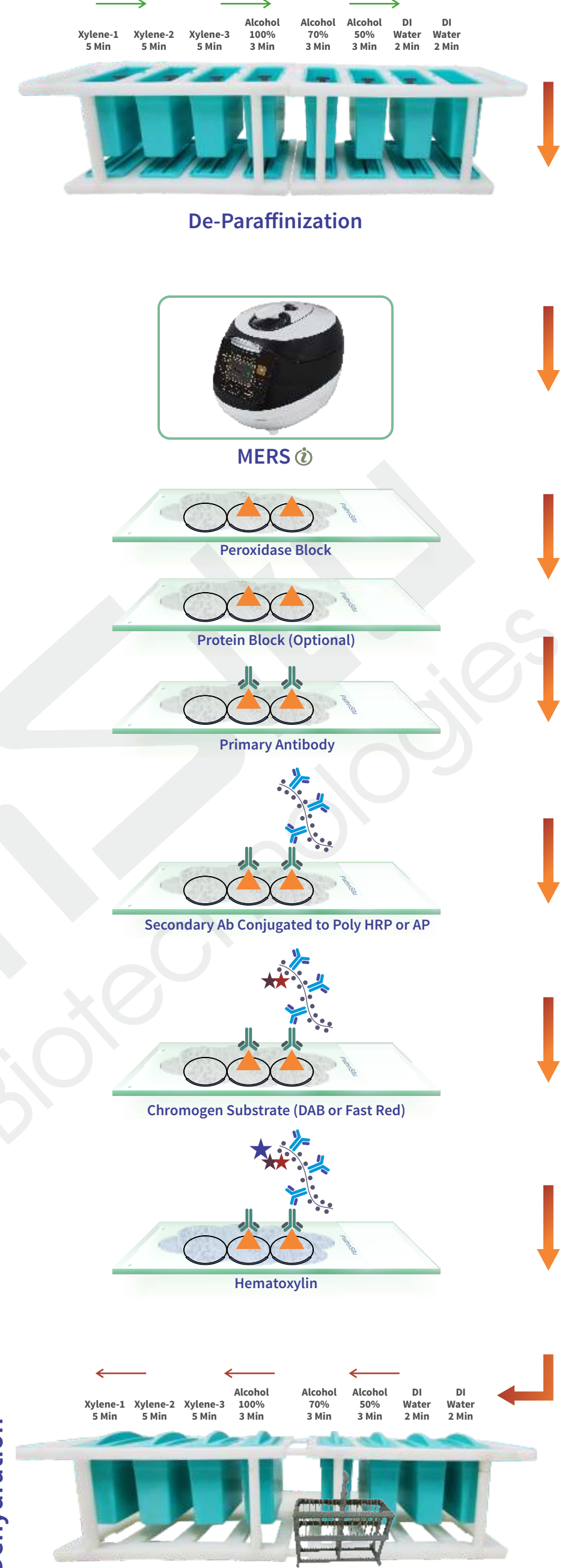
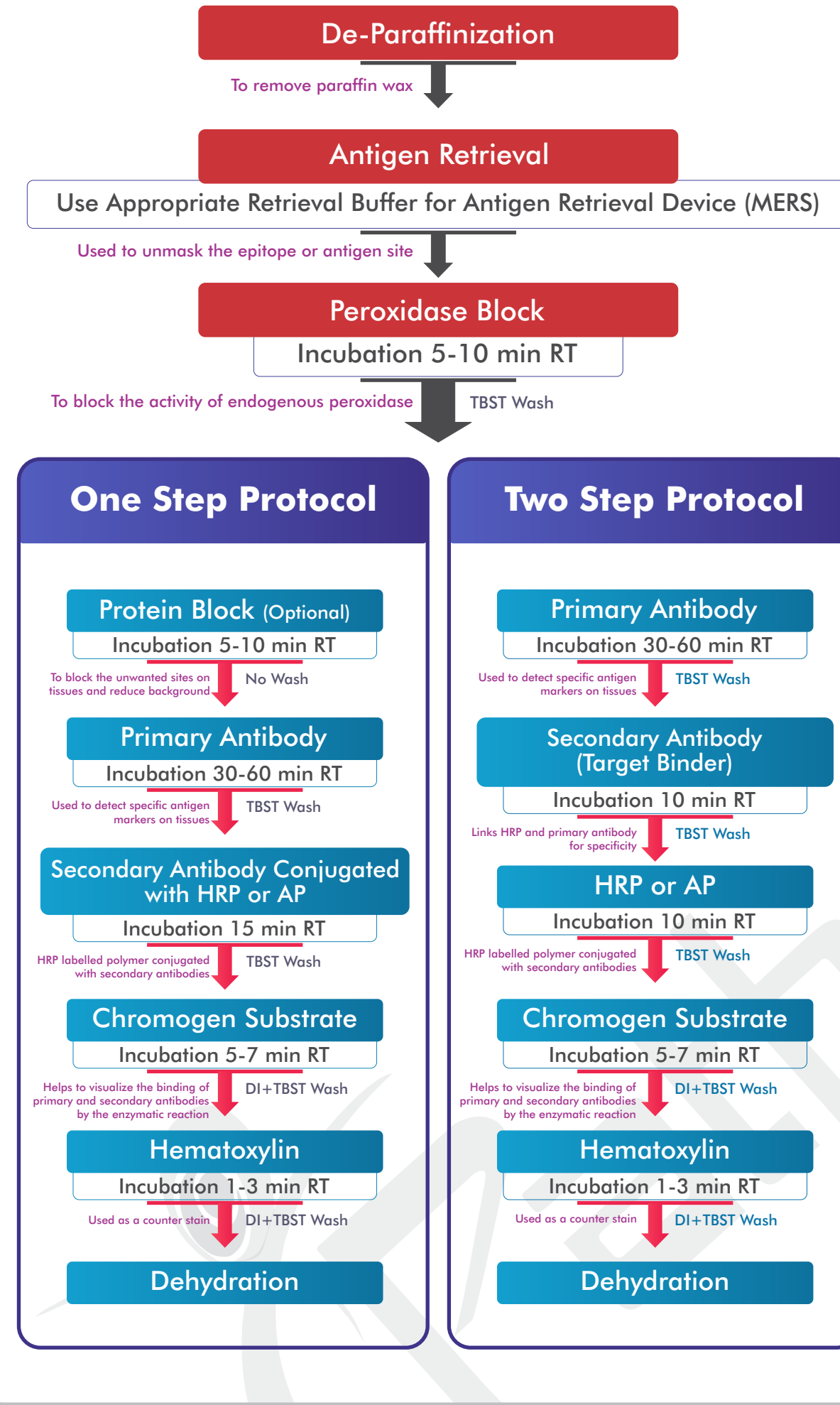


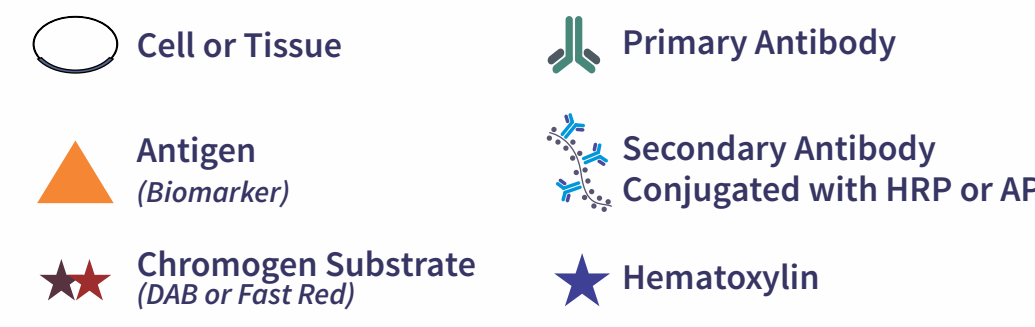
IMMUNOHISTOCHEMISTRY STAINING PROTOCOL

PATHNSITU IMMUNOHISTOCHEMISTRY STAINING PROTOCOL



Recommended Buffer pH

- Immunowash buffer : pH - 7.4-7.6
- Citrate buffer : pH - 6.0
- EDTA buffer : pH - 8.0
- Tris-EDTA buffer : pH - 9.0



Description	Clone	Cell Localization	Antigen Retrieval	Recommended Positive Control
Alpha-1-Antichymotrypsin	EP384	Cytoplasm	Tris-EDTA	Liver, Breast Ca
ACTH	AH26+57	Cytoplasm	Citrate	Pituitary gland
Actin(Smooth Muscle)	1A4	Cytoplasm	Tris-EDTA	Gastrointestinal tract, Uterus, Leiomyoma
AFP	EP209 or Polyclonal	Cytoplasm	Tris-EDTA	Fetal Liver, Hepatocellular Ca, Yolk Sac Tumor
ALDH1A1	EP168	Cytoplasm	Tris-EDTA	Embryonal Liver, Breast Ca, Kidney
ALK	EP302 or 1A4	Cytoplasm and Nucleus	Tris-EDTA	Anaplastic Large Cell Lymphoma(ALCL)
Alpha Actin (Smooth muscle)	EP188	Cytoplasm	Citrate	Smooth muscle, Colon, Uterus, Leiomyoma
AMACR	13H4 or BOFAP	Cytoplasm	Tris-EDTA	Prostate Ca
Androgen Receptor	EP120	Nucleus	Citrate	Benign Prostate Hyperplasia(BPH), Prostate Ca
Annexin A1	B5B-95	Cytoplasm and Membrane	Tris-EDTA	Tonsil, Spleen, Thymus, Colon
Annexin VII	EP267	Cytoplasm or Nucleus or Membrane	Tris-EDTA	Cervical Ca, Tonsil, Melanoma, Prostate Ca, Prostate, Colon Ca
Arginase 1	ARG1/1125+ARG1/1126	Cytoplasm	Tris-EDTA	Hepatocellular Ca(HCC),Liver
ATRX	D5	Nucleus	Tris-EDTA	Astrocytoma, Glioma, Brain
BCL2	EP36	Cytoplasm	Tris-EDTA	Tonsil, Follicular Lymphoma
BCL6	EP278	Nucleus	EDTA	Tonsil, Follicular Lymphoma
Beta Catenin	EP325	Cytoplasm or Nucleus or Membrane	EDTA	Colon Ca, Breast, Fibromatosis
BRCA-1/BRF-1	PRM126	Cytoplasm and Nucleus	Tris-EDTA	Ovarian Lymph Node
BRAF-V600E	RM8	Cytoplasm	EDTA	Mutated Melanoma, Papillary Thyroid Ca
BRCA	PRM130	Cytoplasm	Tris-EDTA	Papillary Thyroid Ca
C4D	EP272 or CAD204	Cytoplasm	Tris-EDTA	Rejected kidney
CA125	EP48	Cytoplasm and Membrane	Citrate	Ovarian Ca, Cervical Ca
CA19.9	1215LE	Cytoplasm	Tris-EDTA	Stomach, Colon Ca, Pancreatic Adeno Ca
Calretinin	EP92 or PCTP	Cytoplasm	Tris-EDTA	Thyroid, Thyroid Medullary Ca
Caldesmon	EP19	Cytoplasm	Citrate	Leiomyoma, Uterus, Smooth Muscle
Calponin1	EP63	Cytoplasm and Nucleus	Citrate	Uterus, Smooth Muscle
Calretinin	Polyclonal	Cytoplasm and Nucleus	Tris-EDTA	Schwannoma, Mesothelioma, Brain, Testis
Carbonic Anhydrase9	EP161	Cytoplasm and Membrane	Tris-EDTA	Stomach, Colon Ca, Gall Bladder, Pancreas
Cathepsin D	EP81	Cytoplasm	Tris-EDTA	Breast Ca
CD3a	MEM60	Membrane	EDTA/ Tris-EDTA	Thymoma
CD10	MMEP or NEPP	Cytoplasm and Membrane	Tris-EDTA	Follicular Lymphoma, RCC, Tonsil
CD13	EP117	Cytoplasm or Membrane	Tris-EDTA	Spleen, AML
CD103	EP206	Membrane	Tris-EDTA	Tonsil, Hodgkin's Lymphoma, Colon, Hairy Cell Leukemia, Stomach Ca
CD105	EP274	Cytoplasm	Tris-EDTA	Tonsil, Vascular Tissue
CD117	EP240 or Polyclonal or PRM117	Cytoplasm and Membrane	Tris-EDTA	Gastrointestinal Stromal Tumor (GIST)
CD138	EP201 or SDCP	Cytoplasm and/or Membrane	Tris-EDTA	Tonsil, Plasmacytoma, Lymph Node
CD15	EP273 or BRAF-4F1	Cytoplasm and Membrane	Tris-EDTA	Spleen, Hodgkins Lymphoma, Tonsil
CD163	EP324	Cytoplasm or Membrane	Tris-EDTA/Citrate	Spleen, Lymph Node
CD19	EP169	Membrane	Tris-EDTA	Tonsil, B-Cell Lymphoma
CD2	EP222	Membrane	Tris-EDTA	Tonsil, T-Cell Lymphoma
CD20	BCAP or L26	Membrane	Tris-EDTA/Citrate	Tonsil, Appendix, Lymph Node
CD205	EP176	Cytoplasm or Membrane	Tris-EDTA	Tonsil, Thymus, Lymph Node
CD209	C209/1781	Cytoplasm and Membrane	Tris-EDTA	Liver, Uterus, Lymph Node, Small Intestine
CD21	EP64	Membrane	Tris-EDTA/ EDTA	Tonsil, Lymphoma
CD23	EP75	Membrane	Tris-EDTA	Tonsil, B-Cell Chronic Lymphocytic Leukemia
CD248	EP383	Cytoplasm and Membrane	Tris-EDTA	Placenta, Breast Ca, Fibrous Histiocytoma
CD3	EP41 or Polyclonal or PSL1 or TCRP	Cytoplasm and Membrane	Tris-EDTA	Tonsil, Lymphoma
CD30	BER-H2 or TR30P	Membrane	Tris-EDTA	Hodgkin's Lymphoma, Tonsil, Anaplastic Large Cell Lymphoma
CD30	PRM128	Cytoplasm and Membrane	Tris-EDTA	Hodgkin's Lymphoma, Tonsil, Anaplastic Large Cell Lymphoma
CD31	EP78 or GM006	Membrane	Tris-EDTA	Placenta, Angiosarcoma, Tonsil, GIST
CD34	EP88 or QbEnd10	Membrane	Tris-EDTA	Placenta, Angiosarcoma, Tonsil, GIST
CD35	EP197	Membrane	Tris-EDTA	Tonsil, Follicular Dendritic Cell Sarcoma
CD38	EP135	Membrane	Tris-EDTA	Tonsil, Lymphoma
CD4	EP204	Membrane	EDTA	Tonsil, T-Cell Lymphoma
CD41	EP178	Cytoplasm and Membrane	Tris-EDTA	Spleen
CD43	DF-71	Membrane	Citrate	Tonsil, Lymph Node, CLL/SLL
CD44	EP44 or HCAM/918	Membrane	Tris-EDTA	Tonsil, Thymus, Uterus, Breast Ca
CD45	EP68	Membrane	Citrate	Tonsil, Lymphoma, Lymph Node
CD45RB(LCA)	Z811/PD7-26	Membrane	Tris-EDTA	Tonsil, Lymphoma, Lymph Node
CD45RO	UCHL1	Membrane	Tris-EDTA/Citrate	Hodgkin's Lymphoma, Tonsil
CD5	EP77	Membrane	Tris-EDTA/EDTA	Tonsil, Mantle Cell Lymphoma
CD56	123C3 or PRM123	Cytoplasm and Membrane	Tris-EDTA	Neuroblastoma, Plasmacytoma, Brain Ca, Small Cell Lung Ca, Pancreas
CD57	NK1	Membrane	Tris-EDTA	Tonsil, Spleen, Schwannomas, Neuroendocrine Tumors, Lymph Node
CD63	EP211	Cytoplasm or Membrane	Tris-EDTA	Spleen, Melanoma, Tonsil
CD68	EP1	Cytoplasm	Tris-EDTA	Tonsil, Spleen, Lymph Node, Giant Cell Tumor of Tendon Sheath
CD7	EP132	Membrane	Tris-EDTA	Tonsil, Acute T-cell Lymphoblastic Leukemia
CD74	EP167	Cytoplasm	EDTA	Tonsil
CD79a	EP82	Cytoplasm or Membrane	Tris-EDTA	Tonsil, B-Cell Lymphoma
CD8	EP334	Membrane	Tris-EDTA	Tonsil
CD8a	C8/468 or PRM118	Membrane	Tris-EDTA	Tonsil, T-Cell Lymphoma
CD95	EP208	Cytoplasm or Membrane	Tris-EDTA	Tonsil
CD99	EP8	Cytoplasm or Membrane	Tris-EDTA	Ewing's Sarcoma, Tonsil
CDK4	EP180	Cytoplasm or Nucleus	Tris-EDTA	Colon, Breast Ca
CDX2	EP25 or TSGP	Nucleus	Tris-EDTA	Colon Adeno Ca, Colon
CEA	EP216	Cytoplasm or Membrane	Citrate	Colon Ca, Gastric Adeno Ca
CEA	COL-1	Cytoplasm and Membrane	Citrate	Gastric Ca, Colon Ca, Colon
Chromogranin A	EP38 or Polyclonal	Cytoplasm	Citrate	Pancreas, Neuroendocrine Tumor
Cytokeratin 5/6	EB51P	Cytoplasm	Tris-EDTA	SCC
Cytokeratin 7	EP16 or OV-TL12/30	Cytoplasm	Citrate	Salivary gland, Lung Adeno Ca, Colon, Breast
Cytokeratin 8	IFGP	Cytoplasm	Tris-EDTA	Lung Adeno Ca, Mammary Glands, Breast Ca
Cytokeratin 10	EP97	Cytoplasm	Tris-EDTA	Skin, Squamous Cell Carcinoma
Cytokeratin 13	EP69	Cytoplasm	Tris-EDTA	Tonsil, Esophagus
Cytokeratin 14	LL02	Cytoplasm	Tris-EDTA	Tonsil, Squamous Cell Ca, Skin
Cytokeratin 17	EP98	Cytoplasm	Tris-EDTA	BPH, SCC
Cytokeratin 18	EP30	Cytoplasm	Tris-EDTA	HCC, Breast, Breast Ca
Cytokeratin 19	EP72	Cytoplasm	Tris-EDTA	Colon, Colon Ca
Cytokeratin 20	EP23 or KS20.8	Cytoplasm	Tris-EDTA	Colon Ca, Colon
CK5 & CK14 Cocktail	EP24 & EP61	Cytoplasm	Citrate	Benign Prostatic Hyperplasia (BPH)
CK5 & CK6 Cocktail	EP24 & EP67	Cytoplasm	Tris-EDTA/EDTA	Squamous Cell Ca, Prostate, Mesothelioma
Cytokeratin 8/18	IFGP	Cytoplasm	Tris-EDTA	Liver, Colon Adeno Ca, Breast Ca
CK8 & CK18 Cocktail	EP17 & EP30	Cytoplasm	EDTA	Colon, Colon Ca, Breast Ca
Cytokeratin PAN	AE1/AE3 or EHPK	Cytoplasm	Tris-EDTA	Colon, Skin, Tonsil, Kidney, Uterus, Placenta, GI Tract
CKHMW	34E12	Cytoplasm and Membrane	Tris-EDTA	Benign Prostate Hyperplasia (BPH), Tonsil
CluSterin	EP181	Cytoplasm	Citrate/Tris-EDTA	Tonsil, Breast Ca
CD117	EP121	Cytoplasm or Nucleus	Tris-EDTA	Tonsil, Lymphoma, Breast Ca, Lung Ca, Stomach Ca
COL1A1	EP236	Cytoplasm	Tris-EDTA	Skin, Breast Ca, Colon, Esophagus
Collagen IV	CO4P	Cytoplasm or Membrane	Tris-EDTA	Skin, Kidney,Liver,RCC
COX2	EP293 or SP21	Cytoplasm	Tris-EDTA	Colon Ca, Stomach Ca, HCC
CPS1- HepPar-1	EP256	Cytoplasm	Tris-EDTA/Citrate	Hepatocellular Ca, Liver
Cytokeratin D1	EP12	Nucleus	Tris-EDTA/EDTA	Thyroid, Colon Ca, Tonsil, Mantle Cell Lymphoma
Cyclin-E1	EP126	Nucleus	Tris-EDTA	Placenta, Breast Ca
Desmin	GM007	Cytoplasm	Tris-EDTA	Uterus, Endometriometrium
DOG 1	EP322 or ANO1P	Cytoplasm and Membrane	Tris-EDTA	GIST
EBV-LMP1	3H2104, a,b,c	Membrane	Tris-EDTA	EBV Infected Tissue, Hodgkin's Lymphoma
E-Cadherin	EP6 or CDCAP	Membrane	Tris-EDTA	Colon Ca, Colon, Breast Ductal Ca,Liver, Ovary
EGFR	EP22	Cytoplasm or Membrane	Tris-EDTA	Colon Ca, Squamous Ca, Tongue, Esophagus
EMA	E29	Cytoplasm and Membrane	Citrate	Skin, Kidney, Epithelioid Sarcoma, Breast, Colon Ca
EpCAM	TMGP or BR-EP4 or MOC31	Membrane	Tris-EDTA	Colon Ca, Lung Adeno Ca, Ovarian Ca, Appendix
Estrogen Receptor	EP1	Nucleus	Tris-EDTA	Breast Ca, Breast
ERG	EP111 or ETSP	Nucleus	Tris-EDTA	Prostate, Prostate Ca, Angiosarcoma, Appendix
Factor XIIIa	EP292	Cytoplasm	Citrate	Spleen, Fibrous Histiocytoma
FGFR3	EP123	Cytoplasm	Tris-EDTA	Hodgkin's Lymphoma
FOXO1	EP277	Nucleus	Tris-EDTA/EDTA	Breast Ca
FOXO3	EP137	Cytoplasm or Nucleus	Tris-EDTA	Tonsil, Diffuse Large B-cell Lymphoma, Breast Ca
FOXO3	EP340	Nucleus	Tris-EDTA	Tonsil, Thymus, Hodgkin's Lymphoma
FSH	EP257	Cytoplasm	Tris-EDTA / Citrate	Pituitary Ca, Pituitary
Galectin-3	EP412	Cytoplasm	Tris-EDTA	Papillary Thyroid Ca, Appendix, Lung, Breast
GATA-3	LS9-823 or EP368	Nucleus	Tris-EDTA	Breast, Breast Ca, Urothelial Ca
GCDFP15	EP95	Cytoplasm	EDTA	Breast Ca, Skin
Geminin	EP355	Nucleus	Tris-EDTA	Thymus, Tonsil, ALL, Breast Ca
GFAP	EP13	Cytoplasm	Citrate	Brain, Astrocytoma, Optic Nerve
Glut1(SLC2A1)	EP141	Cytoplasm and/or Membrane	Tris-EDTA	Colon, Endometrial Benign Epithelium, Placenta
Glycophorin A	EP213	Membrane	Tris-EDTA	Spleen, Esophagus
Glyp3a3-3	IG2P/GPC3/863	Cytoplasm	Citrate/Tris-EDTA	Hepatocellular Ca, Placenta, Brain, Mantle Cell Lymphoma
Granzyme B	EP230	Cytoplasm	Tris-EDTA	Tonsil, Spleen, Hodgkin's Lymphoma
GRIA-2	EP387	Cytoplasm and Membrane	Tris-EDTA	Brain, Neuroendocrine Tumor

Description	Clone	Cell Localization	Antigen Retrieval	Recommended Positive Control
Growth Hormone	EP267	Cytoplasm	Citrate	Pituitary
H.Pylori	Polyclonal or EP279	Bacterium	Citrate	H.Pylori Infected Tissue
hCG	CGP or PRM131	Cytoplasm	Tris-EDTA	Placenta, Chorion Ca
HepPar1	OCH1E5	Cytoplasm	EDTA	Hepatocellular Ca, Liver
HES1/EB2	EP3 or PRM116	Membrane	Tris-EDTA	Cervical Ca
Histone H3 Phospho(pT3)	EP233	Nucleus	Tris-EDTA	Tonsil, Breast Ca
HLA-DRB 1	EP191	Cytoplasm or Membrane	Tris-EDTA	Tonsil, B-Cell Lymphoma
HSP-70	EP377	Nucleus	Tris-EDTA	Breast Ca, Hepatocellular Ca, Brain Ca
Human Placental Lactogen	EP241	Cytoplasm	Tris-EDTA	Placenta
IDH1	IDH1/1152 (Wild Type)	Cytoplasm and Nucleus	Tris-EDTA	Astrocytoma, Breast Ca, Prostate Ca, Glioma
IgG4	EP238	Cytoplasm	Tris-EDTA	Cervical Ca, Tonsil, Melanoma, Prostate Ca
IMP-3	EP286	Cytoplasm and/or Nucleus	Tris-EDTA	Fetal Liver, Esophageal Ca, Lung SCC, Placenta
Inhibin Alpha	R1	Cytoplasm	Tris-EDTA/EDTA	Testis, Granulosa Cell Tumor
INI-1	25	Nucleus	Tris-EDTA/EDTA	Wilms Tumor, Rhabdoid Tumor, Brain, Astrocytoma, Skeletal Muscle
Insulin	EP125	Cytoplasm	Citrate	Pancreas
Kappa Light Chain	EP171	Cytoplasm or Membrane	Tris-EDTA	Tonsil, B-Cell Lymphoma
Keratin	GM101 or MIB-1 or PRM113	Cytoplasm	Tris-EDTA	Tonsil, Lymph Node, Poorly Differentiated Ca
Ki67	GM101 or MIB-1 or PRM113	Nucleus	Tris-EDTA	Tonsil, Breast Ca, Spleen
KIM-1(HAVCr-1)	EP309	Cytoplasm	Tris-EDTA	Normal Kidney, RCC
L1CAM(CD171)	EP411	Cytoplasm and Membrane	EDTA	Appendix, Tonsil, Kidney, Gastric Ca
LI-Cadherin	EP86	Membrane	Tris-EDTA	Small Intestine, Appendix, Colon, Colon Adeno Ca
Lambda Light Chain	EP172	Cytoplasm or Membrane	Tris-EDTA	Tonsil, B-Cell Lymphoma
Laminin	EP138	Membrane	Tris-EDTA	Tonsil, Lymph Node
Langerin (CD207)	EP349	Membrane	Tris-EDTA	Lymph Node, Skin, Langerhans Cells, Histiocytosis, Tonsil, Thymus
LH Alpha	LH4/756	Cytoplasm	Tris-EDTA	Pituitary
Lysozyme	EP134	Cytoplasm	Tris-EDTA	Spleen, Histiocytic Tumor, Tonsil
Mammaglobin	EP249	Cytoplasm	Citrate	Breast Ca
MART-1	EP43	Cytoplasm	Tris-EDTA	Melanoma, Skin
MC2	EP40	Nucleus	Tris-EDTA/EDTA	Breast Ca, Colon Ca, Tonsil
MC5	EP84	Nucleus	Tris-EDTA	Tonsil, Colon Ca
MC6	EP375	Nucleus	Tris-EDTA	Colon, Colon Ca, Lymph Node
MDM2	D7	Nucleus	Tris-EDTA	Breast Ca, Brain, Liposarcoma
MDR1	EP271	Membrane	Tris-EDTA	Liver, HCC, RCC, Colon
Median-A (MART-1)	EP43	Cytoplasm	Tris-EDTA	Skin, Melanoma
Melanoma	HMB45	Membrane	Tris-EDTA	Melanoma
Mesothelin	EP140	Cytoplasm or Membrane	Citrate	Mesothelioma, Ovarian Serous Ca
MLH-1	GM011	Nucleus	Tris-EDTA	Colon Ca, Tonsil, Ovarian Adeno Ca, Pancreas
MMF7	EP388	Cytoplasm	Tris-EDTA	Colon Ca, Tonsil, Ovarian Adeno Ca, Pancreas
MM9	EP127	Cytoplasm	Citrate	Spleen, Breast Ca
MSH2	BCAP or PRM112	Nucleus	Tris-EDTA	Colon
MSH3	PRM119	Nucleus	Tris-EDTA	Colon Ca, Colon
MSH6	EP49	Nucleus	Tris-EDTA	Breast Ca, Colon
MUC5AC	CLH2	Cytoplasm	Tris-EDTA	Stomach, Tongue
MUC1	GP1.4+E29	Cytoplasm and Membrane	Tris-EDTA	Colon Ca, Breast Ca
MUC1	EP65	Cytoplasm or Membrane	Tris-EDTA	Colon Ca, Breast, Colon
MUC2	EP187	Cytoplasm	Tris-EDTA/EDTA	Colon, Mucinous Ca, Tonsil
MUC4	EP256	Cytoplasm or Membrane	EDTA	Colon, Lung Ca
MUM1	EP190	Cytoplasm or Nucleus	EDTA	Tonsil, Plasmacytoma
Muscle Actin	HUC1-1	Cytoplasm and/or Membrane	Tris-EDTA	Smooth Muscle, Solitary Fibrous Tumor, Rhabdomyosarcoma, Leiomyosarcoma, Skeletal Muscle
Myelin Basic Protein	EP207	Cytoplasm	Tris-EDTA	Brain, Oligodendrogloma
Myeloperoxidase	EP151	Cytoplasm	Tris-EDTA	Spleen, Myelogenous Leukemia, Tonsil
Nestin	EP212 or HLHPT	Nucleus	Tris-EDTA	Rhabdomyosarcoma, Fetal muscle
Myogenin	MCN185/F50 or RMPD0 or EP162	Nucleus	Tris-EDTA	Rhabdomyosarcoma, Fetal Skeletal muscle
Myoglobin	EP87	Cytoplasm and/or Nucleus	Tris-EDTA/ Citrate	Rhabdomyosarcoma, Skeletal muscle
Myosin Heavy Chain	EP166	Cytoplasm	Tris-EDTA	Smooth muscle, Testis, Uterus, Urinary bladder, Tongue
Myosin Light Chain	EP99	Cytoplasm	Citrate	Skeletal Muscle, Tongue SCC
Napsin A	EP205 or PRM124	Cytoplasm	Tris-EDTA	Lung Adeno Ca, Lung
Neurofilament	EP79	Cytoplasm	Tris-EDTA	Neuroblastoma
NeuN	EP0X3 or A60	Nucleus	Tris-EDTA/Citrate	Oligodendrogloma, Brain
NKX2.2	NX2/294	Nucleus	Tris-EDTA	Pancreas, Ewings Sarcoma, Malignant Round Cell Tumor
NKX3.1	EP356	Nucleus	Tris-EDTA	Prostate Adeno Ca, Benign Prostatic Hyperplasia
NSE gamma	ENO2/1462	Cytoplasm	Tris-EDTA/Citrate	Pancreas, Brain
Nucleophosmin	Z8M1	Nucleus	Tris-EDTA	Breast Ca
OC-2	EP115	Cytoplasm and/or Nucleus	Tris-EDTA	Colon, Non-Hodgkin lymphoma, B-Cell lymphoma
OC-2	EP284	Cytoplasm and/or Nucleus	Tris-EDTA	Tonsil, Non-Hodgkin lymphoma, B-Cell lymphoma
OC-4	EP143	Nucleus	Tris-EDTA	Seminoma
OLIG-2	EP112	Nucleus	Tr	