0.97	0.58	0.95	0.74
≥50 (3+)				
Sensitivity	0.71	0.46	0.34	0.51
Specificity	1.00	0.79	0.95	0.92
≥75 (4+)				
Sensitivity	0.54	0.31	0.11	0.37
Specificity	1.00	0.90	1.00	1.00

EMA, epithelial membrane antigen; GLUT-1, glucose transporter-1 (m, monoclonal; p, polyclonal); XIAP, X-linked inhibitor of apoptosis.

* Interpretations for 1+ through 4+ are as follows: 1+, <25% of cells staining; 2+, 25%-49% of cells staining; 3+, 50%-74% of cells staining; and 4+, 75%-100% of cells staining.