

## New Product Release announcement

Zeta is very excited and proud to share new IVD antibodies researched and developed for Anatomic Pathology market for Immunohistochemistry. Zeta is incorporating highly sensitive technology to develop many of these Monospecific primary antibodies that are [Target-Validated and Characterized](#) for IHC on FFPE tissue sections.

Zeta's Monospecific Monoclonal Antibodies were produced through traditional hybridoma technologies. The clones were screened by ELISA and gel electrophoresis to determine their specificity. A protein microarray (protein chip) for selection of monospecific antibody in a high-throughput method is utilized to track the specific antigen-antibody interactions.

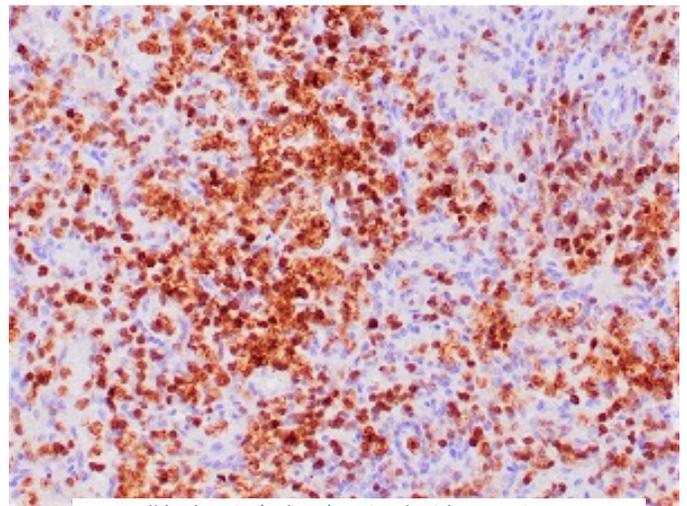
Zeta provides over 300 IVD antibodies for cancer targeted therapy and immunotherapy due to gene mutations, chromosomal translocations or gene amplifications.

### **Annexin A1 Monospecific Monoclonal Antibody**

IVD

**Anti-mouse: clone ZM211, Cat # Z2488**

The ANXA1 gene belongs to the annexin family, and contains 4 annexin repeats. A pair of annexin repeats may form one binding site for calcium and a phospholipid. ANXA1 promotes membrane fusion and is involved in exocytosis. The gene for ANXA1 is upregulated in hairy cell leukemia (HCL), and its protein expression is specific for HCL. Detection of ANXA1 provides a simple, highly sensitive and specific assay for diagnosing HCL. Annexin A1 has also been found to be protective against DNA damage induced by heat in breast cancer cells, suggesting it is involved in tumor suppressive and protective activities, and also is associated with treatment resistance.



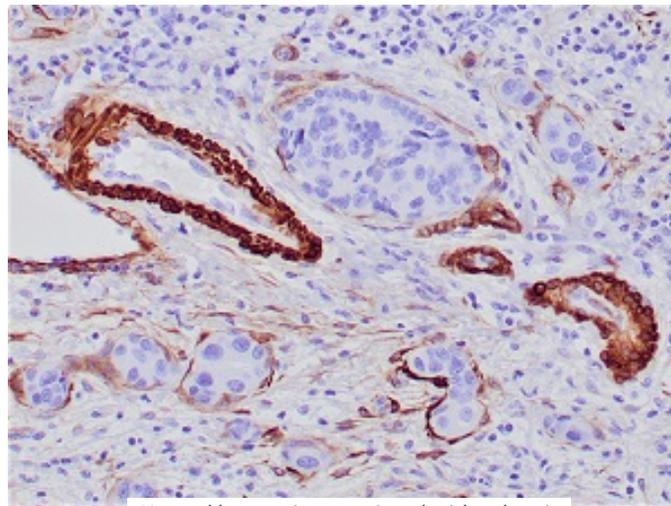
*Hairy cell leukemia (spleen) stained with annexin A1*

## Calponin-1 Monoclonal Antibody

Anti-rabbit: clone ZR297, Cat # Z2612

IVD

Calponin-1, a calmodulin, binds tropomyosin and F-actin and is thought to be involved in the regulation of smooth muscle contraction. The expression of calponin-1 is restricted to smooth muscle cells and is a marker of the differentiated contractile phenotype of developing smooth muscle. Two isoforms of calponin-1 exist whose molecular weights are 34kDa and 29kDa. Expression of the 29kDa form is primarily restricted to muscle of the urogenital tract. The expression of calponin-1 has also been demonstrated in myoepithelial cells from benign and malignant breast lesions.



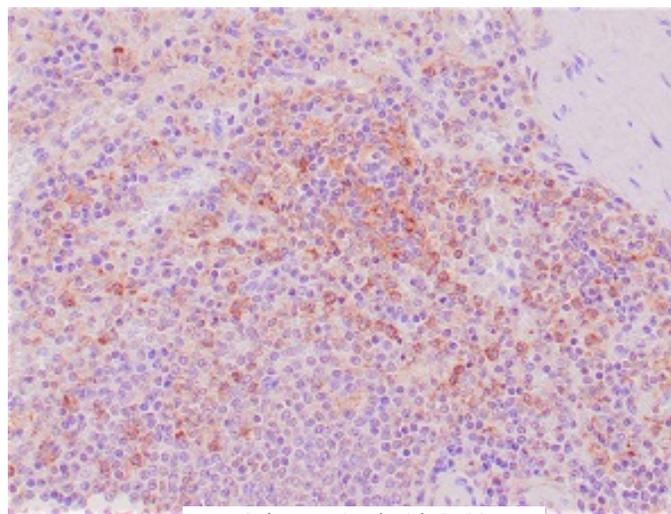
Normal breast tissue stained with calponin

## CD33 Monospecific Monoclonal Antibody

Anti-mouse: clone ZM122, Cat # Z2426

IVD

CD33 (gp67, or siglec-3) is a 67 kDa glycosylated transmembrane protein that is a member of the sialic acid-binding immunoglobulin-like lectin (siglec) family. This CD33 antibody may be particularly advantageous for cases of acute myeloid leukemia, minimally differentiated (AML-M0) and acute monocytic leukemia (AML-M5). The excellent sensitivity and specificity for myelomonocytic lineage makes this anti-CD33 a useful diagnostic marker for myeloid sarcoma. In addition, this anti-CD33 may be useful in determining CD33 expression on previous paraffin-embedded material if flow cytometry studies were not initially performed in patients with acute leukemia. Analysis of CD33 expression in paraffin-embedded bone marrow biopsy specimens provides another alternative when evaluating acute leukemias.



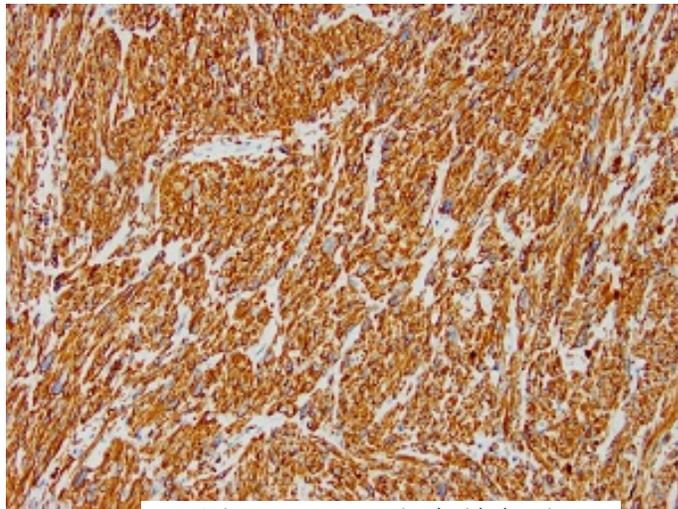
Spleen stained with CD33

## Desmin Monoclonal Antibody

**Anti-Rabbit: clone ZR240, Cat # Z2536**

IVD

Desmin is an intermediate filament protein of both smooth and striated muscles. Antibody to desmin reacts with striated (skeletal and cardiac) as well as smooth muscle cells. In skeletal and cardiac muscles, the staining is confined to the Z-bands giving a characteristic striated appearance. Anti-desmin antibody is useful in identification of tumors of myogenic origin. It reacts with leiomyosarcomas (smooth muscle) as well as rhabdomyosarcomas (striated muscle).



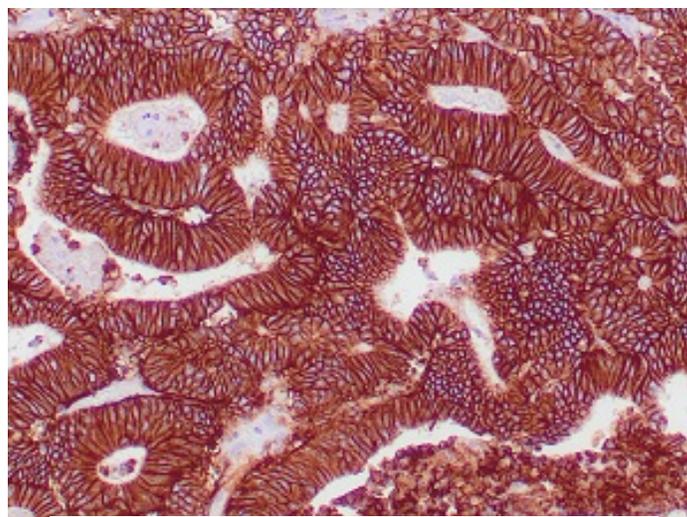
*Leiomyosarcoma stained with desmin*

## Ep-CAM Monoclonal Antibodies

**Anti-rabbit: clone ZR307, Cat # Z2557**  
**Anti-mouse: clone Moc-31, Cat # Z2162**

IVD

Epithelial cell adhesion molecule (EP-CAM) is an approximate 40 kDa transmembrane glycoprotein. In paraffin sections, the protein is detected with many antibodies like anti-Ber-EP4 and anti-MOC-31. EP-CAM is normally expressed at the basolateral membrane of cells in the majority of epithelial tissues. It is not expressed in adult squamous epithelia, hepatocytes, myoepithelial cells, mesothelial cells or fibroblasts. EP-CAM is found in the large majority of adenocarcinomas of most sites (50-100%) in various studies; as well as neuroendocrine tumors, including small cell carcinoma. Renal clear cell carcinoma, renal oncocytoma and hepatocellular carcinoma stain in a minority of the cases, but papillary renal cell carcinoma, chromophobe renal cell carcinoma and cholangiocarcinoma stain at a higher percentage. EP-CAM can be of great help in the differentiating malignant involvement in the peritoneal and pleural cavities.



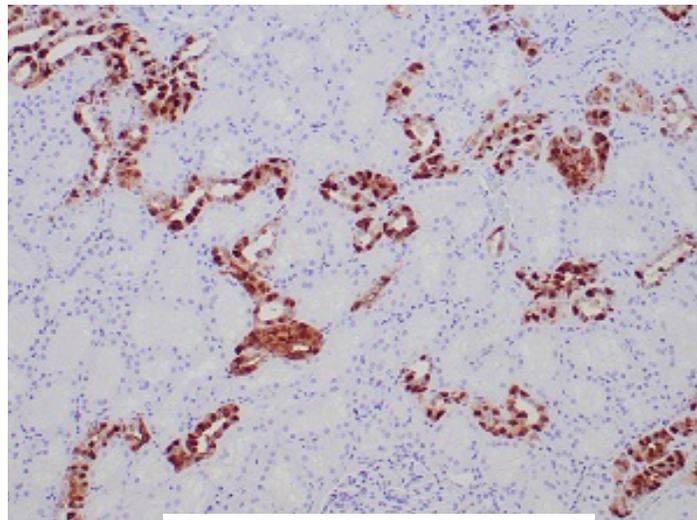
*Colon adenocarcinoma stained with Ep-CAM (MOC-31)*

## Galectin 3 Monoclonal Antibody

**Anti-mouse: clone ZM182, Cat # Z2487**

IVD

Galectin-3 is a member of the beta-galactosidase-binding lectin family. It is associated with cell growth, adhesion, inflammation, mRNA processing, and apoptosis. Aberrant expression of Galectin-3 is related to malignant transformation and metastasis in carcinomas of the breast, colon and thyroid. Galectin-3 reactivity can be seen in the nucleus of neutrophils, vascular endothelium, carcinomas of the colon, breast, and thyroid. Galectin-3 may be useful in the differentiation of benign and malignant thyroid neoplasms. Galectin-3 may also be useful in the identification of certain liver disorders.



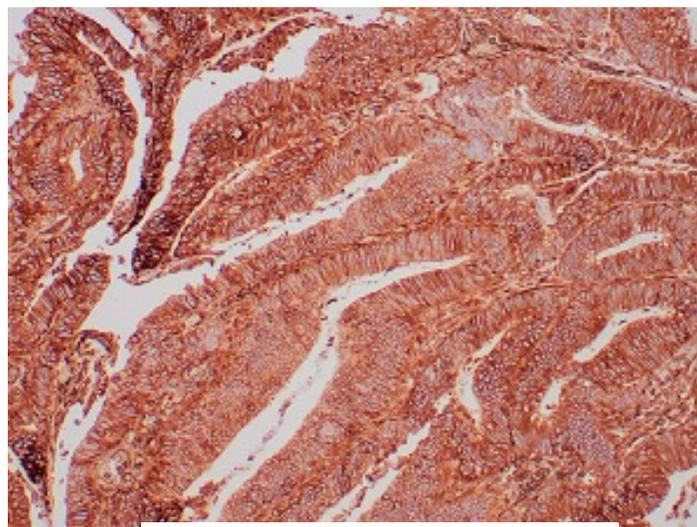
Normal Kidney stained with galectin 3

## GLUT-1 Monoclonal Antibodies

**Anti-rabbit: clone ZR308, Cat # Z2585**  
**Anti-mouse: clone ZM137, Cat # Z2448**

IVD

Glucose transporters are integral membrane glycoproteins involved in transporting glucose into most cells. There are many types of glucose transport carrier proteins, designated as Glut-1 to Glut-12. Glut-1, also known as SCL2A1, is a major glucose transporter in the mammalian blood-brain barrier. It is expressed in high density on the membranes of human erythrocytes and the brain capillaries that comprise the blood-brain barrier. Glut-1 is expressed at variable levels in many human tissues. Overexpression of Glut-1 has been linked to tumor progression or poor survival of patients with carcinomas of the colon, breast, cervical, lung, bladder and mesothelioma. Glut-1 is a sensitive and specific marker for the differentiation of malignant mesothelioma (positive) from reactive mesothelium (negative).



Colon adenocarcinoma stained with GLUT1

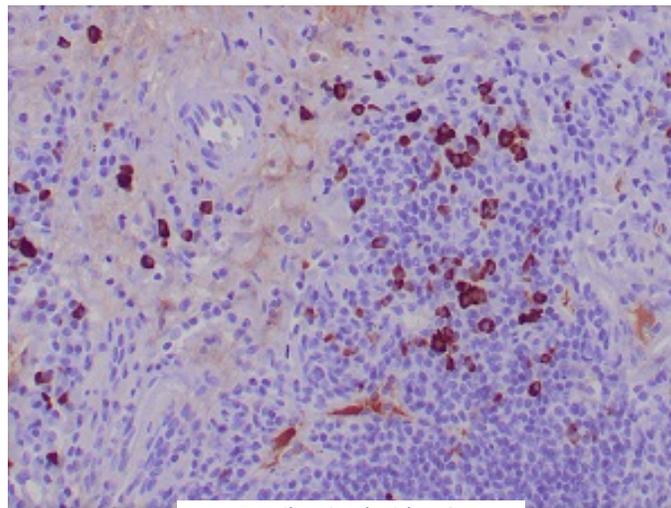
## IgG4 Monoclonal Antibodies

**Anti-mouse: clone ZM56, Cat # Z2366**

**Anti-rabbit: clone ZR299, Cat # Z2614**

IVD

IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid treatment, it is important to recognize this entity and differentiate it from such mimics as lymphoma. Clinical manifestations are apparent in the pancreas, bile duct, gallbladder, lacrimal gland, salivary gland, retroperitoneum, kidney, lung, breast, thyroid, and prostate. Immunohistochemical analyses in the case of IgG4-related sclerosing disease not only exhibits significantly more IgG4-positive plasma cells in affected tissues but also significantly higher IgG4/IgG ratios (typically > 30%).



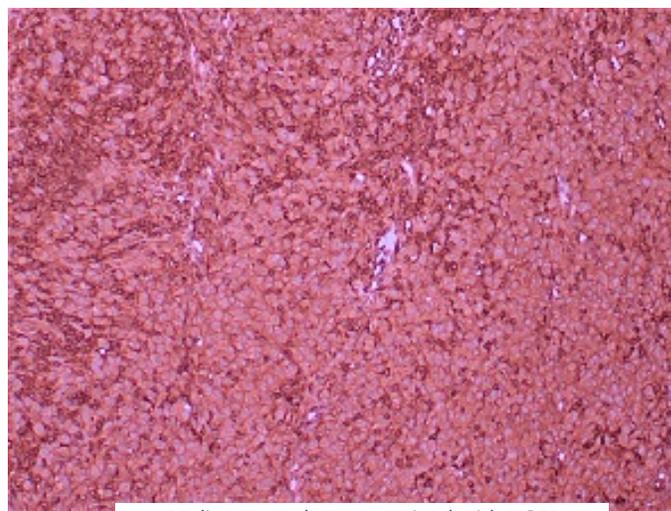
*Tonsil stained with IgG4*

## NGFR Monoclonal Antibody

**Anti-rabbit: clone ZM55, Cat # Z2365**

IVD

Nerve growth factor receptor (p75NGFR), is the first of neurotrophin receptors to be isolated and is a member of the tumor necrosis factor (TNF) receptor family. NGFR has been shown to be a reliable marker for desmoplastic and neurotropic melanoma by several groups. It is now apparent that expression of NGFR is ubiquitous and not limited to the nervous system, being expressed in mature nonneural cells such as perivascular cells, follicular dendritic cells, basal epithelium of oral mucosa and hair follicles, prostate basal cells and myoepithelial cells. Studies in prostate and urothelial cancer suggest that NGFR may act as a tumor suppressor, negatively regulating cell growth and proliferation. Anti-NGFR labels the myoepithelial cells of breast ducts and intralobular fibroblasts of breast ducts and thus aids in the diagnosis of malignancy in the breast.

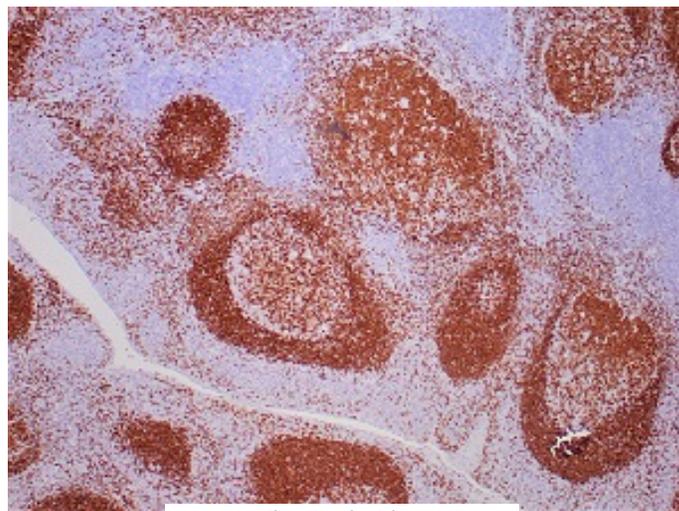


*Malignant melanoma stained with NGFR*

## **PAX 5 Monoclonal Antibody** **Anti-rabbit: clone ZR268, Cat # Z2582**

IVD

The PAX-5 gene is a member of the paired box (PAX) family of transcription factors. The central feature of this gene family is a novel, highly conserved DNA-binding domain, known as the paired box. The PAX proteins are important regulators in early development, and alterations in the expression of their genes are thought to contribute to neoplastic transformation. The PAX-5 gene encodes the B-cell lineage specific activator protein (BSAP) that is expressed at early, but not late stages of B-cell differentiation. Its expression has also been detected in developing CNS and testis; therefore, PAX-5 gene product may not only play an important role in B-cell differentiation, but also in neural development and spermatogenesis.

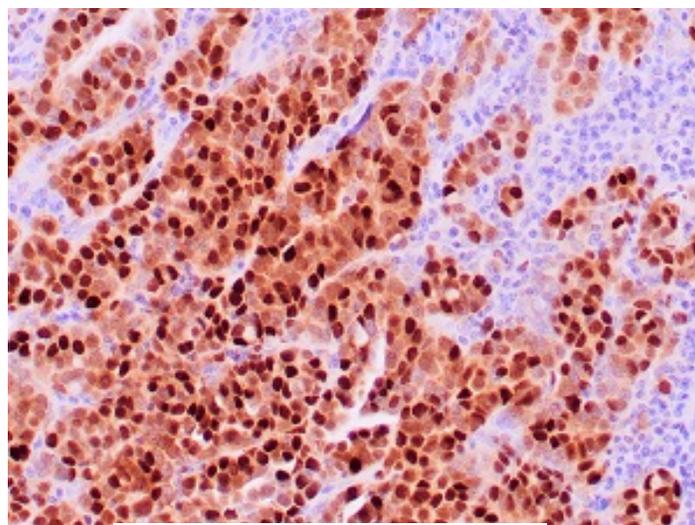


*Tonsil stained with PAX-5*

## **PAX 8 Monoclonal Antibody** **Anti-rabbit: clone ZR269, Cat # Z2583**

IVD

PAX-8 is expressed in the thyroid, non-ciliated mucosal cells of the fallopian tubes and simple ovarian inclusion cysts, but not normal ovarian surface epithelial cells. PAX-8 is expressed in ovarian serous, endometrioid, and clear cell carcinomas, but only rarely in primary ovarian mucinous adenocarcinomas. Over 98% of clear cell RCCs, 90% of papillary RCCs, and 95% of oncocytomas were positive for PAX-8. Similarly, the absence of expression of PAX-8 in breast and other non-GYN carcinomas other than those primary to the thyroid indicates that PAX-8 is an important new marker of ovarian cancer and a useful marker for the differential diagnoses in lung and neck tumors, or tumors at distant sites where primary lung carcinoma or thyroid carcinoma are possibilities. PAX-8, combined with organ system-specific markers such as uroplakin, mammaglobin, and TTF-1 can be a very useful panel to determine the primary site of invasive micropapillary carcinomas of ovary from bladder, lung, and breast.



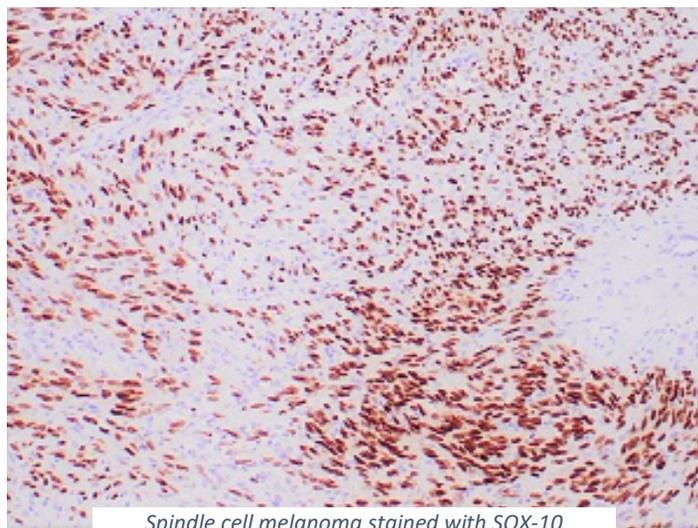
*Thyroid carcinoma stained with PAX-8*

## SOX 10 Monoclonal Antibody

Anti-rabbit: clone ZR275, Cat # Z2591

IVD

Sry-related HMG-BOX gene 10, (SOX-10), a nuclear transcription factor that participates in neural crest development and in the specification and differentiation of cells of melanocytic lineage, has been recently shown to be a sensitive marker of melanoma. SOX-10 nuclear expression was found in virtually all cases of melanomas (97%) and about half of cases of malignant peripheral nerve sheath tumors (49%). In sentinel node, SOX-10 is positive in metastatic melanomas and nodal capsular nevus but not in dendritic cells, which usually express S100 protein. SOX-10 is moderately to strongly positive in desmoplastic or spindle cell melanomas, which is usually negative for HMB-45, Melan-A or even S-100. SOX-10 is diffusely expressed in schwannomas, neurofibromas, sustentacular cells of pheochromocytomas and paragangliomas. SOX-10 reaction is not identified in any other mesenchymal and epithelial tumors except for myoepitheliomas and diffuse astrocytomas.



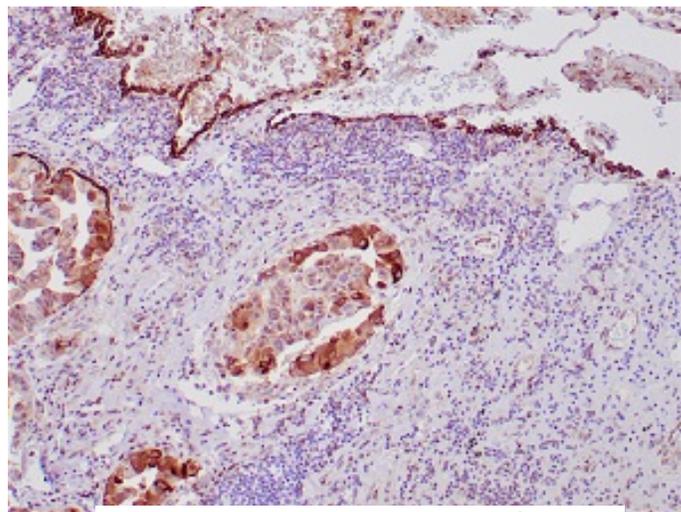
Spindle cell melanoma stained with SOX-10

## Surfactant Monoclonal Antibody

Anti-mouse: clone ZM124, Cat # Z2428

IVD

Pulmonary surfactant is primarily responsible for lowering the surface tension at the air-liquid interface in the alveoli, a process that is essential for normal respiration. Pulmonary surfactant is a mixture of phospholipids and proteins, including four distinct surfactant-associated proteins (SPs), SP-A, SP-B, SP-C, SP-D. SP-B and SP-C are predominantly hydrophobic proteins that associate with lipids to promote the absorption of surfactant phospholipids and to reduce the surface tension in the alveoli. SP-A and SP-D are large multimeric proteins belonging to the family of calcium-dependent lectins, designated Collectins, which contribute to the innate immune system. Both SP-A and SP-D have been shown to protect against microbial challenge through binding to the lipid components of the bacterial cell wall and facilitating the rapid removal of microbials.

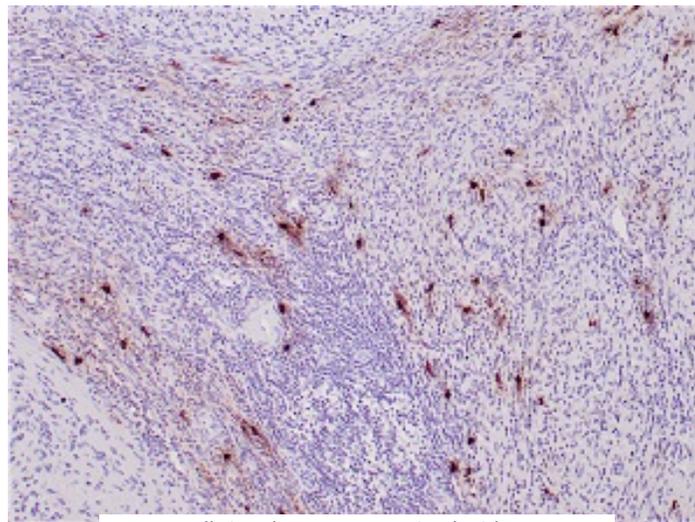


Lung adenocarcinoma stained with surfactant

## **Tryptase Monoclonal Antibody** **Anti-mouse: clone ZM96, Cat # Z2406**

IVD

Tryptase comprise a family of trypsin-like serine proteases (peptidase family S1). Tryptase is stored in mast cell secretory granules and basophils. Mast cells are connective tissue cells derived from blood-forming tissues that line arterial walls and secrete substances, which mediate inflammatory and immune responses. Tryptase is released into the extracellular environment and are resistant to all known endogenous proteinase inhibitors. This antibody reacts with mast cells distributed in skin, synovium, lung, and heart. This antibody does not bind with any other cell type. Human mast cell tryptase is considered to be an important marker of mast cell activation and is an important mediator of inflammation. Mastocytosis is a term collectively used for a group of disorders in which there is abnormal accumulation of mast cells in one or multiple organs. Anti-tryptase, combined with anti-CD2, anti-CD25, and anti-CD117, can be useful in identifying reactive mast cell hyperplasia, myelogenous neoplasms, mast cell leukemia, and mastocytosis.

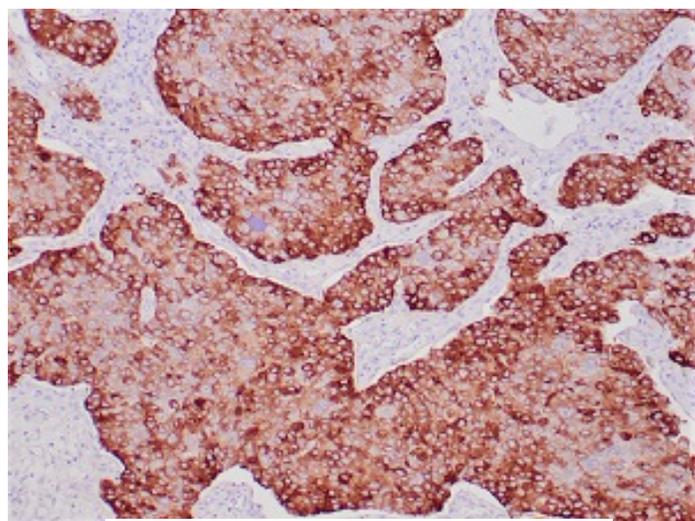


*Mast cells in schwannoma stained with tryptase*

## **Uroplakin Monoclonal Antibody** **Anti-mouse: clone ZM204, Cat # Z2522**

IVD

The protein encoded by this gene is a member of the transmembrane 4 superfamily, also known as the tetraspanin family. Most of these members are cell-surface proteins that are characterized by the presence of four hydrophobic domains. The proteins mediate signal transduction events that play a role in the regulation of cell development, activation, growth and motility. This encoded protein is found in the asymmetrical unit membrane (AUM) where it can complex with other transmembrane 4 superfamily proteins. It may play a role in normal bladder epithelial physiology, possibly in regulating membrane permeability of superficial umbrella cells or in stabilizing the apical membrane through AUM/cytoskeletal interactions. The protein may also play a role in tumor suppression.



*Urothelial carcinoma stained with uroplakin*

All of our antibodies work on formalin-fixed paraffin embedded (FFPE) tissue sections. As an ISO 13485:2016 certified biomedical company, all our antibody clones are scientifically selected to fit the need of clinical immunohistochemical laboratories. Our primary antibodies are manufactured by FDA certified GMP facilities in the USA and purified by affinity chromatography with >99% purity.