

Core Immunohistochemical Stains

Antibody code	Antibody - primary designation	Antibody - secondary designations	Source	Cat#	Ab type	Species reactivity	dilution	Primary classification	Comments	Validated on human tissue	Validated on mouse tissue
AKT1	Akt1/PKBa		Epitomics	1085-1	rabbit monoclonal	human, mouse	1:600(H), 1:1000(M)	signal transduction / apoptosis	A Ser/Thr protein kinase whose activity plays a key role in various cellular functions, including apoptosis, glycogen synthesis, and cell growth. Phosphorylation on Thr308, Ser473 and Tyr474 is required for full activity.	Y	Y
AKT-pS473	Akt1/PKBa (pS473)		Epitomics	2118-1	rabbit monoclonal	human, mouse	1:400(H), 1:200(M)	signal transduction / apoptosis		Y	Y
ALDH1A1	ALDH1A1	aldehyde dehydrogenase	Epitomics	2052-1	rabbit monoclonal	human, mouse, rat	1:750(H,M)	Stem cell marker	Erythrocyte enzyme and liver cytosolic enzyme, expressed in high level in some stem cells & in some tumor types.	Y	Y
bcat	beta-catenin		Epitomics	E247	rabbit monoclonal	human, mouse	1:500(H), 1:1000(M)	Signal transduction, Stem cell marker	Change of localization from cell surface to nuclear indicates Wnt signalling. Stem cells often have wnt signalling.	Y	Y
BRCA1	BRCA1		Calbiochem	OP92	mouse monoclonal	human	1:50(H)	Differentiation	Inactivation of the BRCA1 gene , located at 17q21, is responsible for some forms of familial breast and ovarian cancer and sporadic ovarian cancer. The BRCA1 protein is expressed predominantly in the nucleus and appears to undergo cell cycle regulation.	Y	
CD31(H)	CD31	PECAM1	Epitomics	2530-1	rabbit monoclonal	human	1:800	Differentiation	CD31 is found on the surface of endothelial cells, platelets and leukocytes. It plays a major role in a number of cellular interactions, particularly in adhesion between endothelial cells and leukocytes during inflammation and angiogenesis. Angiogenesis is critical to tumor growth, neoplastic progression and metastasis	Y	
CD31(H,M)	CD31	PECAM1	Abcam	ab28365	rabbit polyclonal	human, mouse	1:4	Differentiation	CD31 is found on the surface of endothelial cells, platelets and leukocytes. It plays a major role in a number of cellular interactions, particularly in adhesion between endothelial cells and leukocytes during inflammation and angiogenesis. Angiogenesis is critical to tumor growth, neoplastic progression and metastasis		Y
CD44	CD44		Epitomics	1998-1	rabbit monoclonal	human, mouse, rat	1:400(H)	Stem cell marker	Cell surface glycoprotein, expressed in lymphocytes, upregulated in some tumors. Present in some stem cells.	Y	N - no staining
CD45	CD45		BD Biosciences	550539	rat monoclonal	mouse	1:80(M)	Leukocyte differentiation	CD45 is a transmembrane glycoprotein which is expressed at high level on leukocytes from hematopoietic cells. CD45 isoforms play roles in T-cell and B-cell antigen receptor signaltransduction.	N- no staining	Y
CD68	CD68		Novus Biologicals	NB100-683	mouse monoclonal	human, mouse	1:400(H)	Stem cell marker	Glycosylated transmembrane protein which is mainly located in lysosomes. It reacts with myeloid precursors and peripheral blood granulocytes.	Y	N-Non specific staining
Desmin	Desmin		Epitomics	1466-1	rabbit monoclonal	human, mouse, rat	1:250(H,M)	Differentiation	Intermediate filament protein, expressed during the formation of muscle cells or fibers.	Y	Y
Ecad	E-cadherin		Epitomics	1702-1	rabbit monoclonal	human, mouse	1:4000(H)	Cell-cell interaction, Differentiation	E-cadherin is a glycoprotein with an extracellular domain that interacts with other E-cadherin molecules on adjacent cells, thereby establishing adhesion between epithelial cells.	Y	N-Non specific staining
EGFR	Epidermal Growth Factor Receptor		Thermo Scientific	MS-378-P1	mouse monoclonal	human	1:800 (H)	Differentiation	EGFR is type I receptor tyrosine kinase, activated by the EGF family of ligands. EGFR is overexpressed or mutated in many common forms of carcinoma.	Y	N-no staining
EpcAM	Epithelial cell adhesion molecule	GA733-2, EGP, KSA, KS 1/4, Trop 1, CD326	Epitomics	1144-1	rabbit monoclonal	human, mouse, rat	1:2500(H,M)	Differentiation	A monomeric membrane glycoprotein expressed on virtually all epithelial cells	Y	Y
Her2	Her2	c-erbB-2,neu	Zymed Laboratories	18-7107	mouse monoclonal	human	1:100(H)	Differentiation	HER2 is a membrane receptor tyrosine kinase which exhibits extensive homology to EGFR. Activation of HER2 potentiates tumor cell motility, DNA repair and apoptosis response. Amplification of HER2 occurs in 20-30% of Breast cancer.	Y	N-no staining
K10	cytokeratin 10		Epitomics	2210-1	rabbit monoclonal	human	1:300(H)	Differentiation	Intermediate filament protein, expressed in suprabasal layers of stratified squamous epithelium. Expression is related to degree of keratinocyte differentiation.	Y	N - no staining
K18	cytokeratin 18		Epitomics	1433-1	rabbit monoclonal	human, mouse, rat	1:200(H), 1:100(M)	Differentiation	Intermediate filament protein, expressed preferentially in simple glandular epithelia.	Y	Y
Ki67	Ki67		Epitomics	4203-1	rabbit monoclonal	human, mouse	1:400(H,M)	Proliferation / Cell cycle	Present in active phases of the cell cycle (late G1, S, G2, and mitosis), but absent in resting cells.	Y	Y

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NFKB-p65	Nuclear factor kappa B, p65 subunit		Epitomics	1546-1	rabbit monoclonal	human	1:500(H)	signal transduction / apoptosis	Inducible transcription factor involved in apoptosis resistance. Bound to inhibitor (IKB) and retained in cytoplasm. During activation, the p65 subunit is released from IKB and translocates to the nucleus.	Y	N - no staining
Oct4	Oct-4	Oct-3, Oct-3/4	Santa Cruz	sc-8629	goat polyclonal	human, mouse, rat	1:1000(H)	Stem cell marker	POU domain-containing transcription factor, expressed in stem cells. Regulates stem cell renewal & differentiation.	Y	N - non specific staining
pMEK(Ser221)	Phospho-MEK 1/2(Ser221)	MAPK	Cell Signaling	2338	rabbit polyclonal	human, Mouse, Rabbit, Dog	1:100(H)	Differentiation	MEK1 and MEK2 are dual-specificity protein kinases that function in a mitogen activated protein kinase cascade controlling cell growth and differentiation	Y	N/A
p16		cyclin-dependent kinase inhibitor 2A, CDKN2A	BD Pharmingen	550834	mouse monoclonal	human	1:100 (H)	Tumor suppressor gene	p16 protein is a specific inhibitor of cdk4, which regulates Rb and Rb related proteins, p107 and p130. p16 is inactivated in many tumor types by gene mutation or silencing, and its protein level is influenced by papillomavirus oncoproteins.	Y	N-no staining
p21	p21	WAF1/Cip1	Santa Cruz	sc-6246	mouse monoclonal	human, mouse, rat	1:100(H)	Proliferation/ cell cycle	Promotes cell cycle transitions.	Y	N - non specific staining
p53	p53		Abcam	ab26	mouse monoclonal	human, mouse, rat	1:1000(H)	Tumor suppressor gene	p53 plays a major role in the cellular response to DNA damage and ther genomic aberrations. Activation of p53 can lead to either cell cycle, arrest and DNA repair, or apoptosis.	Y	N - non specific staining
p63	p63		Sigma-aldrich	P3737	mouse monoclonal	human, mouse, rat	1:2000(H), 1:1000(M)	Differentiation	Expressed in many types of basal epithelium. Differentiates between basal and surface/luminal epithelium.	Y	Y
PARP1	PARP-1 (Cleaved p25)		Epitomics	1051-1	rabbit monoclonal	human, mouse	1:500(H,M)	Apoptosis	Cleaved in vivo by caspase 3, hence is a marker of activated apoptotic pathway.	Y	Y
Plectn	Plectin 1		Abcam	ab32528	rabbit monoclonal	human, mouse, rat	1:400(H)	Differentiation	An intermediate filament binding protein, Could also bind muscle proteins such as actin to membrane complexes in muscle.	Y	
SMA	smooth muscle actin	alpha actin	Epitomics	1184-1	rabbit monoclonal	human, mouse, rat	1:200(H)	Differentiation	Contractile protein that makes up the cytoskeleton. SMA is restricted to smooth muscle cells (including vascular smooth muscle) and myoepithelial cells.	Y	N - non specific staining
SRC	cSRC		Epitomics	1587-1	rabbit monoclonal	human, Rat	1:100(H)	Differentiation	Src is a protein tyrosine kinase known to regulate cellular adhesion. Several cancers including colon and breast cancer have been associated with an increase of SRC activity.	Y	N-no staining
Stat5a	Stat 5a		Santa Cruz	sc-1081	rabbit polyclonal	human, mouse, rat	1:400(H)	Differentiation/Signal transduction	Membrane receptor signaling by various ligands, including interferons and growth hormones such as EGF, induces activation of Jak kinases which then leads to tyrosine phosphorylation of various transcription factors.	Y	
Stat5b	Stat 5b		Santa cruz	sc-1656	mouse monoclonal	human, mouse, rat	1:125(H)	Differentiation/Signal transduction	Activation of Stat 5b via IL-2, IL-4, CSF1 and growth hormones influences TCR signaling, apoptosis, adult mammary gland development and sexual dimorphism of liver gene expression.	Y	
Stat5-pY694	Phospho-Stat5 (Tyr 694)		Epitomics	1208-1	rabbit monoclonal	human, mouse	1:50(H)	Differentiation/Signal transduction	Stat5 is tyrosine phosphorylated in response to IL2, IL3, IL7, IL15, GM-CSF, growth hormone, prolactin, erythropoietin and thrombopoietin. Tyrosine phosphorylation is required for DNA-binding activity and dimerization.	Y	
Vim(H)	Vimentin		Epitomics	4211-1	rabbit monoclonal	human	1:200(H)	Differentiation	Most common member of intermediate filament family and a main component of cytoskeleton structure. Most strongly expressed in mesenchymal cells and other cell types derived from mesoderm.	Y	N-no staining
Vim(H,M)	Vimentin		Abcam	ab45939	rabbit polyclonal	human, mouse	1:800	Differentiation	Most common member of intermediate filament family and a main component of cytoskeleton structure. Most strongly expressed in mesenchymal cells and other cell types derived from mesoderm.		Y