

MB K1	APPENDIX	TONSIL	PANCREAS	HEPAR
AAT Alfa-1-antitrypsin (Cytopl)	Macrophages & villi of columnar epithelial cells	Macrophages	0	Kupfer cells & hepatocytes (globuli)
ASMA Alfa-smooth muscle actin (Cytopl)	Smooth muscle cells in vessels and in muscle layers. Myofibroblasts lining the epithelial surface	Smooth muscle cells in vessels	Smooth muscle cells in vessels	Smooth muscle cells in sinusoids
B-CATENIN Beta-catenin (Membrane)	Membranes of columnar epithelial cells. Endothelial and follicular denritic cells	Membranes of squamous epithelial cells	Membranes of acinar epithelial cells (ducts) and endocrine cells	Hepatocytes - weak membranous
BCL2 Bcl2-oncoprotein (Cytopl)	All peripheral lymphocytes incl T-cells in germinal centres - Germinal centre B-cells are negative.	All peripheral lymphocytes incl T-cells in germinal centres - Germinal centre B-cells are negative.	Weak reaction of epithelial cells.	0
BCL6 Bcl6-protein (Nuclear)	Germinal centre B-cells	Germinal centre B-cells and basal squamous cells	0	0
BOB.1 BOB.1-protein (Nuclear)	Strong reaction in germinal centre B-cells - weak reaction in mantle zone B-cells and plasma cells	Strong reaction in germinal centre B-cells - weak reaction in mantle zone B-cells and plasma cells	0	0
CD2 (Membrane)	All T-cells - Isolated T-cell in germinal centres	All T-cells - Isolated T-cells in germinal centres	T-cells	T-cells
CD3 (Membrane)	All T-cells - Isolated T-cell in germinal centres	All T-cells - Isolated T-cell in germinal centres	T-cells	T-cells
CD4 (Membrane)	60 - 80 % of T-cells	60 - 80 % of T-cells and Germinal centre macrophages	0	Kupfercells and sinusoid endothelial cells
CD5 (Membrane)	All T-cells - Isolated T-cell in germinal centres	All T-cells - Isolated T-cells in germinal centres	T-cells	T-cells
CD7 (Membrane)	Almost all T-cells	Almost all T-cells	T-cells	T-cells
CD8 (Membrane & cytopl)	20 - 40 % of the T-cells and NK-cells, Isolated T-cells in germinal centres	20 - 40 % of the T-cells and NK-cells, Isolated T-cells in germinal centres	0	0
CD10 (Membrane)	Germinal centre B-cells, neutrophile granulocytes	Germinal centre B-cells, neutrophile granulocytes	0	Gall canaliculi
CD14 (Membrane)	Follicular dendritic cells and macrophages	Follicular dendritic cells and macrophages	Macrophages	Kupfercells and sinusoid endothelial cells
CD20 (Membrane)	All B-cells incl germinal centre B-cells, plasma cells are neg.	All B-cells incl germinal centre B-cells, plasma cells are neg.	B-cells	B-cells

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CD21 (Membrane)	Follicular dendritic cells	Follicular dendritic cells and a few mantle zone B-cells	0	0
CD23 (Membrane)	Follicular dendritic cells and 10 - 50 % of the mantle zone B-cells	Follicular dendritic cells and 10 - 50 % of the mantle zone B-cells	0	0
CD31 (Membrane & cytopl)	Endothelial cells and a few mantle zone B-cells	Endothelial cells and a few mantle zone B-cells	Endothelial cells	Endothelial cells
CD34 (Membrane & cytopl)	Endothelial cells and myofibroblasts	Endothelial cells and myofibroblasts	Endothelial cells and myofibroblasts	Portal endothelial cells
CD38 (Membrane)	Germinal centre B-cells and plasma cells	Germinal centre B-cells and plasma cells	Plasma cells	Plasma cells and weak reaction of sinusoids
CD43 (Membrane)	Almost all T-cells	Almost all T-cells - Isolated T-cells in germinal centres	T-cells	T-cells
CD45 Leucocyt common antigen (Membrane)	All lymphocytes	All lymphocytes	All lymphocytes	Lymphocytes and Kupfer cells
CD56 (Membrane)	Peripheral nerves - ganglion cells and axons. Endocrine cells	NK-cells in the interfollicular areas	Peripheral nerves and the islets of Langerhans	Peripheral nerves
CD57 (Membrane)	Peripheral nerves - ganglion cells and axons. Endocrine cells	NK-cells in the interfollicular areas and T-cells in germinal centres	Peripheral nerves and a few cells in the islets of Langerhans	0
CD68 (Membrane & cytopl)	Granulocytes and germinal centre macrophages	Granulocytes and germinal centre macrophages	Granulocytes	Kupfer cells
CD79 (Membrane & cytopl)	All B-cells incl germinal centre cells and plasma cells	All B-cells incl germinal centre cells and plasma cells	All B-cells	All B-cells
CD117 (Membrane & cytopl)	Mast cells and Cajal cells - smooth muscle cells shall be negative	Mast cells	Mast cells	Mast cells
CD138 (Membrane & cytopl)	Plasma cells and a weak reaction of the columnar epithelial cells	Plasma cells	Plasma cells	Plasma cells
Cdx2 (Nuclear)	All nuclei of columnar epithelial cells	Negative	Weak reaction of epithelial cells in large ducts	Negative - occasionally few gall epithelial cells are pos.
CEA Carcino-embryonic antigen, mono (Cytopl)	All columnar epithelial cells - luminal accentuation and reaction of the cytoplasm	Squamous epithelial cells	0	0
CEA PO Carcino-embryonic antigen, poly (Cytopl)	All columnar epithelial cells - luminal accentuation and reaction of the cytoplasm	Squamous epithelial cells, granulocytes and macrophages	Granulocytes and macrophages	Gall canaliculi and kupfer cells

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CGA-PO Chromogranin A, poly (Cytopl)	Endocrine cells and peripheral nerves - ganglion cells and axons	0	Endocrine cells in the islets of Langerhans	Peripheral nerves.
CGA Chromogranin A, mono (Cytopl)	Endocrine cells and peripheral nerves - ganglion cells and axons	0	Endocrine cells in the islets of Langerhans	Peripheral nerves.
CK5 cytokeratin 5 (Cytopl)	Mesothelial cells	Squamous epithelial cells.	Negative	Negative
CK5/6 Cytokeratin 5/6 (Cytopl)	Mesothelial cells	Squamous epithelial cells.	Negative	Negative
CK7 Cytokeratin 7 (Cytopl)	Mesothelial cells - occasionally a few columnar epithelial and endothelial cells.	Squamous epithelial cells	Columnar epithelial cells of large ducts and intercalated ducts	Gall columnar epithelial cells
CK8 Cytokeratin 8 (Cytopl)	Columnar epithelial cells & mesothelial cells	A few squamous epithelial cells and focally fibroblastic reticulum cells	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes
CK13 Cytokeratin 13 (Cytopl)	Negative	Suprabasal squamous epithelial cells.	Negative	Negative
CK14 Cytokeratin 14 (Cytopl)	Mesothelial cells	Squamous epithelial cells.	Negative	Negative
CK18 Cytokeratin 18 (Cytopl)	Columnar epithelial cells & mesothelial cells	Few squamous epithelial cells and focally fibroblastic reticulum cells	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes
CK19 Cytokeratin 19 (Cytopl)	Columnar epithelial cells & mesothelial cells	Few squamous epithelial cells	Columnar epithelial cells of large ducts	Gall columnar epithelial cells
CK20 Cytokeratin 20 (Cytopl)	Columnar epithelial cells and endocrine cells	0	0	0
CK Sentinel node mamma Cytokeratin 7 + 19 (Cytopl)	Columnar epithelial cells & mesothelial cells. Occasionally endothelial cells.	Few squamous epithelial cells	Columnar epithelial cells of large ducts and intercalated ducts	Gall columnar epithelial cells
CK LMW (Cam5.2) Low mol weight cytokeratin (Cytopl)	Columnar epithelial cells & mesothelial cells	A few squamous epithelial cells and focally fibroblastic reticulum cells	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes
CK HMW (34BE12) High mol weight cytokeratin (Cytopl)	Negative -A few columnar epithelial cells might be pos. Mesothelial cells are pos.	Squamous epithelial cells	Negative - A few columnar epithelial cells (ducts) might be pos	Negative -gall epithelial cells can be pos.
CK Pan (AE1/AE3) Pan cytokeratin (Cytopl)	Columnar epithelial cells & mesothelial cells	Squamous epithelial cells and focally fibroblastic reticulum cells)	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes

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CK Pan (KL1) Pan cytokeratin (Cytopl)	Columnar epithelial cells & mesothelial cells	Squamous epithelial cells and focally fibroblastic reticulum cells)	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes
CK Pan (MN116) Pan cytokeratin (Cytopl)	Columnar epithelial cells & mesothelial cells	Squamous epithelial cells and focally fibroblastic reticulum cells)	All columnar epithelial cells and islets of Langerhans	Gall columnar epithelial cells & hepatocytes
COL IV Collagen IV (Extra cel)	Basal membrane under the epithelial surface and muscle cells	Basal membrane under the epithelial surface	Muscle cells	Muscle cells
CR Calretinin (Cytopl & nuclear)	Peripheral nerves - ganglion cells and axons - , macrophages and mesothelial cells.	Macrophages	Peripheral nerves - ganglion cells and axons -, macrophages	0
CYD1 Cyclin D1 (Nuclear)	Few basal columnar epithelial cells	Parabasal squamous epithelial cells and few fibroblastic cells	Few basal columnar epithelial cells	0
D2-40 (Cytopl)	Lymphatic endothelial cells - endothelial cells in blood vessels are neg. Mesothelial cells and Schwann cells	Lymphatic endothelial cells, basal squamous epithelial cells and follicular dendritic cells	Lymphatic endothelial cells	Lymphatic endothelial cells
DES Desmin (Cytopl)	Lamina muscularis, smooth muscle cells in small vessels in lamina propria	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels
E-CAD E-cadherin (Membrane)	Membranes of columnar epithelial cells	Membranes of squamous epithelial cells	Membranes of columnar epithelial cells (ducts)	Hepatocytes - weak membranous
ELA Elastase (Cytopl)	Neutrophile granulocytes	Neutrophile granulocytes	Neutrophile granulocytes	Neutrophile granulocytes
EMA Epithelial membrane antigen (Membrane & cytopl)	Membranes of columnar epithelial cells	Membranes of squamous epithelial cells and plasma cells	All epithelial cells	0
EP4 Epithelial protein (Membrane)	Membranes of columnar epithelial cells	Weak reaction of squamous epithelial cells	All epithelial cells	Gall columnar epithelial cells
EPRA Epithelial related antigen (Membrane)	Membranes of columnar epithelial cells	Weak reaction of squamous epithelial cells	All epithelial cells	Gall columnar epithelial cells
FVIII Factor VIII (Cytopl)	Endothelial cells in all vessels.	Endothelial cells in all vessels.	Endothelial cells in all vessels.	Weak reaction of endothelial cell in sinusoids
GLU Glucagon (Cytopl)	0	0	Few endocrine (A-type) cells in the islets of Langerhans	0
GRANZYME B Granzyme B (Cytopl)	T-lymphocytes	T-lymphocytes and NK-cells	0	0

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H-CALDES H-caldesmon (Cytopl)	Lamina muscularis, smooth muscle cells in small vessels in lamina propria and myofibroblasts under the epithelial surface	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels
HEPA Hepatocyte associated antigen (Cytopl)	Negative - occasionally a few columnar epithelial cells are pos.	0	0	Hepatocytes
IgK Cytopl Immunoglobulin kappa (Cytopl)	Plasma cells	Plasma cells	Plasma cells	Plasma cells
IgK Membrane Immunoglobulin kappa (Membrane)	App 60 % of the mantle zone B-cells should show a membranous reaction	App 60 % of the mantle zone B-cells should show a membranous reaction	0	0
IgL Cytopl Immunoglobulin lambda (Cytopl)	Plasma cells	Plasma cells	Plasma cells	Plasma cells
IgL Membrane Immunoglobulin lambda (Membrane)	App 40 % of the mantle zone B-cells should show a membranous reaction	App 40 % of the mantle zone B-cells should show a membranous reaction	0	0
IgM Cytopl Immunoglobulin my (Cytopl)	Plasma cells	Plasma cells	Plasma cells	Plasma cells
IgM Membrane Immunoglobulin my (Membrane)	Almost all mantle zone B-cells should show a membranous reaction	Almost all mantle zone B-cells should show a membranous reaction	0	0
IgE Immunoglobulin epsilon (Cytopl)	Mast cells and plasma cells	Mast cells and plasma cells	0	0
INS Insulin (Cytopl)	0	0	Few endocrine (B-type) cells in the islets of Langerhans	0
KI67 (Nuclear)	Basal columnar epithelial cells and germinal centre cells	Basal squamous epithelial cells and germinal centre cells	0	0
LAM Laminin (Extracel)	Basal membrane under the epithelial surface and muscle cells	Basal membrane under the epithelial surface	Muscle cells	Muscle cells
LAT Linker for Activation T-cells (Membrane)	All T-cells - Isolated T-cell in germinal centres - platelets in vessels and mast cells are pos.	All T-cells - Isolated T-cell in germinal centres - platelets in vessels are pos.	T-cells	T-cells
LYS Lysozyme (Cytopl)	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages

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MAC387 (Cytopl)	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages	Neutrophile granulocytes and macrophages
MAP2 (Cytopl)	Ganglion cells	0	Endocrine cells in the islets of Langerhans.	0
MCM3 Mini chromosome maintance (Nuclear)	Basal columnar epithelial cells and germinal centre cells	Parabasal squamous epithelial cells and germinal centre cells (all nuclei). Mantle zone B-cells almost negative.	0	0
MLH1 DNA mismatch repair (Nuclear)	All nuclei - smooth muscle and stroma cells	All nuclei	All nuclei	All nuclei
MSH2 DNA mismatch repair (Nuclear)	All nuclei - smooth muscle and stroma cells	All nuclei	All nuclei	All nuclei
MSH6 DNA mismatch repair (Nuclear)	All nuclei - smooth muscle and stroma cells	All nuclei	All nuclei	All nuclei
MUC2 Mucine 2 (Cytopl)	Few columnar epithelial cells	0	0	0
MUM1 (Nuclear)	Plasma cells	Plasma cells and some germinal B-cells	Plasma cells	Plasma cells
N-CAD N-Cadherine (Membrane)	Peripheral nerves - ganglion cells and axons - and mesothelial cells	0	Islets of Langerhans	Hepatocytes
NEUN (Nuclear & cytopl)	Peripheral nerves ganglion cells - reaction of golgi app. in epithelium and mesothelial cells	Cytoplasmic reaction of squamous epithelial cells	0	0
NF Neurofilament protein (Cytopl)	Peripheral nerves - ganglion cells and axons	Occasionally plasma cells	Peripheral nerves - ganglion cells and axons	Peripheral nerves - ganglion cells and axons
NGFR Nerve growth factor receptor (Membrane)	Schwann cells and perineural cells	Follicular dendritic cells and basal squamous epithelial cells	0	0
NSE Neuron specifik enolase (Cytopl)	Peripheral nerves	Weak reaction of lymphocytes	Islets of Langerhans	0
Oct-2 Oct-2 protein (Nuclear)	Strong reaction in germinal centre B-cells - weak reaction in mantle zone B-cells and plasma cells	Strong reaction in germinal centre B-cells - weak reaction in mantle zone B-cells and plasma cells	0	0
PAL Prealbumin (Cytopl)	0	0	Islets of Langerhans	0

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PAX5 (Nuclear)	All B-cells (except plasma cells)	All B-cells inclusive germinal centre B-cells (except plasma cells)	0	0
PERIPHERIN (Cytopl)	Peripheral nerves - ganglion cells and axons	0	0	0
PGP Protein gene product 9,5 (Cytopl)	Peripheral nerves - ganglion cells and axons	Follicular dendritic cells and macrophages	Islets of Langerhans	0
Plasma cell (Cytopl)	Plasma cells - reaction of columnar epithelial cells	Plasma cells - reaction of squamous epithelial cells	All epithelial cells	Hepatocytes
PMA Pan muscle actin (Cytopl)	Lamina muscularis, smooth muscle cells in small vessels in lamina propria	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels
PMS2 DNA mismatch repair (Nuclear)	All nuclei - smooth muscle and stroma cells	All nuclei	All nuclei	All nuclei
PP Pancreatic polypeptid (Cytopl)	0	0	F-cells in the islets of Langerhans	0
PROHIBITIN (Cytopl)	Mitochondria in almost all cells	Mitochondria in almost all cells	Mitochondria in almost all cells	Mitochondria in almost all cells
S100 poly (Nuclear & cytopl)	Peripheral nerves - ganglion cells and axons, macrophages and fat cells	Macrophages and follicular dendritic cells	Islets of Langerhans	Kupfer cells
S100B (Nuclear & cytopl)	Peripheral nerves - ganglion cells and axons, macrophages and fat cells	Macrophages	Islets of Langerhans	Kupfer cells
SMMS1 Smooth muscle myosin heavy chain (Cytopl)	Lamina muscularis, smooth muscle cells in the membrane under the epithelial surface	Smooth muscle cells in small vessels. Weak reaction of follicular dendritic cells	Smooth muscle cells in small vessels	Smooth muscle cells in small vessels
SOMATOSTATIN (Cytopl)	Occasionally endocrine cells	0	D-cells in the islets of Langerhans	0
STN Sialosyl-TN (Cytopl)	Columnar epithelial cells (most goblet cells)	Squamous epithelial cells	0	0
SYNAPTOPHYSIN (Cytopl)	Peripheral nerves - ganglion cells and axons. Endocrine cells	0	Islets of Langerhans	Peripheral nerves
SYNAPSIN (Cytopl)	Peripheral nerves - ganglion cells and axons. Endocrine cells	0	Islets of Langerhans	Peripheral nerves
TCR-AB T-cell,alfa-beta rec (Cytopl)	Almost all T-cells	Almost all T-cells	0	0

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TCR-GD T-cell,gamma-delta rec (Cytopl)	Few T-cells in lamina propria	Few T-cells in the interfollicular zone	Occasionally reaction of epithelial cells	0
TENASCIN (Extracel)	Membrane under the epithelial surface and smooth muscle cells	Membrane under the epithelial surface and smooth muscle cells	0	0
THROMBO Thrombomodulin CD141 (Membrane and cytopl)	Endothelial cells and mesothelial cells	Endothelial cells and basal squamous epithelial cells	Endothelial cells and islets of Langerhans	Endothelial cells
TIA1 TIA1-protein (Cytopl)	T-cells in lamina propria	T-cells	T-cells	T-cells
TRYPTASE (Cytopl)	Mast cells	Mast cells	Mast cells	Mast cells
VILLIN (Membrane)	Villi at the surface of the epithelial cells	0	Villi at the surface of the epithelial cells	Villi at the surface of the hepatocytes
VIMENTIN (Cytopl)	Lymphocytes, endothelial cells and peripheral nerves	Lymphocytes, endothelial cells and peripheral nerves	Lymphocytes, endothelial cells and peripheral nerves	Kupfercells
ZAP 70 (Nuclear & Cytopl)	Almost all T-cells	Almost all T-cells - Isolated T-cells. In germinal centres few centrocytes may show weak reaction	T-cells	T-cells