



Histologistics Inc.

IHC & Special Stains

Suggested Control Tissues:

Proliferation markers

MIB-1(Ki-67) Tonsil

Use

Apoptosis

Endothelial markers

CD31 Tonsil/BM

Endothelial cells

CD34 Tonsil/BM

Sweat gland neoplasm

Factor VIII Tonsil/BM

Hemophilia A (HEMA)

Epithelial Markers

CAM 5.2 Skin

Residual tumor post-treatment

CK7
Tumors Lung

Immunophenotypes of Various

CK8 Lung

CK19 Liver

EMA Skin

Pan keratin Skin

MNF-116 Skin

Muscle& mesenchymal

actin/SMA/1A4 Tonsil/BM, tongue, small intestine, colon, ureter, prostate, skin

Actin/MSA/HHF35 Tonsil/BM

desmin Appendix

Myogenin Rhabdo

MYOD1 Rhabdo

S100 Skin, colon, brain, melanoma

SM myosin Intestine

Vimentin Tonsil/BM, Colon, prostate, uterus, ureter

Neural and Glial



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Suggested Control Tissues:

GFAP	Brain
Myelin basic protein	Brain
NeuN	Brain
Neurofilament	Spinal cord
Neurofilament(SMI-31)	Spinal cord
NB84a	Neuroblastoma
Olig-2	Brain
PGP9.5	Neuroblastoma
NSE	Pancreas
Synaptophysin	Pancreas, brain, adrenal, thyroid

Tumor Associated

AFP	AFP tissue
Alpha1-antitrypsin	Tonsil
Beta-HCG	Placenta
Calretinin	Appendix, testis
CD99	Ewings
FLI-1	Ewings
Galectin-3	Thyroid
HMB-45	Melanoma
Melan-A/mart-1	Skin
PLAP	Placenta
TTF-1	Thyroid



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Suggested Control Tissues:

Infectious

Use infected tissue

EBV/EBER in situ

Hep B(core)

Hep B (surface)

H.pylori

HHV8

HSV1

HSVII

Endocrine- pituitary

ACTH Pituitary

Calcitonin Thyroid

Chromogranin Pancreas

FSH Pituitary

Glucagon Pancreas

Inhibin Placenta

Insulin Pancreas

Insulin A Pancreas

LH Pituitary

Thyroglobulin Thyroid

TSH Pituitary

Hematopoetic Markers

Bcl-2 Tonsil/BM

Bcl-6 Tonsil/BM



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Suggested Control Tissues:

CD1a	Skin
CD3	Tonsil/BM
CD4	Tonsil/BM
CD5	Tonsil/BM
CD8	Tonsil/BM
CD10	Tonsil/BM
CD15	Tonsil/BM
CD20	Tonsil/BM
CD21	Tonsil/BM
CD30(KI-67)	Tonsil/BM
CD31	Tonsil/BM
CD34	Tonsil/BM
CD43	Tonsil/BM
CD45-LCA	Tonsil/BM
CD45RO	Tonsil/BM
CD56	Neuroblastoma
CD57	Tonsil
CD61	BM
CD68	Tonsil/BM
CD71(TfR)	Tonsil/BM

Hematopoetic Markers cont.



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Suggested Control Tissues:

CD79a	Tonsil/BM
CD117/C-kit	Skin/BM
CD163	Placenta
DDX4	Ovarian Cancer
Fascin	Tonsil/BM
Granzyme B	Tonsil/BM
J chain	Tonsil/BM
Kappa light chain	Tonsil/BM
Alpha light chain	Tonsil/BM
Kappa light chain in situ	Tonsil/BM
Alpha light chain in situ	Tonsil/BM
Langerin	Skin
Lysozyme	Tonsil/BM
Myeloperoxidase	BM
TdT	BM

Alphabetical

Positive Controls

Used for

8-OHdG	Skin	
14-3-3 Sigma		
Acid Fast Bacilli (AFB)	Acid fast bacteria	



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Suggested Control Tissues:

ACTH	Anterior pituitary
Actin Muscle specific	Skeletal Muscle, leiomyoma
Actin Smooth muscle (SMA)	Uterus
Actin	Normal: heart, skeletal muscle, smooth muscle
AFP	Germ cell, liver hepatoma, fetal liver
Albumin	Liver
Alcian Blue (1.0+2.5)	Normal small intestine, colon
Alcian blue/PAS	Normal small intestine
Alizarin red S	Calcium
ALK-1	Large cell lymphoma
Alpha 1 fetoprotein	hepatoma, fetal liver
Alpha 1 Antichymotrypsin (AACT)	Tonsil, hepatoma
Alpha 1 antitrypsin (AAT)	Tonsil, hepatoma
Androgen Receptor (AR)	Prostate
Aniline Blue-Azan, Heidenhain's	Normal: uterus, bone marrow, skeletal muscle
Aurora A/STK-15	MCF-7 cell, cancer tissue
B-cell	Tonsil
B72.3	Colon carcinoma, pancreatic carcinoma, breast
Bax	Mammary carcinoma, breast carcinoma
BCL-1(cyclin D-1)	Mantle cell lymphoma
BCL-2	Lymph node, tonsil
BCL-6	Tonsil
Bet-Catenin	Liver, testicle
Ber-H2	Lymphoma, pancreas
Ber-EP4 (epithelial antigen)	Skin, colon adenocarcinoma, mesothelioma, lung CA



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Suggested Control Tissues:

Beta amyloid	Alzheimer's brain
Bim	Skin/ skin tumor
Bieschowsky	Brain
Bile (Halls)	Bile
Bodian	Alzheimer's brain
Bombesin	Stomach, Duodenum, lung
BrdU	BrdU treated tissue
Brown and Brenn Gram	Gram Pos/Neg
BRST-2	Breast Carcinoma
C3d patients.	Kidney from post streptococcal glomerulonephritis
vulgaris (without blister formation)	Human skin tissue from lesion of the early pemphigus
c-erbB-2 (HER-2/neu)	Breast carcinoma
CA 125	Ovarian carcinoma, breast CA
CA19-9	Lung
Calbindin D	Cerebellum
Calcitonin	Thyroid, medulla carcinoma of thyroid
Calponin	Fibro adenoma
Calretinin	Mesothelioma, brain
Cam 5.2	Breast carcinoma
Casein	Lactating mammary gland
Caspase 3	Skin/ tumor, embryo
Cat Scratch Fever	Cat Scratch Fever
Catalase	Liver, brain (basal ganglia, thalamus, cerebellum)
Catenin	Intestine



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Suggested Control Tissues:

Cathepsin D	breast carcinoma
CC10	Lung
CD1a	Skin, thymus, tonsil
CD3	Tonsil
CD4	Tonsil
CD5	Tonsil
CD7	Tonsil
CD8	Ewing's sarcoma, pancreas
CD10	Tonsil, kidney, uterus
CD11b	Spleen, cerebellum (microglia)
CD13	Brain (striatum)
CD14	Placenta
CD15 (leuM1)	Metastatic adenocarcinoma of pleura or Hodgkin's lymphoma
CD15 (C3D-1)	Tonsil
CD20, B-cell	Tonsil
CD21	Tonsil
CD23, B-cell	Tonsil, spleen
CD25	Tonsil, spleen, thymus
CD30	Hodgkin's lymphoma, reed sterberg
CD31	Tonsil
CD34, vascular Ag	Tonsil
CD35	Tonsil
CD38	Spleen
CD40	Spleen
CD41	Spleen



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Suggested Control Tissues:

CD43	Tonsil
CD44	Spleen, tonsil
CD44V6	Baby thymus, tonsil
CD45(LCA)	Tonsil, lymph node, lymphoma
CD45RA	Tonsil
CD45RO, t-cell	Tonsil
CD54	Liver, spleen, lung
CD56	Tonsil
CD57	Tonsil
CD68	Tonsil, lymph node
CD74	Tonsil
CDw75	Tonsil
CD79a	Tonsil
CD80	Spleen
CD99 Ewing's sarcoma	Ewing's sarcoma
CD105	Kidney
CD117 (C-KIT)	GI stromal tumor
CD138	Tonsil
Cdc2	Lung tumor, breast carcinoma
CDC47	Tonsil
Cdk2	Colon
Cdk4	Skin
CDw49f (integrin-alpha6)	Skin (basement membrane)
CDx2	Colon CA
CEA	Breast carcinoma, colon adenocarcinoma



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Suggested Control Tissues:

CellMate	Mast cell, Bone marrow, HP
CERB2	Breast cancer, gastric cancer, adeno cancer
HCG	Placenta
Chromogranin A	Pancreas
Claudin 1	Normal: Skin
C-MYC	Lung CA, Breast CA, colon CA
Collagen III	Normal: Skin
Collagen IV	Normal: Skin, kidney, tonsil, Bladder
Collodial Iron	Normal: Small Intestine, Colon
Combined Eosinophil/ Mast cell (CEM) Mast cell	
Congo Red	Amyloid
Copper	Copper
Crystal violet amyloid	Amyloid Alpha
CK5	Prostate normal
Cytokeratin 5/6	Mesothelioma
CK6	Normal: Skin
Cytokeratin 7	Aenocarcinoma, breast cancer
CK10	Normal Skin
Cytokeratin 14	Skin
CK15	Normal Skin
CK16	Normal Skin
CK17	Normal Skin
Cytokeratin 8&18	Skin, prostate carcinoma, breast, pancreas/tumor
CK19	Normal Skin
Cytokeratin 20	Colon carcinoma



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Suggested Control Tissues:

Dopamine Hydroxylase	Brain (stratum/Substantia nigra)
EBV-LMP	EBV infected tissue
E-Cadherin	Pancreas, lung carcinoma, breast carcinoma
EGFR	Placenta
Elastic, Verhoeff's	Aorta
EMA	Breast carcinoma, normal thyroid
Epithelial antigen	Colon adenocarcinoma
Estrogen receptor	Breast carcinoma, breast
F4/80	Spleen, Thymus, lung, liver
Factor VIII	Tonsil, skin, intestine
Factor XIII	Dermatofibroma
Fas	Spleen, Thymus, colon
Fas-L	Spleen, thymus, colon
Fhit	Muscle
Flag (M2)	Heart muscle
Fleugen	Tonsil
Fite's	Leprosy
Flk-1	Colon carcinoma, blood vessel endothelium
Filaggrin	Skin
Flt-1	Kidney, heart
Fontana Masson	Normal Skin
FSH	Pituitary
Gastrin	Stomach, antrum
GAPDH (V-18)	Lens, liver, lung, prostate cancer
GCDFP/BRST 2	Breast carcinoma



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Suggested Control Tissues:

Genta triple stain	Helicobacter pylori
GFAP	Astrocytoma, brain
Giemsa	Helicobacter pylori, mast cell, toxoplasma gondi, bone marrow
Glucagon	Pancreas
Glycophorin A	3 rd term placenta
Glycoprotein IIIa	1 st term placenta
Glypican 3	hepatocellular carcinoma (HCC)
Gram	Gram pos/neg
Granzyme B, T-cell	Tonsil
Grimelius	Argentaffin-argyophil
Grocott's Methanamine Silver (GMS)	Aspergillus, candida, albicans, pneumocystis
GRB2	Colon carcinoma
Gridley's	Aspergillus, amoeba, candida albicans
GSH2 (E-20)	Lens
Growth hormone(hGH)	Pituitary
HbcAg hepatitis B core	Infected liver
HbcAg hepatitis B surface	Infected liver
HDJ2	Tonsil
Helicobacter pylori	Helicobacter pylori
Heme-Oxygenase-1 (HO-1)	Lung
Hepatitis C	Hepatitis C
Hep par 1	Hepatocellular carcinoma
Hemoglobin	tonsil
Her2Neu (cerbB2)	Breast carcinoma
Herpes simplex virus I	Infected lung



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Suggested Control Tissues:

Herpes simplex virus II	Infected lung
HGF	Liver
HIF-1 alpha	Prostate tumor, lung tumor
Histone 1	Tonsil
Histone H2AX	Tonsil, skin
Histone H3 (Phospho-histone H3)	Tonsil, skin, spleen, small intestine
HMB45 (melanosome)	Melanoma
Hormone	Tonsil
HPL	Placenta, tonsil, colon
HPV	HPV infected tissue, anogenital tissue
HSA (hepatocyte specific antigen)	Normal liver or liver carcinoma
HSP70	Skin, pulmonary arteries, smooth muscle
IgA	Tonsil
IgD	Tonsil
IgG	Tonsil
IgM	Tonsil
IL-1	Lung
IL-6	Lung
IL-8	Lung
Inhibin	Granular cell tumor
Insulin, insulin A	Pancreas
Integrin	Skin (basement membrane)
Involucrin	Skin
Iron	Ferric Iron
Jones	Kidney, Reticulum



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Suggested Control Tissues:

Kaposi's sarcoma (KSHV)	Kaposi's sarcoma
Kappa	Tonsil
KP-1	Colon, Small Bowel, Liver, Skin
Keratin	Skin
Keratin7	Lung, Ovary, endometrium and breast carcinoma, skin
Keratin14	Skin
Keratin15	Skin
KI67	Skin, small intestine, tonsil, thymus, breast carcinoma
Lambda	Tonsil
Laminin	Skin, Kidney
LAT	Spleen
LCA	Tonsil
Luxol fast blue (LFB)	Brain, spinal cord
Ly-6A/E	Thymus
Ly-6G (monocytes)	Spleen, bone marrow
Ly-49	Spleen
Hormone	Tonsil
MAC	Placenta, spleen
MALT-1	Tonsil
Mantle Cell	Mantle cell lymphoma
MAP2	Brain (cerebral cortex)
Mast cell tryptase	Bone marrow, lung, skin, colon
MEK ½ (phosphor-MEK ½)	Breast cancer
Methylene blue	Helicobacter pylori, Mast cell
MHV	MHV liver



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MLH-1	Tonsil
MIP2	Skin
MIIf	Bone marrow, lung, skin, colon
MMP-2	Placenta, skin
MMP9	Lung
MOMA1	Spleen
MRP14	CAPAN-1 cells, lung cancer
MSH2	Tonsil
MSH-6	Colon cancer
MT-1	Tonsil
MT-2	Tonsil
Muci-10 Carmine	Normal: small intestine, colon
MUM-1	Tonsil
Muscle specific actin (MSA)	Normal prostate
Myeloperoxidase	Bone marrow, spleen, tonsil
Myosin	Skeletal muscle, tonsil, tongue
Myoglobin	Heart, tonsil
Nestin	Brain
Neuroblastoma	Neuroblastoma
Neurofilament	CNS
Neutrophil Esterase	Brain, peripheral nerve
Nitrotyrosine	Kidney, uterus, heart, placenta
NOS2	Liver, Uterus
NOS3	Kidney, brain
NSE (neuron specific enolase)	Brain (cerebral cortex)



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Occludin	Lung
Osteonectin/sparc	Cartilage, lens
PSA	Prostate
Pancreatic polypeptide	Pancreas, duodenum, Gastric antrum
P34cdc2	Tonsil
P16	Fetal brain lysate or human uterus adenocarcinoma tissue
P53	Breast cancer, colon, skin
P63	Breast cancer, colon, skin
P105	Tonsil
Pan Cytokeratin (Lu-5)	Skin
Panendothelial cell antigen	Kidney, spleen, lung
Pap 2b	Bladder
PAR, alpha	Ischemia Brain (piriform cortex)
Pax-5	Spleen
Paxillin	Placenta
PCNA	Small intestine, skin, tonsil, lymphoma
PDGF receptor	Mammary carcinoma
PDGF-beta	Mammary tumor
Movat's pentachrome	Aorta, skeletal muscle
Periodic acid Schiff (PAS)	Glycogen, Aspergillus, candida albicans
PEP-1	Malignant melanoma, amelanotic
PEP-13	Malignant melanoma, amelanotic
Picro-sirius Red	Uterus
PLAP	Placenta, tonsil, colon cancer
Progesterone	Normal breast/ breast cancer



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Suggested Control Tissues:

PR (progesterone receptor)	Uterus, breast, prostate
Prolactin	Pituitary
PS2	Breast cancer
PTAH	Uterus, heart, skeletal muscle
Sarcomeric actin	Tongue, tonsil
Serotonin	Appendix, adrenal, bronchial epithelium
SCF (stem cell factor)	Brain
SLUG	Tongue
SMAD2 (phosphor-SMAD2)	Embryo
Somatostatin	Pancreas, brain
Somatostatin receptors	Pancreas, Brain
Sos-1	Placenta
SOX-10	Embryo
Survivin Ab-3	Stomach/ lung tumor
SV40	Tumor, mammary carcinoma
TAG-72	Colon adenocarcinoma
Tau	Alzheimer's brain
TCR, beta	Spleen, thymus
Testosterone	Testis
TGF-beta RI	Prostate
TGF-beta1 LC	Placenta
TH (tyrosine hydroxylase)	Brain (striatum, substantia nigra)
TNF, alpha	Skin, lung
Thymine dimer	Skin
Thyroglobulin	Normal thyroid



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TLT-1	Spleen
TSH	Pituitary
TTF-1 (thyroid transcription factor)	Lung, thyroid, pituitary
Tubulin III, beta (Tuj1)	Brain (cerebral cortex)
Ubiquitin	Alzheimer's/ Parkinson's brain
UCHL	Tonsil
UCP-1	Pancreas
UCP-2	Pancreas
ULEX	Prostate, tonsil
VCAM-1	Vessel in tissue
VE-Cadherin	Kidney
VEGF	Pancreas, kidney, adenocarcinoma
VEGF R1	Skin, brain, hey cells, angiosarcoma
VEGF R2(FLK-1)	Kidney, heart, prostate carcinoma, tumor
VIP (vaso intestinal polypeptide)	Gastric antrum, small intestine, brain (amygdala)
vWF (von Willebrand factor)	Tonsil, skin
WT-1 (wilms' tumor)	Kidney (glomeruli), testis