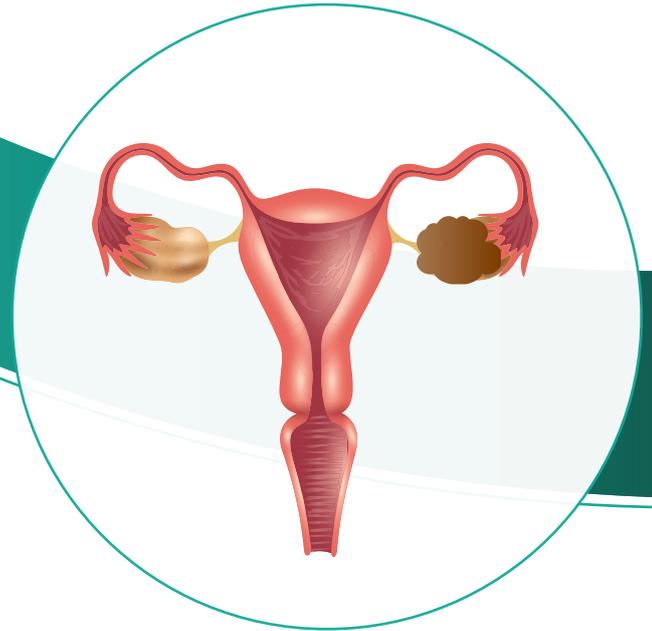


IHC PANEL MARKERS

O v a r i a n C a n c e r



BioGenex is pioneer in providing wide-ranging antibodies for several IHC panel for initial differentiation, tumor origin, treatment methods, and prognosis. All BioGenex antibodies are validated on human tissues to ensure sensitivity and specificity. BioGenex comprehensive IHC panels include a range of mouse monoclonal, rabbit monoclonal, and polyclonal antibodies to choose from.

BioGenex offers a vast spectrum of high-quality antibodies for both diagnostic and reference laboratories. BioGenex strives to support efforts in clinical diagnostics and drug discovery development as we continue to expand our antibody product line offering in both ready-to-use and concentrated formats for both manual and automation systems.

Antibodies for Ovarian Cancer

PAX3, PAX 8, podoplanin, CD47 CK7, bFGF, Estradiol, CA125, ER, Vimentin, CK20, Her2, Mesothelin, C-jun, NSE, FSH, CEA, PLAP, WT1, beta-HCG, Inhibin, AFP, EGFR, Calretenin, p53, Napsin A, PR



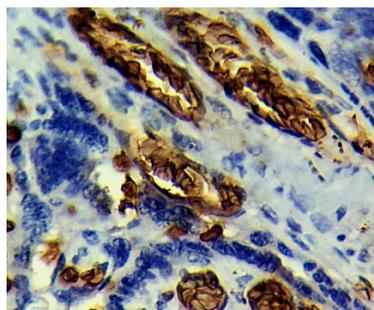
PAX8



PAX8 is a member of the paired box (PAX) family of transcription factors, typically containing a paired box domain, an octapeptide, and a paired-type homeodomain. PAX proteins play critically important roles in development by regulating transcriptional networks responsible for embryonic patterning and organogenesis; a subset of PAX proteins also maintain functional importance during postnatal development. It is expressed during organogenesis of thyroid gland, kidney and Mullerian system. Research studies have implicated genetic mutations that result in aberrant expression of PAX genes in a number of cancer subtypes (1-3), with members of subgroups II and III identified as potential mediators of tumor progression. PAX8 antibody is expressed in a high percentage of ovarian serous carcinomas, endometrioids, thyroid follicular carcinomas, renal clear cell carcinomas, but only rarely in primary ovarian mucinous adenocarcinomas. PAX8 is a useful marker in distinguishing ovarian carcinoma from mammary carcinomas.

Antibody	Clone	Localization	Catalog Family
PAX8	PAX8/2774R	Nucleus	ANB31, AYB31, NUB31-UC

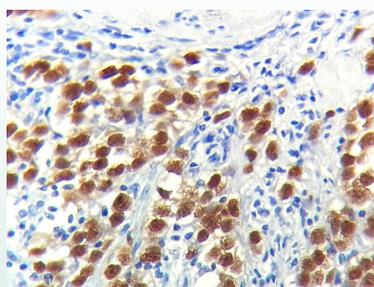
CD 235a/GLYOPHORIN A(Erythrocyte marker)



CD235a (Glycophorins A, GPA) is a single pass membrane sialoglycoprotein expressed in mature erythrocytes and erythroid precursor cells. CD235a is the carrier of blood group M and N specificities. CD235a provides cells with a large mucin-like that may serve as a barrier to cell fusion, minimizing aggregation between red blood cells in the circulation. CD235a has been shown to act as a receptor for Sandei virus, parvovirus, and Hsa, and Streptococcus adhesin. Glycophorin A (GPA) and B (GPB), which are single, trans-membrane sialoglycoproteins. GPA is the carrier of blood group M and N specificities, while GPB accounts for S and U specificities. GPA and GPB provide the cells with a large mucin like surface and it has been suggested this provides a barrier to cell fusion, so minimizing aggregation between red blood cells in the circulation

Antibody	Clone	Localization	Catalog Family
CD 235a/GLYOPHORIN A(Erythrocyte marker)	GYPA/280	Membrane	AMA91, AXA91, MUA91

Oct-3/4

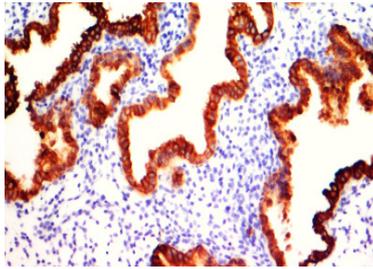


Oct-3/4 (octamer-binding transcription factor-3 & 4), a member of POU transcription factors, was identified as a DNA-binding protein that activates gene transcription via a cis-element containing an octamer motif. It is expressed in early embryonic cells and germ cells and is central to the gene regulatory network responsible for self-renewal, pluripotency, and lineage commitment in embryonic stem cells and induced pluripotent stem cells. Oct3/4 is not expressed in adult tissues. It is the most widely recognized marker of totipotent embryonic stem cells. OCT3/4antibody is a useful aid for classification of specific subtypes of germ cell tumors including seminoma, embryonal carcinoma and intratubular germ cell neoplasia of unclassified type (IGCNU).

Antibody	Clone	Localization	Catalog Family
Oct-3/4	C-10	Nucleus	AMB84, AXB84, MUB84



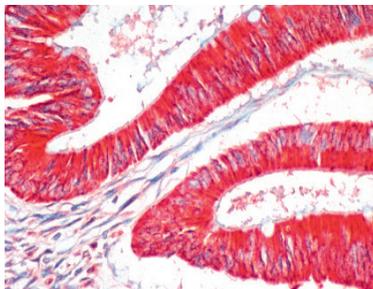
Cytokeratin 7



Cytokeratin 7 is a 54 kD marker of simple epithelium. Antibody to Cytokeratin 7 strongly stains all cell layers of the urinary bladder transitional epithelium. However, Cytokeratin 7 is absent from gastrointestinal epithelium, hepatocytes, proximal and distal tubules of the kidney, and myoepithelium, and also cannot be detected in the stratified epithelia of the skin, tongue, esophagus, or cervix. Cytokeratin 7 recognizes specific subtypes of adenocarcinomas and can be used to differentiate between Cytokeratin 7-positive tissues such as ovarian carcinomas and transitional cell carcinomas and Cytokeratin 7-negative tissues such as carcinomas of the gastrointestinal tract and prostate cancers.

Antibody	Clone	Localization	Catalog Family
Cytokeratin 7	OVTL12/30	Cytoplasm	AM255, AX255, MU255

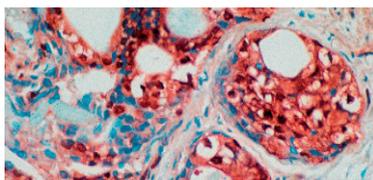
bFGF



bFGF is a pro-angiogenic cytokine which is present in diverse tissues. It is known to function as an autocrine mediator of mitogenesis of endothelial cells in vivo, resulting in angiogenesis. It also increases fibroblast production of plasminogen activator and collagenase. bFGF is a heparin binding cytokine that is found inside cells and in extracellular stores bound to heparin or heparin sulfate proteoglycans. bFGF may be released to mediate tissue repair since expression is known to be high in mast cells responding to injury. The monoclonal antibody to bFGF can be used for the study of myometrial smooth muscle cells, uterine leiomyomas, cardiac myocytes, arterial endothelium, gastric carcinoma, and invasive or metastatic melanoma. This antibody stains bFGF in cytoplasm of many diverse cell types.

Antibody	Clone	Localization	Catalog Family
bFGF	bFGF88	Cytoplasm	AM359, AX359, MU359

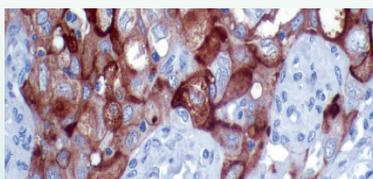
Estradiol



Estradiol plays an important role in the genesis and development of human breast cancer and endometrial carcinoma. It is synthesized primarily in the ovary, but also in the placenta, testis, and possibly the adrenal cortex. Estradiol is also produced by testicular Leydig tumors, as well as by Sertoli tumors of the testis and ovary. It is also produced in mammary gland carcinoma, and carcinoma of the adrenal cortex.

Antibody	Clone	Localization	Catalog Family
Estradiol	Polyclonal	Nucleus	AR038, AW038

CA125

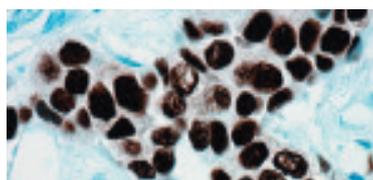


Monoclonal antibody Ov185:1 reacts with repetitive protein determinant expressed in the protein core of the CA125 human ovarian cancer antigen. This marker is usually associated with ovarian epithelial malignancies. Immunohistochemistry with CA125 antibody in conjunction with other markers was found to be useful in tracing the origin of adeno carcinoma of unknown origin. This antibody stains membrane in ovarian cancer cells.

Antibody	Clone	Localization	Catalog Family
CA125	oV185:1	Membrane and Cytoplasm	AM429, AX429, MU429



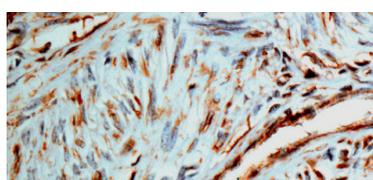
Estrogen Receptor



Estrogen receptor (ER) content of breast cancer tissue is an important parameter in the prediction of prognosis and response to endocrine therapy. Highly specific monoclonal antibodies to ER have allowed the determination of receptor status of breast tumors to be carried out. This antibody stains the nucleus of receptor positive cells.

Antibody	Clone	Localization	Catalog Family
Estrogen Receptor	EP1	Nuclear	AN710, AY710, MU710
Estrogen Receptor	Er88	Nuclear	AM368, AX368, MU368

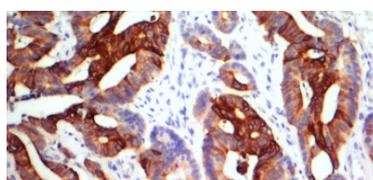
Vimentin



Vimentin is the major intermediate filament in a variety of mesenchymal or mesenchymally derived non-muscle cell types. Vimentin is found in all types of sarcomas and lymphomas. Positive staining for vimentin is seen in most cells of fibrosarcomas, liposarcomas, malignant fibrous histiocytomas, angiosarcomas, chondrosarcomas and lymphomas. When the vimentin antibody is used in combination with other antibodies as a panel, it can aid in the histological classification of normal and malignant tissues. This antibody immunohistochemically labels a variety of mesenchymal cells.

Antibody	Clone	Localization	Catalog Family
Vimentin	V9	Cytoplasm	AM074, AX074, MU074

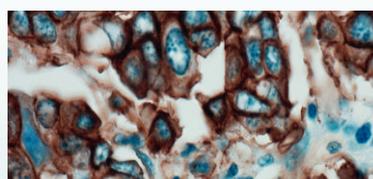
Cytokeratin 20



Cytokeratin 20 (46kD) is relatively less acidic than other type I keratins. This antibody reacts with certain types of carcinomas such as adeno carcinomas of the colon, transitional cell carcinomas of the bladder and Merkel cell tumors of the skin. It does not stain breast, lung and endometrial adenocarcinomas. The differential staining pattern of this antibody makes it very useful for tumor evaluation when used in conjunction with cytokeratin 7 staining.

Antibody	Clone	Localization	Catalog Family
Cytokeratin 20	IT.ks20.8	Cytoplasm	AM315, AX315, MU315
Cytokeratin 20	EP28	Cytoplasm	AN849, AY849, MU849

Her2

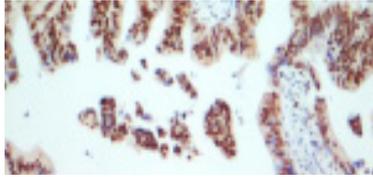


HER2 (human epidermal growth factor receptor 2), also known as Neu, ErbB-2, CD340 (cluster of differentiation 340) or p185, is a protein that in humans is encoded by the ERBB2 gene. HER2 is a member of the epidermal growth factor receptor (EGFR/ErbB) family. Breast cancers with HER2 gene amplification or HER2 protein overexpression are called HER2-positive, which represent about 25% breast cancer.

Antibody	Clone	Localization	Catalog Family
c-erbB-2 (HER-2/neu)	SP101	Membrane and cytoplasm	AN752, AY752, NU752
c-erbB-2 (HER-2/neu)	SP3	Membrane and cytoplasm	AN753, AY753, NU753
c-erbB-2 (HER-2/neu)	CB11	Membrane and cytoplasm	AM134, AX134, MU134
c-erbB-2 (HER-2/neu)	EP3	Membrane and cytoplasm	AN726, AY726, NU726



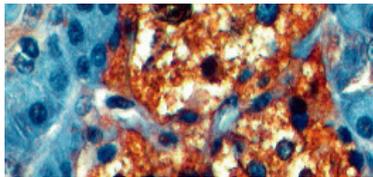
C-Jun



c-Jun is a component of the transcription factor Activator Protein 1 (AP-1) that binds and activates transcription at TPA-responsive element (TRE/AP-1) elements and appears to be a major downstream target of the Stress-activated protein kinases/Jun amino-terminal kinases (SAPK/JNK) signaling pathway. The transcriptional activity of c-Jun is regulated by phosphorylation due to extracellular signals including growth factors, transforming oncoproteins, and UV irradiation that stimulates phosphorylation at Ser63/73 and activates c-Jun dependent transcription. c-Jun antibodies are used to study the signal-transducing transcription factor of the AP1 family. c-Jun has been implicated in several areas of cell biology including cell cycle progression through the G1 phase, transformation, and differentiation and has recently been linked to apoptosis. c-Jun is a known proto-oncogene and is found to be significantly overexpressed in lung, breast and ovarian cancers, making it a viable tumor marker.

Antibody	Clone	Localization	Catalog Family
C-Jun	4H9	Nucleus	AM958, AX958, MU958

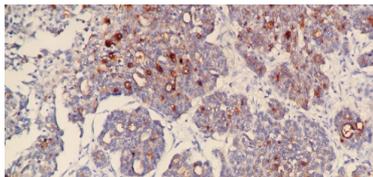
NSE



NSE is a gene which encodes for a protein found in matured neurons and is used in panels along with chromogranin, synaptophysin and neurofilament. Elevated NSE concentrations are observed in patients with neuroblastoma, pancreatic islet cell carcinoma, medullary thyroid carcinoma, pheochromocytoma, and other neuroendocrine tumors as well as certain benign conditions. NSE is specific for such proteins, and aids in detection of neural and neuroendocrine lineage.

Antibody	Clone	Localization	Catalog Family
NSE	MIG-N3	Cytoplasm	AM055, AX055, MU055

Mesothelin

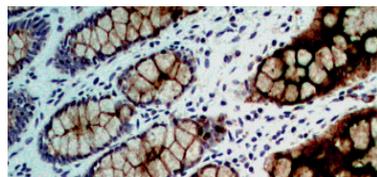


Mesothelin is a glycosylphosphatidylinositol-linked glycoprotein. It is a differentiation antigen that is present on normal mesothelial cells. The biological function of mesothelin is not known, but it is believed that it plays a role in cell adhesion. Mice raised with the knockout version of the mesothelin gene develop and reproduce normally. Mesothelin is over expressed in many human tumors such as mesothelioma, ovarian and pancreatic adenocarcinoma. Due to its differential expression in cancer cells, mesothelin has the potential to be an attractive candidate for cancer therapy.

Antibody	Clone	Localization	Catalog Family
Mesothelin	MSLN/2131	Localization-Cytoplasm	AMA09-5M



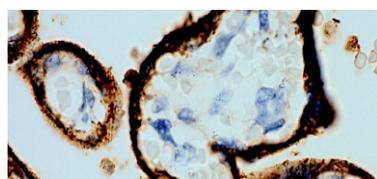
CEA



CEA is demonstrated as a linear labeling of the apical poles of cells lining the glandular lumen and, occasionally, as weak staining near the apex of colonic epithelial cells. CEA, however, should not be used as a marker of differentiation because many colon and lung tumors actually show increased staining with differentiation. Pancreatic carcinomas, testicular tumor, gallbladder neoplasms and granular cell myoblastomas stain positive, whereas malignant tumors of brain, prostate, skin, lymphoreticular tissues, hepatocellular carcinomas, oesophageal squamous cell carcinomas, and mesothelioma fail to stain for CEA.

Antibody	Clone	Localization	Catalog Family
CEA	B01-94-11M-P	Cytoplasm	AM009, AW009
CEA	CEA88	Cytoplasm	AM365, AX365, MU365

PLAP



Human Placental Alkaline Phosphatase (PLAP), a 60-70 kD oncofetal antigen, is a member of a family of membrane bound alkaline phosphatase enzymes and isoenzymes. PLAP and/or PLAP-like isoenzymes have been found to be expressed by malignant tumors of germ cell and non-germ cell origin. The antibody reacts with PLAP in syncytiotrophoblasts in placenta and also reacts with human germ cell tumors. This antibody stains positive in the cytoplasmic membrane and cytoplasm of positive cells.

Antibody	Clone	Localization	Catalog Family
PLAP	PL8-F6	Cytoplasm	AM228, AX228, MU228

WT1

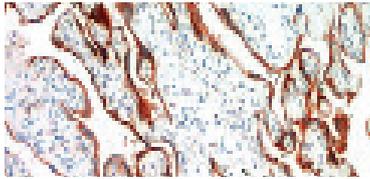


WT-1 monoclonal antibody recognizes a 47-55 kDa tumor suppressor protein, identified as Wilm's Tumor (WT1) protein. The antibody reacts with all isoforms of the full-length WT1 and also identifies WT1 lacking exon 2-encoded amino acids, frequently found in subsets of sporadic Wilm's tumors. WT1, a sporadic and familial pediatric kidney tumor, is genetically heterogeneous. Wilm's tumor is associated with mutations of WT1, a zinc-finger transcription factor that is essential for the development of the metanephric kidney and the urogenital system. The WT1 gene is normally expressed in fetal kidney and mesothelium, and its expression has been suggested as a marker for Wilm's tumor and mesothelioma. WT1 protein has been identified in proliferative mesothelial cells, malignant mesothelioma, ovarian carcinoma, gonadoblastoma, nephroblastoma, and desmoplastic small round cell tumor. WT1 protein expression in mesothelial cells has become a reliable marker for the diagnosis of mesotheliomas.

Antibody	Clone	Localization	Catalog Family
WT1	WT1/1434R	Nucleus & Cytoplasm	AN940, AX940, MU940



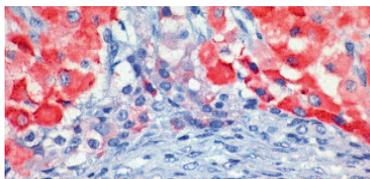
B-HCG



Human Chorionic Gonadotropin (hCG) is a 40 kD glycoprotein secreted in large quantities by the placenta and normally circulates at readily detectable levels only during gestation. Immunohistochemical studies reveal localization of hCG in syncytiotrophoblasts. Isolated clusters of giant cells may be found in association with certain components of germ cell tumors but are most frequently associated with embryonic carcinoma, endodermal sinus tumor, and germinoma. This antibody stains the cytoplasm of positive cells.

Antibody	Clone	Localization	Catalog Family
B-HCG	M94318	Cytoplasm	AM395, AX395, MU395

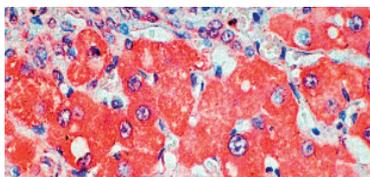
Inhibin Alpha



Inhibins are dimeric gonadal protein hormones that negatively regulate pituitary FSH synthesis and secretion. Inhibin contains an alpha and beta subunit linked by disulfide bonds. Two forms of inhibin differ in their beta subunits (A or B), while their alpha subunits are identical. Inhibin B is comprised of the Inhibin alpha subunit disulfide linked to the Inhibin beta subunit. Initial studies indicated that Inhibin is a critical negative regulator of gonadal stromal cell proliferation and was the first secreted protein identified to have tumor-suppressor activity. Inhibin alpha-subunit immunoreactivity has been detected in Sertoli cells, spermatocytes, and in some Leydig cells.

Antibody	Clone	Localization	Catalog Family
Inhibin Alpha	R1	Cytoplasm	AM446, AX446, MU446

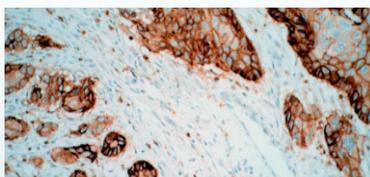
AFP



Alpha-Fetoprotein (AFP) is a 64 kD tumor-associated embryonal antigen produced by fetal liver, hepatoma, yolk sac, and several germ cell tumors of testicular and ovarian origin. Of the germ cell tumors, only embryonal carcinoma and endodermal sinus tumors stain positive for AFP and not teratomas. The positive results are useful in distinguishing embryonal carcinoma from seminoma. AFP is present in the mononuclear embryonal carcinoma cell and in the intracellular or extracellular hyaline droplets. This antibody stains positive for alpha fetoprotein in the cytoplasm of positive cells.

Antibody	Clone	Localization	Catalog Family
AFP	C3	Cytoplasm	AM008, AX008, MU008

EGFR

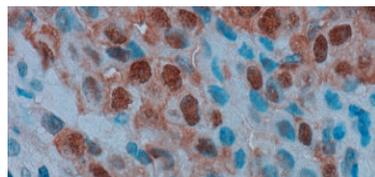


Epidermal growth factor receptor (EGFR) is a 170 kDa transmembrane glycoprotein receptor tyrosine kinase that, activated by epidermal growth factor (EGF), affects cell growth and differentiation. EGFR can be a prognostic marker for ovarian cancer. The antibody detects both EGFR phosphorylated on Tyr1068 of the nature human isoform 1 (corresponding to Y1092 from the precursor form P00533-1/p170), and also unphosphorylated EGFR. It is associated with a number of cancers, including lung cancer, anal cancers[7] and glioblastoma multiforme. In breast cancer, EGFR is predominately expressed in basal cell-like carcinoma; it has been recommended for identification of basal-like breast carcinoma along with Cytokeratin 5/6.

Antibody	Clone	Localization	Catalog Family
EGFR	EP22	Membrane & Cytoplasm	AN781, AX781, MU781



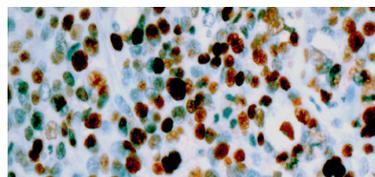
Calretenin



This antibody recognizes a protein of 31.5kDa, identified as Calretinin. Calretinin is an intracellular calcium-binding protein belonging to the troponin C superfamily characterized by a structural motif described as the EF-hand domain. It is abundantly expressed in central and peripheral neural tissues, particularly in the retina and in the neurons of the sensory pathways, and calretinin may play an important role in the survival of nerve cells during disturbances in calcium homeostasis. Calretinin is also expressed by both normal and neoplastic mesothelial cells, and it has been suggested as a useful marker for the identification of malignant mesotheliomas of the epithelial type and for the differentiation of these malignancies of lung adenocarcinoma.

Antibody	Clone	Localization	Catalog Family
Calretenin	SP13	Cytoplasm & Membrane	AN747, AX747, MU747

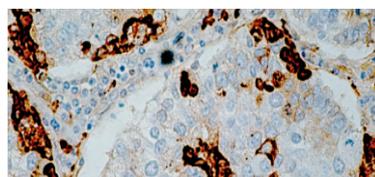
p53



p53 is a tumor suppressor gene product identified in a wide variety of tumors. p53 protein is present in low concentration in normal cells, but elevated levels of mutant p53 have been found in many common cancers. Accumulation of mutant p53 detected by immunohistochemical staining has been reported in breast, lung, colon, stomach, bladder, and testis carcinomas, soft-tissue sarcomas, and melanomas. This antibody stains positive in nucleus of a variety of tumor cells.

Antibody	Clone	Localization	Catalog Family
p53	DO7	Nuclear	AM239, AX239, MU237

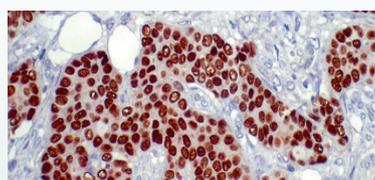
Napsin-A



Napsin A has specific function in normal alveolar epithelium and is proposed to play a role in the proteolytic processing of surfactant precursors. Napsin A is reported to be predominantly expressed in lamellar bodies of type II pneumocytes, secondary lysosomes of alveolar macrophages, respiratory epithelium of terminal and respiratory bronchioles, plasma cells within a subset of lymphocytes in normal lung, as well as in epithelial cells of renal tubules in normal kidney and is weakly expressed in normal spleen.

Antibody	Clone	Localization	Catalog Family
Napsin-A	IP64	Cytoplasm	AM701, AX701, MU701

Progesterone Receptor

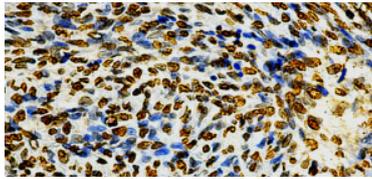


The use of monoclonal antibodies to determine Progesterone Receptor status increases the predictive value of immunohistochemical analysis with respect to the response of human tumors to hormonal modulation. Historically, estrogen receptor-positive/ progesterone receptor-positive breast carcinoma patients have demonstrated a better response to endocrine therapy than estrogen receptor-positive/progesterone receptor-negative patients. This antibody stains positive in nucleus of the receptor positive cells.

Antibody	Clone	Localization	Catalog Family
Progesterone Receptor	1A6	Nucleus	AM172, AX172, MU172
Progesterone Receptor	PR88	Nucleus	AM328, AX328, MU328
Progesterone Receptor	EP2	Nucleus	AN711, AY711, NU711



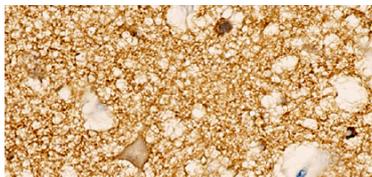
PAX3



PAX3 (Paired Box 3) is a DNA-binding protein consisting of an amino-terminal "paired" box domain and a paired-type homeodomain. It belongs to paired box (PAX) family of transcription factors and plays a critical role during fetal development. PAX3 is involved in development of peripheral nervous system, melanocytes, some vascular smooth muscle and are responsible for embryonic patterning and organogenesis. Mutations in PAX3 gene are associated with Waardenburg syndrome II (WSII), WSI/WSIII, alveolar rhabdomyosarcoma and craniofacial-deafness-hand syndrome.

Antibody	Clone	Localization	Catalog Family
PAX3	PAX3/4700	Nucleus	AMD28, AXD28, MUD28

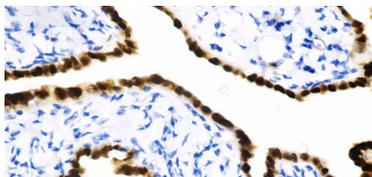
CD47



CD47, also designated as integrin-associated protein (IAP), is a 50kDa five-pass transmembrane protein that plays a role in the regulation of cation fluxes across cell membranes. It also binds with the C-terminal cell binding domain of thrombospondin (SIRPa) and leads to inhibition of macrophage phagocytosis towards CD47-expressing cells. In this way, CD47 serves as "don't eat me" signal or a marker of "self", functioning as an innate immune checkpoint. CD47 is expressed on normal, healthy hematopoietic stem cells (HSC), brain, mesenchymal cells, epithelial cells, endothelial cells, fibroblasts and is overexpressed in many types of cancer.

Antibody	Clone	Localization	Catalog Family
CD47	CD47/3019	Membrane	AMD19, AXD19, MUD19

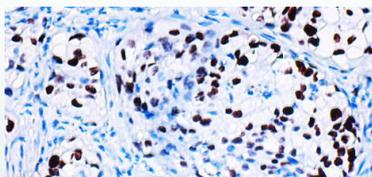
PAX8



PAX8 is a member of the paired box (PAX) family of transcription factors, typically containing a paired box domain, an octapeptide, and a paired-type homeodomain. PAX proteins play critically important roles in development by regulating transcriptional networks responsible for embryonic patterning and organogenesis; a subset of PAX proteins also maintain functional importance during postnatal development. It is expressed during organogenesis of thyroid gland, kidney and Mullerian system.

Antibody	Clone	Localization	Catalog Family
PAX8	PAX8/2774R	Nucleus	ANB31, AYB31, NUB31

p21/WAF1



The p21/WAF1 protein is a p53 regulated gene product has been shown to mediate cell cycle arrest. The growth arrest is due to several properties of this protein, namely cyclin dependent kinase inhibition, and maintenance of cell cycle arrest at G2 by blocking the interaction of Cdc25C with PCNA and inhibition of stress activated protein kinases. In breast cancer the p21/WAF1 expression is in general seen to be negative.

Antibody	Clone	Localization	Catalog Family
p21/WAF1	CIP1/4377R	Nucleus	ANA13, NUA13, AYA13



BioGenex Primary Antibody Format and Pack Size

BioGenex antibodies are optimized to provide a maximum signal with the minimum background for immunohistochemical staining. All our antibodies are optimized and recommended for use with all Super Sensitive™ Detection Systems to provide optimum staining.

BioGenex Ready-to-Use (RTU) antibodies are fully optimized for use with BioGenex Detection Systems without the need for further dilution or titration. BioGenex concentrated antibodies are provided with recommended dilutions for optimal use with BioGenex Detection Systems, allowing rapid titration and testing.

Other Panel Markers from BioGenex

Breast cancer panel	Pancreas tumor
B&T cell Associated Lymphoma	Liver cancer
Cervical cancer	Kidney cancer
Colorectal and stomach cancer	Head & neck cancer
Lung cancer	Bladder cancer
Melanoma	Germ cell tumor
Muscle cancer	Vascular tumor
Prostate/Testicular cancer	Pituitary gland
Neuroendocrine tumor	Esophagus cancer

For specific information on the individual antibody, please refer to the datasheets available on www.biogenex.com or call BioGenex Technical Support at **1(800)421-4149** or write to support@biogenex.com.



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