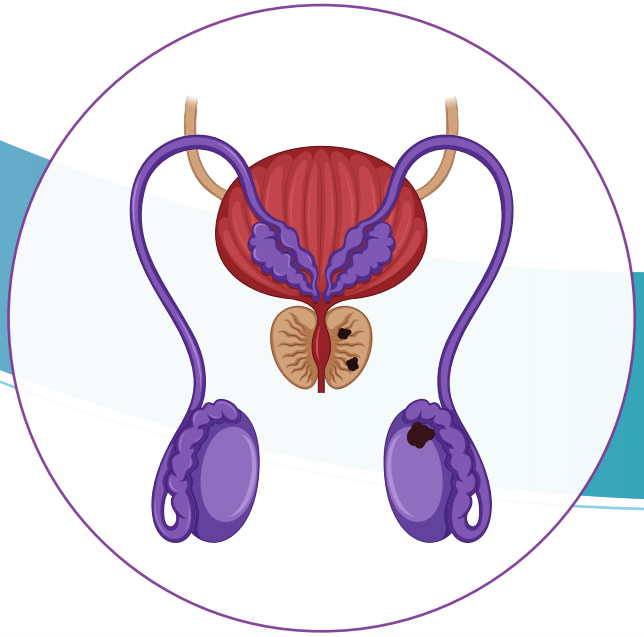
# IHC PANEL MARKERS

## Prostate & Testicular Cancer



BioGenex offers 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 Prostate & Testicular Cancer

AMACR, AR, AFP, CD105, CK Pan, CK7, CK20, CD30, CD117, CD30, Cytokeratin 14, dsDNA, ERG, EMA, Glutamine Synthetase, Inhibin, NKX3.1, Oct4, PSMA, PSA, PSAP, p40, p63, Prostein, SALL4, Smoothelin, SPARC / Osteonectin, Thymidylate Synthase, NKX-2.2, FOXP1, Histone H3.

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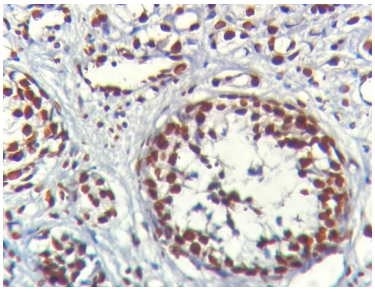
# **IHC PANEL MARKERS -** Prostate & Testicular Cancer

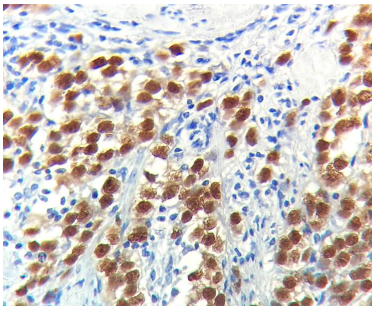
## Histone H3



Histone H3 (also known as Histone H3.1t, H3/t, H3t, or H3/g) encoded by the gene HIST3H3/H3Ft, is one of the nuclear proteins responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. They play a crucial role in transcription regulation, DNA repair, DNA replication and chromosomal stability. Acetylation and or methylation of Histone H3 occur in response to various stimuli and have a direct effect on the accessibility of chromatin to transcription factors and, therefore, gene expression. Hence, Histone H3 has been linked to various types of cancer as a biomarker through the aberrant expression of histone deacetylase (HDAC) enzymes and changes to chromatins.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Histone H3 | 1G1 | Nucleus | AMB82, AXB82, MUB82 |

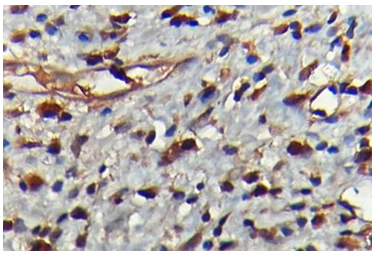
## Oct-3/4



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 |

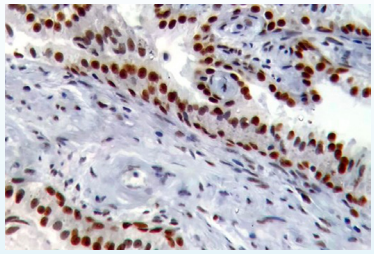
## NKX2.2



NKX2.2 is a member of NKX family of transcription factors. It is a homeodomain-containing transcription factor which is necessary for neuroendocrine differentiation in the central nervous system and pancreas. It is also involved with neuronal developing, patterning, and fate specification of neurons and oligodendrocytes. NKX2.2 expression has been found in the developing forebrain, spinal cord, Ewing's sarcoma and neuroendocrine tumors of the gut. NKX2.2 antibody is considered as a sensitive panel marker for distinguishing Ewing's sarcoma from other round blue cell tumors.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| NKX2.2 | D-4 | Nucleus | AMC23, MUC23, AXC23 |

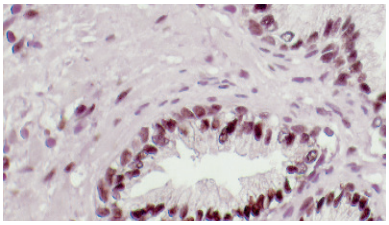
## FOXP1



FoxP1 (Forkhead Box P1) is a transcription repressor protein which belongs to the Forkhead Box (FOX) Protein family. It forms homodimers and heterodimers with FOXP2 and FOXP4 and plays play important roles in regulation of tissue- and celltype specific gene transcription during both development and adulthood. FOXP1 is responsible for regulating a variety of important aspects such as immune response, organ development and the development of cancer. Strong expression of FOXP1 is observed in variety of B cell malignancies, breast carcinoma and endometrial cancer.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| FOXP1 | FOXP1/44R | Nucleus | ANC89, NUC89, AYC89 |

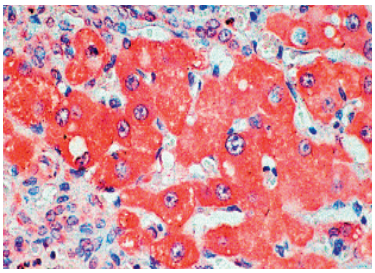
## Androgen Receptor



This monoclonal antibody is specifically designed to recognize a unique immunogenic N-terminal transactivation domain of the androgen receptor that has a low degree of homology with other steroid receptors. This antibody binds to synthetic peptide SP61 of human androgen receptor. This antibody does not cross-react with human estrogen, progesterone or glucocorticoid receptor. AR plays important roles in prostate cancer, especially castration-resistant prostate cancer (CRPC).

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Androgen Receptor | F39.4.1 | Nucleus & Cytoplasm | AM256, AX256, MU256 |

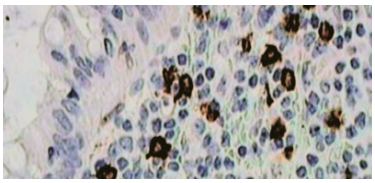
## Alpha-Fetoprotein (AFP)



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. Elevated AFP concentrations are found in patients with nonseminomatous testicular tumors. 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 |
|---|---|---|---|
| Alpha-Fetoprotein (AFP) | C3 | Cytoplasm | AM008, AX008, MU008 |

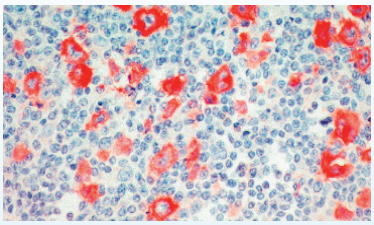
## CD117



c-Kit (CD117) is a transmembrane, tyrosine kinase receptor and proto-oncogene product which is expressed on numerous diverse fetal and adult cells including hematopoietic cells, mast cells, melanocytes, germ cells, and the interstitial cells of Cajal. Its expression in tumors is also diverse.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| CD117 | T595 | Membrane & Cytoplasm | AM423, AX423, MU423 |
| CD117 | Polyclonal | Membrane & Cytoplasm | AR759, AW759, PU759 |

## CD30

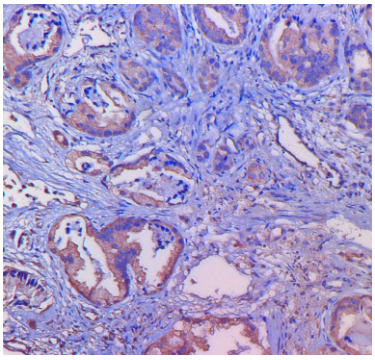


CD30 (Ki-1 antigen), a 120 kD single chain glycoprotein, is expressed in only a small population of normal lymphoid tissue. By contrast, it is expressed in approximately 50% of all malignant lymphomas including all cases of Hodgkin's disease and a vast majority of Ki-1 positive anaplastic large cell lymphomas. Ki-1 antigen can be detected in sera from lymphoma patients, but not in sera from normal individuals with systemic infection. This antibody stains CD30 (Ki-1) antigen in the membrane of positive cells.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| CD30 | HRS-4 | Memrbane & Cytoplasm | AM351, AX351, MU357 |

# IHC PANEL MARKERS - Prostate & Testicular Cancer

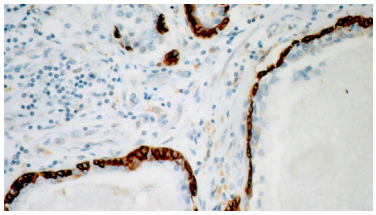
## CD105



CD105 (Endoglin) is a type 1 integral membrane protein with a large extracellular matrix. There are two alternatively sliced forms of Endoglin, S-Endoglin and L-Endoglin. Endoglin acts as an auxiliary receptor for the TGF-beta family of protein. These proteins have various roles in different physiological processes such as cellular proliferation and angiogenesis. Endoglin is expressed at low levels in endothelial cells, but highly expressed in vascular endothelial cells at sites of active angiogenesis such as tumor vessels, inflamed tissues, healing wounds, psoriatic skin, inflamed synovial arthritis, vascular injuries and during embryogenesis. With insufficient supply of blood, tumor cells will undergo apoptosis/necrosis. Given its distinct tissue distribution and its known functional integration with the TGF-? system, it is not surprising that Endoglin is involved in angiogenesis.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| CD105 | ENG/3269 | Cytoplasm | AM990, AX990, MU990 |

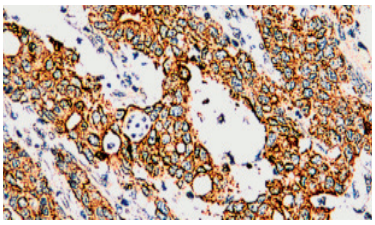
## Cytokeratin 14



Keratins are intermediate filament proteins expressed by epithelial cells in cytoplasm. Mitotically active basal layers of most stratified squamous epithelia cells express 10% to 30% of their total protein as keratin. Cytokeratin 14 (CK14) is a 50-kDa keratin expressed in abundance in epidermal cells, basal cells, mesothelial cells, stratified epithelial cells, and myoepithelial cells in various tissues including prostate and breast. CK14 is helpful in the identification of breast cancer with basal phenotype.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Cytokeratin 14 | EP61 | Cytoplasm | AN831, AX831, MU831 |

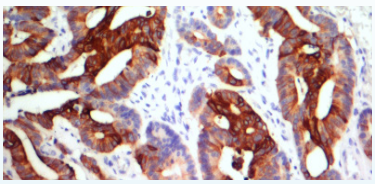
## Cytokeratin, Pan



The Lu-5 antibody recognizes an epitope on the surface of cytokeratin filaments which is present in a wide range of cytokeratins, except in intermediate-size filament proteins. This epitope may be found in all human epithelia and carcinomas and is resistant to formalin-fixation. The Lu-5 antibody was determined a useful pan cytokeratin marker for the detection of both normal and malignant epithelial and mesothelial cells. The Lu-5 antibody stains surface of cytokeratin filaments in a wide variety of normal and tumor tissues.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Cytokeratin, Pan | Lu-5 | Cytoplasm | AM181, AX181, MU181 |

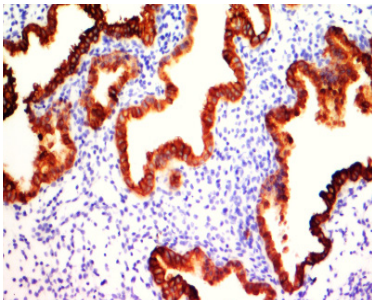
## Cytokeratin 20



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 | EP23 | Cytoplasm | AN849, AY849, NU849 |

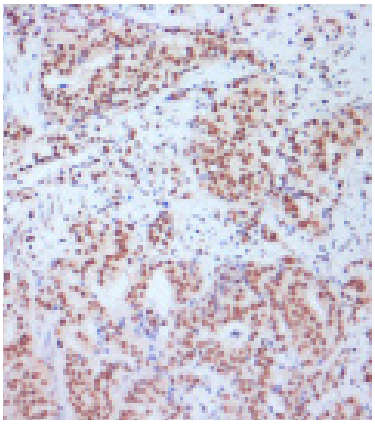
## Cytokeratin 7



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 | OV-TL12/30 | Cytoplasm | AM255, AX255, MU255 |

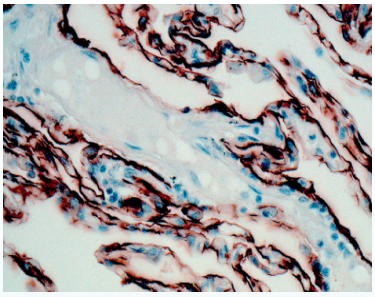
## dsDNA



This monoclonal antibody is part of a new panel of reagents, which recognizes subcellular organelles or compartments of human cells. This MAb recognizes the double stranded DNA in human cells and may be useful in identification of these organelles in cells, tissues, and biochemical preparations. It stains the nuclei in cell or tissue preparations and can be used as a nuclear marker in human cells. This MAb produces a homogeneous staining pattern in the nucleus of normal and malignant cells. DNA holds the genetic instructions for the development and function of living things. In living organisms, DNA does not usually exist as a single molecule, but instead as a tightly associated pair of molecules in the shape of a right-handed double helix. During replication and transcription, portions of the helix unwind and become single stranded. Protective proteins surround these single-stranded DNA. Double stranded (ds) DNA markers are useful tools in biology research and aid in the study of DNA behavior and characteristics.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|

## EMA

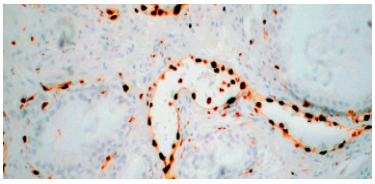


Epithelial Membrane Antigen (EMA), also known as milk fat globule membrane protein, is present on the luminal surface of mammary gland epithelium. Although EMA is primarily located in mammary gland epithelium, other normal epithelia (e.g., lung) will also react against EMA antibody. Cells obtained from solid metastases and pleural effusions accompanying a breast cancer will react with EMA antibody. It may also be useful for identification of meningioma. Human colon carcinoma, osteosarcoma, kidney carcinoma, hepatocellular carcinomas, adrenal carcinoma, embryonal carcinoma, liposarcoma, lung carcinoma, and mixed parotid tumor do not stain with EMA antibody.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Epithelial Membrane Antigen (EMA) | E29 | Membrane & Cytoplasm | AM057, AX057, MU057 |
| Epithelial Membrane Antigen (EMA) | Mc5 | Membrane & Cytoplasm | AM182, AX182, MU182 |
| EMA | GP1.4 | Cytoplasm & Membrane | AMB78, AXB78, MUB78 |

# IHC PANEL MARKERS - Prostate & Testicular Cancer

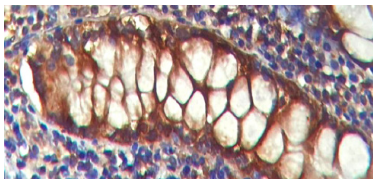
## ERG



ERG is directed against the C-terminus of the ETS transcription regulator, ERG, and is capable of detecting both wildtype ERG, and truncated ERG resulting from ERG gene rearrangement. This antibody exhibits a nuclear staining pattern and may be used to aid in the identification of prostate adenocarcinomas through the detection of truncated ERG. This ERG antibody also recognizes Fli-1 by western blot analysis.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| ERG | EP111 | Nucleus | AN782, AX782, MU782 |

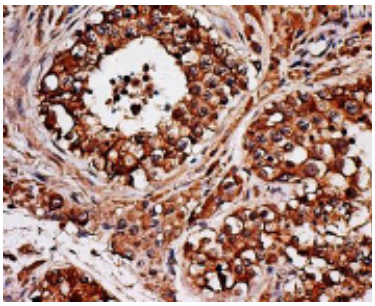
## Glutamine Synthetase



Glutamine Synthetase (Gl Syn) forms a homo octamer that is a catalyst for the amination of glutamic acid to glutamine. It is a marker for astrocytes that serve as the primary site of conversion of glutamic acid to glutamine in the brain. Elevated level expression of glutamine Synthetase in glial cells has shown to protect neurons from degeneration due to excess glutamate. Glutamine Synthetase is present in the Testis and is involved in nitrogen homeostasis. Over expression of glutamine Synthetase was seen in Testis cancers.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Glutamine Synthetase | E-4 | Cytoplasm | AMB64, AXB64, MUB64 |

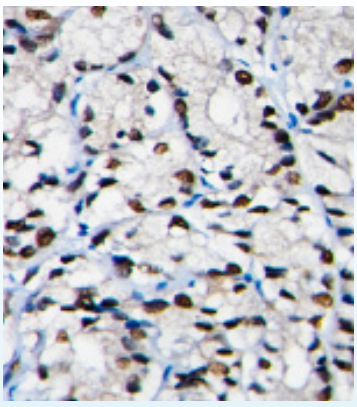
## Inhibin, Alpha



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. Inhibin B is produced by testicular Sertoli cells and is the primary circulating form of Inhibin in most adult male mammals. 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 | INHA/4265 | Nucleus & Cytoplasmin | AMA12, AXA12, MUA12 |

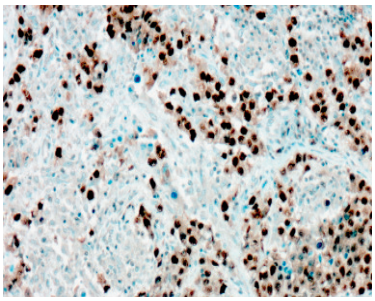
## NKX3.1



The NKX3.1 gene is located on chromosome 8p21.2, whose expression is predominantly localized to prostate epithelium. The NKX3.1 protein acts as a nuclear transcription factor that has a critical function in prostate development and tumor suppression, and is a negative regulator of epithelial cell growth in prostate tissue. Apart from prostate epithelium, NKX3.1 is found in testis, ureter, and pulmonary bronchial mucous glands. NKX3.1 is a highly sensitive and specific marker for prostate adenocarcinoma in line with other prostate markers like Prostate Specific Antigen (PSA) and Prostein (p501S), particularly useful in low differentiated tumors where PSA and/or Prostein may be weakly expressed or lost. This suggests that immunohistochemical staining of NKX3.1, along with other prostate-restricted markers, may be valuable for the definitive determination of prostatic origin in poorly differentiated metastatic carcinomas.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| NKX3.1 | NKX3.1 | Nucleus | AMA55, AXA55, MUA55 |

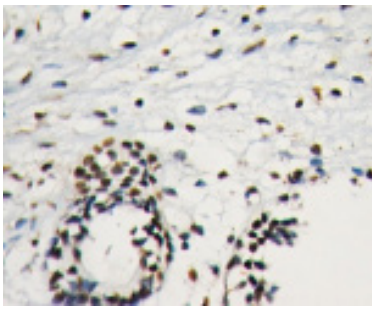
## Oct-4



Oct-4 transcription factor is initially active as a maternal factor in the oocyte but remains active in embryos throughout the preimplantation period. The oct-4 expression is associated with an undifferentiated phenotype and tumors. Oct-4 is a sensitive and specific marker for germ cell tumors. It is consistently detected in carcinoma in situ/ gonadoblastoma, seminomas, germinoma, dysgerminoma, and embryonal carcinoma but not in the differentiated components of nonseminomas, i.e., teratomas, yolk sac tumors, and choriocarcinomas. It is useful in the identification of primary as well as metastatic germ cell tumors. High OCT4 expression represents a clinically relevant predictor of patient prognosis in prostate cancer.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Oct-4 | EP143 | Nucleus | AN724, AY724, NU724 |

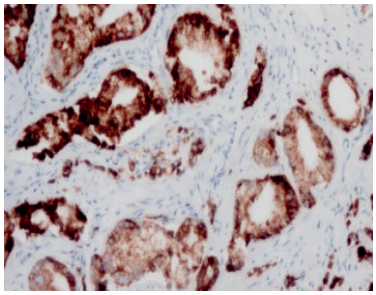
## p40



TAp63 and delta-Np63 are the two major isoforms of p63 and these isoforms differ from each other in the structure of the N-terminal domains. Delta-Np63 isoform that is identified by anti-p40 antibody contains an alternative transcriptionally-inactive delta-N domain. BioGenex TP40/3980R (p40) clone is specific for delta-Np63 but not TAp63. p40 reacts with the vast majority of cases of squamous cell carcinomas of various origins, but not with adenocarcinomas. It is particularly useful in discriminating lung squamous cell carcinoma from lung poorly differentiated adenocarcinoma. p40 antibody may also be used as an alternative immunohistochemical marker to determine prostate adenocarcinoma vs. benign prostate glands and breast intraductal carcinoma vs. invasive breast ductal carcinoma.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| p40 | TP40/3980R | Nucleus | ANA43, AXA43, MUA43 |

## P504S (AMACR)

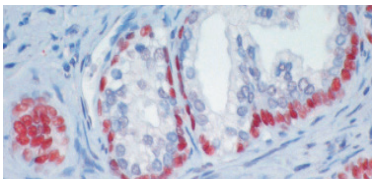


AMACR (Alpha-Methylacyl-CoA Racemase) has been recently described as a prostate cancer-specific gene that encodes a protein involved in the beta-oxidation of branched-chain fatty acids. High expression of AMACR (P504S) protein is usually found in prostatic adenocarcinoma but not in benign prostatic tissue by immunohistochemical staining in paraffin-embedded tissues. It stains premalignant lesions of prostate: high grade prostatic intraepithelial neoplasia (PIN) and atypical adenomatous hyperplasia. Using AMACR (P504S) as a positive marker along with basal cell staining (34 beta E12 or p63) as a negative marker could help to confirm the diagnosis of a small focus of prostate carcinoma on needle biopsies.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| P504S (AMACR) | RBT-AMACR | Cytoplasm | AN538, AY538, NU538 |
| P504S (AMACR) | 13H4 | Cytoplasm | AN449, AY449, NU449 |

# IHC PANEL MARKERS - Prostate & Testicular Cancer

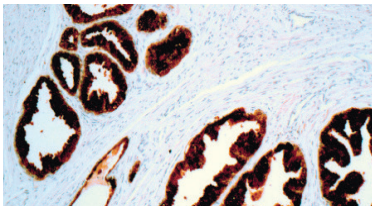
## p63



This antibody will detect all isoforms of p63 since the epitope is within the DNA binding domain. The p63 protein is a member of the p53 family, which also includes p73. p63 protein is detected in proliferating cells of epithelium, cervix, urothelium and prostate.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| p63 | 4A4 | Nucleus | AM418, AX418, MU418 |

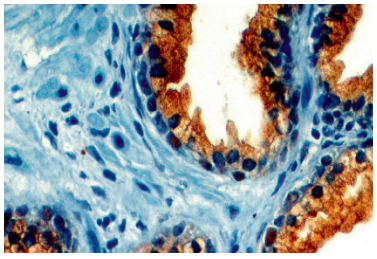
## Prostate Specific Antigen (PSA)



PSA is a glycoprotein with a molecular mass of 33-34 kD. Clone ErPr8 is directed against a 35 kD protein identical to PSA. PSA is biochemically and immunologically distinct from prostatic acid phosphatase. It is restricted to the cytoplasm of acinar and ductal epithelia of normal, benign or malignant prostate tissue. This antibody is useful for determining if an isolated metastasis is of prostatic origin. Since PSA is released by prostatic tumors, it is also a valuable serum marker of neoplasia.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Prostate Specific Antigen (PSA) | ErPr-8 | Cytoplasm | AM014, AX014, MU014 |

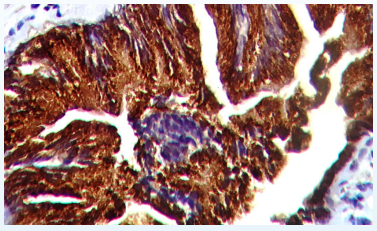
## Prostate Specific Acid Phosphatase (PSAP)



Prostate specific acid phosphatase (PSAP) is a 100 kD glycoprotein present in high concentration in the prostate gland and its secretions. PSAP is measured clinically because its level often rises in the serum in cases of prostatic carcinoma. By immunohistochemical analysis PSAP has been found concentrated within the large secretory vacuoles of the supranuclear portion of the prostatic columnar epithelial cell. In hyperplastic prostates and in benign prostatic tissue adjacent to the prostatic carcinoma, PSAP activity is limited to the acinar or ductal columnar epithelial cells and adjacent luminal content.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Prostate Specific Acid Phosphatase (PSAP) | B01-94-21M-NA | Cytoplasm | AM013, AX013, MU013 |
| Prostate Specific Acid Phosphatase (PSAP) | PASE/4LJ | Cytoplasm | AMB55, AXB55, MUB55 |

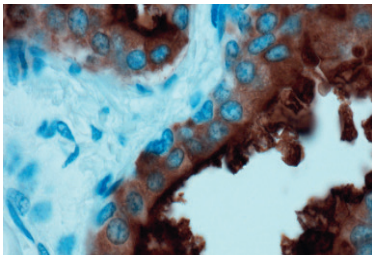
## Prostein



Prostein (Prostate cancer-associated protein 6) is a prostate-specific, 553 amino acid type IIIa plasma transmembrane protein that is upregulated by androgens. It has a perinuclear-like staining pattern, as expression is found in the Golgi complex of prostate cells. Prostein was positive in 99% of metastatic prostate adenocarcinomas while 97% of cases were positive for PSA. Prostein in conjunction with PSA improves identification of prostatic origin in unknown primary lesions, when staining alone with Prostein or PSA. Prostein is useful in diagnosing and monitoring prostate cancer.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Prostein | A-5 | Cytoplasm & Membrane | AMB54, AXB54, MUB54 |

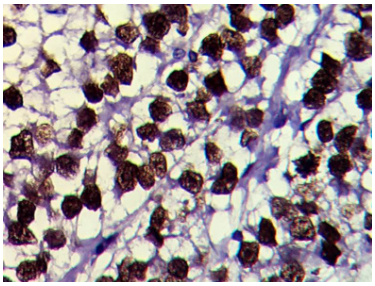
## Prostate Specific Membrane Antigen (PSMA)



Prostate Specific Membrane Antigen (PSMA) is a surface glycoprotein with restricted expression to normal prostate tissue, primary and metastatic prostate cancer and the neovasculature of various nonprostatic epithelial malignancies. Overexpression of PSMA is correlated with high tumor grade, non-diploid tumors, and advanced tumor stage. It is a useful marker for prostate tumors. In prostate cancer, overexpression of PSMA is correlated with high tumor grade, non-diploid tumors, and advanced tumor stage .It can be used as an effective predictor for tumor progression in prostate cancer.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Prostate Specific Membrane Antigen (PSMA) | SP29 | Membrane | AN768, AY768, NU768 |

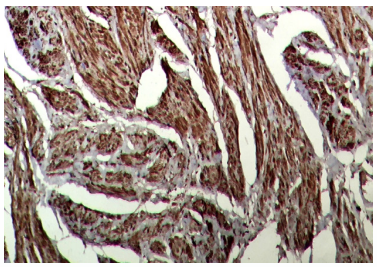
## SALL4



Sal-like protein 4 (SALL4) is a zinc-finger transcription factor highly expressed during development. Sall4 is expressed very early in development with other pluripotency regulators, such as Oct-4 and Nanog. It serves as a master regulator of embryonic pluripotency by modulating Oct4 and is involved in processes associated with stem cell activities. SALL4 expression in germ cells makes it a useful sensitive and specific diagnostic marker for germ cell tumors such as seminomas, embryonal carcinoma, and yolk sac tumors. SALL4 expression is also seen in the spermatogonia of normal testis. Anti-SALL4 antibody also stains most cases of teratoma and the mononucleated trophoblastic cells in choriocarcinomas.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| SALL4 | 6E3 | Nucleus | AMB18, AXB18, MUB18 |

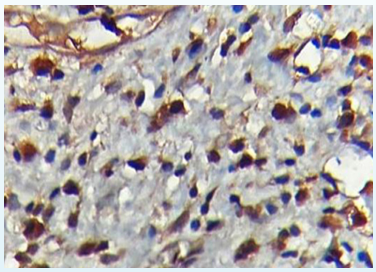
## Smoothelin



Smoothelin is a constituent of the smooth muscle cell cytoskeleton protein exclusively found in differentiated smooth muscle cells (SMC). Smoothelin associates with actin stress fibers but does not interact with desmin. Cells with SMC-like characteristics, such as myofibroblasts and myoepithelial cells, as well as skeletal and cardiac muscle do not contain smoothelin. Smoothelin antibody has been reported to be a useful tool in monitoring SMC differentiation; and may aid in the distinction of terminally differentiated smooth muscle cells, smooth muscle neoplasms of the gastrointestinal tract and the staging of bladder carcinoma.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Smoothelin | C-8 | Membrane & Cytoplasm | AMB40, AXB40, MUB40 |

## Thymidylate Synthase

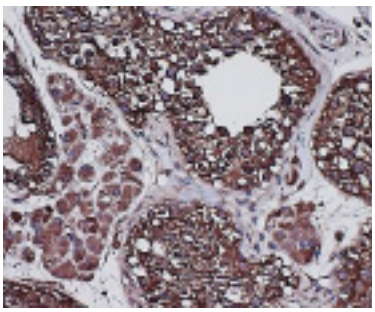


Thymidylate Synthase (TS or TYMS) is a 36kDa intracellular enzyme catalyzes deoxyuridine monophosphate (dUMP) to deoxythymidine monophosphate (dTMP) which is essential for DNA biosynthesis or DNA repair. It is also an important target for fluoropyrimidines, an important group of antineoplastic drugs (e.g: 5-fluorouracil (5-FU)) which acts TS inhibitor and are widely used in the treatment of solid tumors such as breast, colon, head and neck.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| Thymidylate Synthase | TYMS/1884 | nucleus and cytoplasm | AMC15, MUC15, AXC15 |

# IHC PANEL MARKERS - Prostate & Testicular Cancer

## SPARC / Osteonectin



SPARC (Osteonectin) is secreted by osteoblasts during bone formation. It is a 40kD acidic and cysteine-rich glycoprotein consisting of a single polypeptide chain. It is a glycoprotein in the bone that binds calcium and also involved in extracellular matrix synthesis and promotion of changes to cell shape. An interrelationship between osteonectin over-expression and ampullary cancers and chronic pancreatitis has been found. The gene product has been correlated with tumor suppression but has also been associated with metastasis based on cell shape changes which can promote tumor cell invasion. Three transcript variants encoding different isoforms have been known for this gene.

| Antibody | Clone | Localization | Catalog Family |
|---|---|---|---|
| SPARC / Osteonectin | ON1-1 | Cytoplasm | AMA28, AXA28, MUA28 |

## 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 |
| Ovarian 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.

BioGenex

**In the U.S., call :**
+1-510-824-1400
+1-800-421-4149

**For outside US, India, and China:**
+91-7702301043

www.biogenex.com

**Customer Service**
US: customerservice@biogenex.com
India: indiacs@biogenex.com
Global: internationalcs@biogenex.com