



# Immunohistochemistry Markers

## Hematopoietic Markers

### B cell lymphoma

- I ANXA1 annexin A1, hairy cell, B cell lymphoma\*
- I BCL 2 BCL2 follicular lymphoma, apoptosis
- I BCL 6 BCL6 follicle center B-cells
- I CD10 Common ALL antigen
- I CD20 CD20 pan B-cell
- I CD23 CD23 activated B-cell 125
- I CD79a CD79a B-cell, plasma cells
- I CYCLIN Cyclin D1/PRAD1, mantle cell lymphoma
- I HAIRY Hairy cell leukemia (CBA44)\*
- I MUM1 Multiple Myeloma Oncogene 1
- I PAX 5 PAX-g, B-cell transcription factor
- I ZAP70 ZAP 70, CLL/SLL prognosis\*

### Bone marrow progenitors Leukemia/Blastic

- I CD10 Common ALL antigen
- I CD34 CD34 endothelial, stem cells, stromal cells
- I CD68 CD68 macrophages
- I CD99 Ewings sarcoma, PNET, ALL
- I CD117 CD117 C-kit, myeloid and mast cell
- I GLYCP A Glycophorin-A
- I MPO Myeloperoxidase
- I TDT Terminal deoxynucleotidyl transferase
- I VWF Von Willebrand factor VIII

### Hodgkin/Anaplastic lymphoma

- I ALK 1 Anaplastic lymphoma kinase-1
- I CD15 CD15 epithelial, myeloid, Reed-Sternberg cell
- I CD30 Ki-1 activated T/B-cell, Reed-Sternberg cell
- I FASCIN Hodgkin's Lymphoma, Reed-Sternberg cells
- I PAX 5 PAX-g, B-cell transcription factor

### Panhematopoietic

- I CD45 CD45 leukocyte common antigen

### Plasma cell

- I CD138 CD138 plasma cells, subset epithelial cells
- I KAPLAM Kappa, Lambda Ig light chains double stain
- I KAPPA Kappa immunoglobulin light chains
- I LAMBDA Lambda immunoglobulin light chains
- I P63PC Plasma cell p63\*

### T Cell/NK cell lymphoma

- I CD1a CD1a cortical thymocytes, Langerhans cells
- I CD2 CD2 thymic, T-cells, NK cells
- I CD3 CD3 pan T -cell antigen
- I CD4 CD4 helper T-cells
- I CD5 CD5 pan T-cell, B-cell subset, thymic carcinoma
- I CD7 pan T-cells, NK cells and thymocytes
- I CD8 CD8 suppressor T-cell
- I CD43 CD43 T-cell, myeloid, B-cell subset, histiocytes
- I CD56 CD56 NK cells
- I CD57 CD57 neural, neuroendocrine, NK cells
- I GRANB Granzyme B, cytotoxic T-cell subset, NK cell

## Apoptosis/Cell Cycle Progression

- I P21WAF p21 waf, WAF1, inhibitory gene
- I P27KIP p27Kip, kinase inhibitory protein 1
- I PERK1/2 pERK1/2, extracellular signal related kinase
- I PRB pRb, phosphorylated retinoblastoma suppressor protein

## Breast Markers

- I AKT Akt, protein kinase
- I BRST 2 Cytokeratin 5, p63, CK8/18 breast cocktail
- I BCL2 BCL2 follicular lymphoma, apoptosis inhibiting protein
- I BER EP Epithelial antigen (BER-EP4)
- I CATHD Cathepsin D
- I CD117 c-kit, myeloid and mast cell (CD117)
- I CAM52 Cytokeratin 8 (CAM5.2)
- I CK HMW Cytokeratin high molecular weight; 34BE12
- I CK5/6 Cytokeratin 5/6, squamous, mesothelial
- I CK7 Cytokeratin 7, 54kD
- I CK19 Cytokeratin 19
- I CK20 Cytokeratin 20
- I ECAD E-cadherin epithelial cell, ductal-type breast
- I ER Estrogen receptor
- I HER2 HER2/neu (IVD)
- I KI67 Ki67 (MIB-1) cell proliferation marker
- I P53 p53 tumor suppressor gene protein
- I PLAP Placental alkaline phosphatase, germ cell tumors, adenocarcinoma
- I PR Progesterone receptor
- I SMA Smooth muscle actin

## Carcinoma vs. Mesothelial Markers

- I BERE4 Epithelial antigen (BER-EP4)
- I CALRT Calretinin; Calcium binding protein
- I ERA ERA; Epithelial related antigen (MOC-31)  
Cervical/Gynecological Markers
- I P16 p16 tumor suppressor gene protein
- I PROEXC ProEx™ C biomarker
- I TAG72 TAG 72, adenocarcinoma; HMW glycoprotein
- I WT1, Wilms tumor

## Colon Markers

- EGFR1 Epidermal growth factor receptor (HER1)
- I CDX2 CDX2 colorectal carcinoma
- I MSI Microsatellite instability - MLH1, MSH2, MSH6, PMS2
- I P53 p53 tumor suppressor gene protein

## CNS Markers

- I GFAP Human glial fibrillary acidic protein\*
- I NF Neurofilament

\*Indicates referred tests.



## Infectious Disease Markers

- I CMV Cytomegalovirus
- I HSV Herpes simplex virus type I, II
- I PYLORI H. pylori
- I VZV Varicella zoster virus\*

## Keratin/Epithelial Markers

### High molecular weight

- I CK5/6 Cytokeratin 5/6, positive squamous, mesothelial
- I CK HMW 34BE12, Cytokeratin high molecular weight

### Low molecular weight

- I CAM5.2 Cytokeratin 8 (CAM5.2)
- I CK7 Cytokeratin 7, 54kD
- I CK8/18 Cytokeratin 8/18\*
- I CK19 Cytokeratin 19
- I CK20 Cytokeratin 20

## Myoepithelial/Basal Markers/basement membrane

- I CALDSM caldesmon, smooth muscle
- I CK5/P63 Cytokeratin 5/P63, tumor suppressor gene
- I CLLG IV Collagen IV, basement membrane protein\*
- I P63NU p63 tumor suppressor gene protein nuclear
- I SMM Smooth muscle myosin

## Pankeratin/broad spectrum

- I AE1/AE3 Cytokeratin cocktail, PAN(AE1/AE3)
- I EMA Epithelial membrane antigen

## Lung Markers

- I CK HMW Cytokeratin high molecular weight; 34BE12
- I CK5/6 Cytokeratin 5/6, squamous, mesothelial
- I CK7 Cytokeratin 7, 54kD
- I CK20 Cytokeratin 20
- I ERCC1, Excision repair cross complementing polypeptide
- I P63NU p63 nuclear, tumor suppressor gene protein
- I SYNPTP Synaptophysin
- I TTF1 Thyroid Transcription Factor-1

## Melanocytic Markers

- I HMB 45 Melanoma associated marker
- I MC Melanoma cocktail (HMB-45, MelanA)
- I MELANA Melanoma associated marker/Mart 1
- I S100 S100 protein
- I TYR Tyrosinase

## Neuroendocrine Markers/Other Hormones

- I ANDRO Androgen receptor\*
- I CALCT Calcitonin\*
- I CHROGRAN Chromogranin A
- I GASTRIN G-cell antral/pyloric mucosa
- I NSE Neuron-specific enolase (NSE)\*
- I SOMATO Somatostatin, D-cell pancreatic islet cells\*
- I SYNPTP Synaptophysin

## Other Organ-Related Markers

- I CEA CEA carcinoembryonic antigen
- I GALECT Galectin-3\*, thyroid neoplasm, anaplastic LCL
- I GCDFP15 Gross cystic disease fluid protein 15
- I HEPAR1 Hepatocyte antigen (HEP-Par-1), liver
- I INHIB Inhibin\*, adrenal cortical, sex chord stromal
- I PLAP Placental alkaline phosphatase, germ cell tumors\*
- I RCC Renal cell carcinoma
- I THYRGLB Thyroglobulin\*
- I TTF1 Thyroid transcription factor-1, lung, thyroid

## Prognostic Other

- I CATH D Cathepsin D, breast carcinoma
- I EGFR1 Epidermal growth factor receptor (HER1)
- I ERCC1, Excision repair cross complementing polypeptide
- I HER2 HER2/neu (IVD)
- I P53 p53 tumor suppressor gene protein
- I MSI Microsatellite instability - MLH1, MSH2, MSH6

## Proliferation Markers

- I AKT Akt, protein kinase B
- I KI67 Ki67 (MIB-1) cell proliferation marker
- I WT1, Wilms tumor

## Prostate Markers/Tumor Cocktails

- I PIN2 PIN-2 cocktail (P504S, CK HMW)
- I PIN4 PIN-4 cocktail (P504S, CK HMW, P63)
- I PSA Prostate specific antigen (PSA)
- I PSAP Prostatic acid phosphorase
- I P504S P504S gene product (AMACR)

## Sarcoma/Vascular/Neural/Fibrohistiocytic/ Muscle/GIST Stromal Markers

- I CD10 Common ALL antigen
- I CD31 CD31 endothelial cells
- I CD34 CD34 endothelial, stem cells, stromal cells
- I CD99 Ewings sarcoma, PNET\*
- I CD117 CD117 C-kit, myeloid and mast cell
- I D2 40, Podoplanin
- I DOG 1 derived from GIST 1
- I DESMIN Desmin filament protein
- I FXIII A Factor XIIIa fibrohistiocytic, dendritic cells
- I HHV8, Human Herpesvirus type 8
- I MSA Muscle Specific Actin
- I MYOGEN Myogenin muscle marker\*
- I MYOGLB Myoglobin cardiac, skeletal\*
- I PDGFR Platelet derived growth factor receptor alpha\*
- I S100 S100 protein
- I SMA Smooth muscle actin
- I SMM Smooth muscle myosin
- I VIM Vimentin

## Tumor Markers/Other

- I AFP Alpha fetoprotein, yolk sac, hepatoma\*
- I CA19 9 Ca 19-9 Cl\*, pancreas, liver, ovary, lung
- I CA125 Ca-125 epitheliod malign. ovary, adenocarcinoma, breast
- I SRV Survivin