

Alphabetical List of Antibodies and In Situ Hybridization Probes Available Immunohistochemistry and In Situ Hybridization on Paraffin Sections

As of January 23, 2017

Name (Antibody or Probe)	Common Applications
14-3-3-Sigma	Granulosa cell and steroid cell tumors
a-smooth muscle actin (SMA)	Smooth muscle or myofibroblastic differentiation
a-1 antichymotrypsin	Outdated so-called histiocytic marker
a-1 antitrypsin	a-1 antitrypsin deficiency (liver tissue)
ACTH	Pituitary tumors
Actin, smooth muscle (SMA)	Smooth muscle or myofibroblastic differentiation
Actin, muscle-specific (MSA) (HHF-35)	Smooth muscle and skeletal muscle differentiation
Adenovirus	Adenovirus infection
Adipophilin	Sebaceous and other fat-containing tumors
AFP	Hepatoma, Hepatoid Carcinoma, Yolk sac tumors
Albumin RNA in situ hybridization	Cholangioca, Hepatoma, Acinar cell ca pancreas
ALK (FISH)	Detects ALK gene rearrangements by FISH
ALK immunostain (clone 5A4)	ALK positive lymphoma and lung carcinomas
ALK/CLTC (FISH)	Inflammatory myofibroblastic tumors
AMACR (P504S)	Prostate cancer diagnosis, also other carcinomas
Amebiasis (E. Histolytica)	Ambeiasis – cross reacts with histiocytes, so order CD68 with it
Amyloid AA protein	Amyloid subtyping
Amyloid P protein	Amyloid subtyping (also stains normal elastic tissue)
Androgen Receptor	Breast cancer, prostate cancer, others
Annexin A1	Hairy cell leukemia, T-cells, myeloid cells
AP12 (MALT) (FISH)	t(11;18) (q21;q21)
Arginase-1	Hepatocellular carcinoma, hepatoid differentiation
b-catenin	Fibromatosis, metastatic carcinoma unknown primary
BAP-1	Melanomas, Mesothelial - benign vs. malignant
BAF47 (INI1)	Epithelioid sarcoma, teratoid/rhabdoid tumor, MPNST
Bartonella Henselae	Cat scratch disease organism
B72.3	Mesothelioma vs. adenocarcinoma
BCL-1	Same as Cyclin D1
BCL-2	Lymphoma typing, soft tissue tumors
BCL2 (FISH)	BCL2 gene rearrangements
BCL-6	Lymphoma typing
BCL6 (FISH)	BCL6 gene rearrangements
BCOR/CCNB3 (FISH)	Ewing-like sarcoma
Ber-EP4	Mesothelioma vs. adenocarcinoma
BK virus	Marker of BK Polyomavirus infection
Bob.1	B-cells, plasma cells
Brachyury	Chordoma, Hemangioblastoma
BRAF/KIAA1549 (FISH)	Pediatric low-grade astrocytomas

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Name (Antibody or Probe)	Common Applications
BRAF-V600E antibody (clone VE1)	Specific for BRAF-V600E mutation
BRST-1 (BCA-225)	Some epithelial tumors
c-MYC probes (FISH)	Burkitt lymphoma, double hit and triple hit lymphomas
C4d	Used for assessment of rejection in transplant bxs
c-kit (CD117)	Gastrointestinal stromal tumors, mast cells
CA-125	Multiple epithelial tumors, also in mesothelial cells
CA19-9	Metastatic carcinoma unknown primary
CAIX	Renal cell carcinoma classification
Cadherin-17	Colon ca, midgut and hindgut neuroendocrine tumors
Calcitonin	Medullary carcinoma thyroid
Caldesmon	Smooth muscle differentiation
Calponin	Smooth muscle differentiation, myoepithelial cells
Calretinin	Mesothelioma, adrenal cortical tumors, sex cord stromal tumors
CAMTA1 IHC stain	Epithelioid hemangioendothelioma
Cat Scratch Disease	Bartonella henselae infection
Cathepsin K	TFEB translocation-associated renal cell carcinomas, PEComas
CCND1/IGH (FISH)	Mantle cell lymphoma, some myelomas
CD1a	Thymic T-cells, thymoma, Langerhans cells
CD2 T-cells)	Lymphoma/leukemia typing
CD3 (T-cells)	Lymphoma/leukemia typing
CD4 (T-helper, inducer)	Lymphoma/leukemia typing
CD5 (T-cells)	Lymphoma/leukemia typing (damaged by B5)
CD7 (T-cells)	Lymphoma/leukemia typing
CD8 (T-suppressor/cytotoxic)	Lymphoma/leukemia typing
CD10 (CALLA)	Lymphoma typing, DFSP vs DF, endometrial stromal tumors
CD11c	Leukemia typing, hairy cell leukemia
CD15	Lymphoma typing, mesothelioma vs. adenocarcinoma
CD20 (L26)	Lymphoma/leukemia typing
CD21	Follicular dendritic cells, lymphoma typing
CD23	Lymphoma/leukemia typing
CD25 (IL-2)	Lymphoma/leukemia typing
CD30 (Ki-1)	Lymphoma typing, embryonal ca
CD31	Vascular differentiation, some histiocytes
CD34	Soft tissue tumor classification, leukemia typing
CD38	Plasma cell differentiation (does not work well on B5)
CD43	Lymphoma/leukemia typing
CD44	Burkitt vs non-Burkitt, carcinoid prognosis
CD45 (LCA)	Recognition of lymphohematopoietic tumors
CD56	Lymphoma typing, neuroendocrine differentiation
CD57	Lymphoma typing, neuroendocrine differentiation
CD61	Megakaryocytes, megakaryocytic leukemia
CD68 (KP1)	Histiocytic/myeloid/monocytic marker

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Name (Antibody or Probe)	Common Applications
CD68 (PG-M1)	Histiocytic/monocytic marker
CD71 (transferrin receptor)	Erythroid cells, some lymphomas
CD79a (B-cells)	Lymphoma/leukemia typing
CD99 (MIC-2)	Soft tissue tumor classification (not all that helpful)
CD117 (c-kit)	Gastrointestinal stromal tumors, mast cells, blasts
CD123	plasmacytoid dendritic cell tumors, hairy cells
CD138	Plasma cells (also stains many epithelial tumors)
CD163	Histiocytic - Monocytic marker
CDK4	Liposarcoma
CDX2	Metastatic carcinoma unknown primary
CEA (clone COL-1)	Mesothelioma vs. adenocarcinoma, metastatic ca. unknown primary
CEA (polyclonal)	Hepatoma vs. adenocarcinoma (use COL1 for other applications)
c-erbB2 (HER2)	HER2 overexpression
Chromogranin	Neuroendocrine differentiation
Chronic lymphocytic leukemia (CLL) FISH Panel	7+ probe sets - MYB, ATM, 12 cen, 13q14.3, IGH (reflexed to CCND1/IGH and IGH/BCL2 if positive), TP53, BCL3
CIC probe (FISH)	CIC-DUX sarcoma
Claudin-1	Perineurioma
Claudin-4	Adenocarcinoma marker, negative in mesothelioma
Claudin-5	Endothelial marker
Clusterin	Lymphoma typing, follicular dendritic marker
CMV	Cytomegalovirus infection
Coccidioidomycosis	Coccidioidomycosis infection (cross reacts w Histoplasmosis)
Collagen IV	Soft tissue tumor classification
Cryptococcus	Cryptococcus neoformans infection
CRTC1/MAML2 (FISH)	Mucoepidermoid carcinoma
Cyclin D1	Mantle cell lymphoma, some myelomas
Cytokeratin 5	Mesothelioma, squamous carcinoma
Cytokeratin 7	Metastatic carcinoma unknown primary
Cytokeratin 14	Oncocytic tumors
Cytokeratin 15	Useful for diagnosis of cutaneous adnexal tumors
Cytokeratin 17	Metastatic carcinoma unknown primary
Cytokeratin 19	Papillary thyroid carcinoma, prognostic marker in islet cell tumors
Cytokeratin 20	Metastatic carcinoma unknown primary
Cytokeratin AE1/AE3	Epithelial tumors, hepatoma vs. adenocarcinoma (NOT a "Pan-CK")
Cytokeratin HMW (34bE12)	Metastatic carcinoma unknown primary, prostate basal cells
Cytokeratin LMW (8,18)	Epithelial tumors, especially renal, prostate, hepatoma
D2-40 (podoplanin)	Mesothelioma, lymphatics, seminoma
DBA.44	Hairy cell leukemia, some marginal zone lymphomas
DDIT3 (CHOP) (FISH)	Myxoid / round cell liposarcoma
Desmin	Smooth and skeletal muscle differentiation

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Name (Antibody or Probe)	Common Applications
DOG1	Gastrointestinal stromal tumor (GIST) marker (better than c-kit, CD117)
EBV (EBER probe)	In-situ hybridization stain for EBV (EBV related tumors)
EBV (LMP-1)	Epstein-Barr virus infection, EBV-related tumors
E-Cadherin	Lobular vs. Ductal breast carcinoma, erythroid precursors
E. Histolytica	Amebiasis- cross reacts with histiocytes, so order CD68 with it
EGFR (31G7)	Sweat gland carcinoma, squamous tumors
EGFR amplification (FISH)	EGFR gene amplification status
EMA	Metastatic carcinoma of unknown primary, Lymphoma typing
ERCC1	Prognostic marker in non-small cell lung carcinoma
ERG	Endothelial marker (stains nuclei), subset of prostate carcinoma
Estrogen receptor	Breast cancer prognostic marker, metastatic carcinoma unknown primary
ETV-6 probe (FISH)	Infantile Fibrosarcoma
EWSR1 probe (FISH)	Ewing/ PNET, DSRCT, clear cell sarcoma, extraskel myxoid chondrosarc
Factor VIII	Megakaryocytic marker, endothelial marker
Factor XIIIa	Dermatofibroma vs. DFSP
Fascin	Hodgkin's cells, other reticulum cells
FOSB	Pseudomyogenic hemangiopericytoma
FOXL1	Sex-cord Stromal tumors
FOXP1	Lymphoma typing using Visco-Young algorithm
FOXO1 (FKHR) (FISH)	Rhabdomyosarcoma
FLI-1	Ewing's sarcoma, vascular tumors, lymphoblastic lymphoma
FSH	Pituitary tumors
FUS probe (FISH)	Low grade fibromyxoid sarcoma, angiomatoid MFH, myxoid liposarc
Galectin-3	Papillary thyroid carcinoma
Gastrin	Gastrinomas
GATA-3	breast ca, urothelial ca, trophoblastic tumors
GCDFP-15	Breast carcinoma, sweat gland, salivary gland marker
GFAP	Glial tumors, salivary gland tumors
GH (growth hormone)	Pituitary tumors
Giardia	Giardia lamblia infection
Glucagon	Pancreatic endocrine tumors
GLUT-1	Perineurioma
Glutamine Synthetase	Focal nodular hyperplasia of liver (map-like pattern)
Glycophorin A	Erythroid marker
Glypican 3	Yolk sac tumor, hepatoma, hepatoid adenocarcinoma
Granzyme B	Lymphoma typing
H3K27me3	MPNST (loss of nuclear staining)
H. Pylori	Helicobacter pylori infection
HBME-1	Chordoma, papillary thyroid carcinoma

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Name (Antibody or Probe)	Common Applications
HbsAg	Hepatitis B surface antigen
HCG	Choriocarcinoma
HER-1	Same as EGFR
HepPar1	Hepatoma, gastric carcinoma
HER2 immunostain	HER2 protein overexpression
HER2 by FISH	HER2 gene amplification status
Herpes Simplex I & II	Herpesvirus I and II infection
HHV8 (KSHV)	Kaposi's sarcoma, some cases Castleman's, lymphoma
Histoplasmosis	Histoplasmosis capsulatum infection (also stains other fungi)
HIV (p24-gag)	Detects HIV only in tissues that contain follicular dendritic cells
HLA-G	Intermediate trophoblasts (chorioca, other)
HMB-45	Melanoma marker, angiomyolipoma and other PEComas
HPL	Germ cell tumors, trophoblastic tumors
HPV-Pan (RNAscope)	In-situ hybridization stain for HPV (does NOT detect every HPV type)
HPV, low-risk (RNAscope)	In-situ hybridization stain
HPV, high risk (RNAscope)	In-situ hybridization stain
IgA	Plasma cell subclassification
IgG	Plasma cell subclassification
IgG4	IgG4-related sclerosing diseases
IgM	Plasma cell subclassification
IgH (FISH)	Lymphoma, CLL, Myeloma
IgH-MALT1 (MALT) (FISH)	t(14;18) (q32;q21)
IL-2 (CD25)	Lymphoma/leukemia typing
IMP3 (L523S, KOC)	Dysplasia marker, marker of serous carcinoma
Inhibin	Adrenal cortical tumors, sex-cord stromal tumors
INI-1 (BAF47)	Epithelioid sarcoma, teratoid/rhabdoid tumor, MPNST
Insulin	Pancreatic endocrine tumors
Kappa light chains	Plasma cell clonality
Ki-67 (clone SP6) (best for proliferation)	Proliferative fraction
Ki-67 (clone K2)	Proliferative fraction, viable fat cell membranes, lipoblasts
Kit	Same as c-kit, CD117, GIST and mast cells
KOC (L523S, IMP3)	Dysplasia marker, marker of serous ca
L523S (KOC, IMP3)	Dysplasia marker, marker of serous ca
Lambda light chains	Plasma cell clonality
Laminin	Basement membrane marker
LAT	T-cells
LCA (CD45)	Lymphohematopoietic tumors
LEF1	Marker of SLL / CLL, also normal T-cells
LH	Pituitary tumors
Lysozyme	Myeloid and histiocytic marker
MALT probes (FISH)	MALT lymphomas, 3 probes, API2/MALT1 t(11;18) (q21;q21), IgH/MALT1 t(14;18), and BCL6 breakapart probe

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Name (Antibody or Probe)	Common Applications
Mammaglobin	Breast marker, salivary glands, sweat glands
MART-1 (clone A103)	Melanoma, adrenal cortical tumors, sex cord-stromal tumors, PEComas
MART-1 (M2-7C10+M29E3)	Melanoma, angiomyolipoma and other PEComas
Mast cell tryptase	Mastocytosis
MDM2	Liposarcoma
MDM2 amplification (FISH)	Liposarcoma
MDR1 (P-glycoprotein)	Multidrug resistance marker
Melanoma panel (FISH)	4 probes - RREB1, cMYC, CDKN2A, CCND1
Mesothelin (clone 5B2)	Mesothelioma, serous carcinoma, squamous carcinoma
MET (FISH)	Detects MET amplification
MGEA5 and TGFBR3 probes (2 FISH tests)	Hemosiderotic fibrohistiocytic lipomatous tumor
MIC-2 (CD99)	Soft tissue tumor classification (not that helpful)
MiTF	Melanoma, thyroid tumors, many soft tissue tumors
MLH1	Hereditary cancer syndromes, mismatch repair gene mutations
MOC-31	Mesothelioma vs. adenocarcinoma
MSA (muscle-specific actin)	HHF-35, smooth muscle and skeletal muscle
MSH2	Hereditary colon cancer syndrome, mismatch repair gene mutations
MSH6	Hereditary colon cancer syndrome, mismatch repair gene mutations
MUC1	Paget's disease(few cases of Bowen's)
MUC2	Ovarian mucinous carcinoma vs. colorectal carcinoma
MUC4	Marker of low grade fibromyxoid sarcoma
MUC5AC	Ovarian mucinous carcinoma vs. colorectal carcinoma
MUC6	Seminal vesicle marker, serous neoplasms of pancreas
Multiple myeloma panel (FISH)	6+ probe sets - 1p36.32/1q21.3, 5p31/5q31.1, 9cen, 15cen, 13q14.3, IGH (if positive reflex to FGFR3/IGH, CCND1/IGH 1st , if 1st reflex is negative, then IGH/MAF, CCND3/IGH and IGH/MAFB), TP53
MUM1	Lymphoma typing
MYB	Adenoid cystic ca (co-expressed with MYC protein)
MYC probes (FISH, 2 probes)	Burkitt lymphoma, double hit and triple hit lymphomas
MYC Protein immunostain	Assists in diagnosis of tumors with MYC translocations
Myeloperoxidase	Myeloid and histiocytic marker
Myosin Heavy Chain	Smooth muscle and myoepithelial marker
Myogenin	Rhabdomyosarcoma
Myosin, smooth muscle	Myoepithelial marker, smooth muscle differentiation
N-Cadherin	Metastatic carcinoma unknown primary
Napsin A	Lung carcinoma, alveolar macrophages, some renal cell carcinomas
NCOA2/HEY1	Mesenchymal chondrosarcoma
Nestin	Neuroendocrine, melanoma, other
NeuN	Neuronal marker
Neurofilament	Neural tumors, occasional non-neural tumors
NGFR	DFSP, Soft tissue tumor classification

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Name (Antibody or Probe)	Common Applications
NKI-C3	Melanoma, neural marker, lysosomal marker
NKX2.2	Ewing sarcoma / PNET
NKX3.1	Sensitive and specific nuclear marker of prostate carcinoma
NPM	AML subset
NR4A3 (FISH)	Extraskeletal myxoid chondrosarcoma
NSE	Worthless marker, don't use it for Neuroendocrine diff'n)
NTKR3 (FISH)	Congenital fibrosarcoma
NUT	Marker of NUT positive midline carcinomas
NY-ESO-1	Synovial sarcoma, CIC-DUX sarcoma, others
OCT 2	Lymphoma typing
OCT3/4	Seminoma, embryonal carcinoma
Osteonectin	Osteosarcoma, also other sarcomas (not bone-specific)
p16 (INK4)	Cervical dysplasia, HPV-associated head and neck squamous carcinomas
P24-gag	Detects HIV only in tissues that contain follicular dendritic cells
p27	Research marker
p40	Squamous ca, urothelial ca, myoepithelial
P501S (Prostein)	Prostate marker
P504S (AMACR)	Prostate cancer diagnosis
P504S / p63 cocktail	Prostate cancer diagnosis
p53	p53 tumor suppressor gene mutations
p57	Molar pregnancy (in conjunction with Ki-67)
p63	Myoepithelial, prostatic basal cell, squamous marker
P63/ P504S cocktail	Prostate cancer diagnosis
Pancreatic polypeptide	Pancreatic endocrine tumors
Parathyroid hormone (PTH)	Parathyroid tumors
Parvovirus	Parvovirus B19 infection
Pax-2	Renal cell carcinoma, serous carcinoma, lymphoid cells
Pax-5 (B-cells)	B-cells, some neuroendocrine tumors
Pax-8	Kidney, thyroid, female genital tract carcinomas, some lymphoid cells
PCP (Pneumocystis carinii)	Pneumocystis carinii infection
PD-1	Assists in dx of angioimmunoblastic lymphoma and nodular LP Hodgkin lymphoma
PD-L1	Marker of response to certain therapeutic agents
PDGFB (FISH)	Dermatofibrosarcoma Protuberans
PDEGF	Platelet-derived epidermal growth factor
PDGFR-a	Diagnosis of c-kit negative GISTs (DOG1 is better for this)
PDX1	Stains some pancreatic neuroendocrine tumors
Perforin	Lymphoma typing
PGP9.5	Neural/neuroendocrine marker
PHF1 (FISH)	Endometrial stromal tumors, ossifying fibromyxoid tumor of soft parts

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Name (Antibody or Probe)	Common Applications
PHH3	Mitosis marker
Placental S100 (S100P)	Benign vs malignant pancreatic lesions, urothelial ca, other
PLAP	Many carcinomas, also some germ cell tumors
PMS2	Hereditary colon cancer syndrome, mismatch repair gene mutations
Pneumocystis (PCP)	Pneumocystis carinii infection
Podoplanin (D2-40)	Same as D2-40, mesothelioma, lymphatics, seminoma
Polyomavirus (BK, SV-40)	Marker of BK Polyomavirus infection
Prealbumin (transthyretin)	Choroid plexus tumors, some types of amyloid
Procollagen 1	Fibroblastic differentiation, AFX, also some carcinomas
Progesterone receptor	Breast cancer prognostic marker
Prolactin	Pituitary tumors
Prostein (P501S)	Prostate marker
PSA (prostate)	Prostate marker
PSAP (prostate)	Prostate marker (prostatic acid phos), also rectal carcinoid tumors
PSMA (prostate)	Prostate marker
PTEN	Tumor suppressor gene, lost in some cancers
PTH	Parathyroid tumors
pVHL	Renal tumors, clear cell ca fem gen tract, bile duct marker
RB Protein	spindle cell / pleomorphic lipoma, myofibroblastoma
RCC (PN-15)	Renal cell carcinoma marker (Pax8 is much more sensitive)
Ret oncoprotein	Ganglion cells
RON	Renal oncocytoma, other
ROS1 (FISH)	Detects ROS1 mutated tumors by FISH
ROS1 immunostain	ROS1 mutated tumors
RRM2	Evaluation of urothelial dysplasia
RSV	Respiratory Syncytial Virus
Rocky Mountain Spotted Fever	Rocky Mountain Spotted Fever bug
S100	Melanoma, neural marker, myoepithelial, other
S100P (Placental S100)	Benign vs malignant pancreatic lesions, urothelial ca, other
SALL4	Germ cell tumors, hepatoid adenocarcinoma of stomach
SATB2	Colorectal carcinomas, osetoblasts, osteosarcoma
SDHB	SDHB-deficient tumors
SF1 (steroidogenic factor 1)	adrenal cortical tumors, sex cord-stromal tumors
SMA (smooth muscle actin)	Smooth muscle or myofibroblastic differentiation
Smooth muscle myosin heavy chains	Myoepithelial marker, smooth muscle differentiation
Smoothelin	Used to distinguish muscularis mucosa from detrusor in bladder bxs
Somatostatin	Pancreatic endocrine tumors
Somatostatin receptor SST-2A	Somatostatin receptor
Sox10	Sensitive melanoma marker (better than S100), neural, myoepithelial
Sox11	Mantle cell lymphoma, some other tumors
STAT6	Solitary fibrous tumors
Stathmin	Cervical dysplasia - CIS

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Name (Antibody or Probe)	Common Applications
SV-40 (BK, Polyomavirus)	Marker of BK Polyomavirus infection
Synaptophysin	Neuroendocrine differentiation
Syphilis	Treponema pallidum infection
SYT probe, t(X;18) (FISH)	Synovial sarcoma
t(11;14) (FISH)	Mantle cell lymphoma
t(14;16) (FISH)	Follicular lymphoma
TDT	Lymphoma/leukemia typing, Merkel cell tumors
TFE3 (FISH)	Alveolar soft part sarcoma, some renal tumors
TFE3/ASPCR1 (FISH)	Alveolar soft part sarcoma, some renal tumors
TFE3/PRCC (FISH)	Translocation associated renal cell carcinoma
TFEB (FISH)	Some renal tumors
TGFBR3 and MGEA5 probes (2 FISH tests)	Hemosiderotic fibrohistiocytic lipomatous tumor
Thrombomodulin	Urothelial carcinoma, mesothelioma, squamous tumors
Thyroglobulin	Thyroid carcinoma
TIA-1 (cytotoxic)	Lymphoma typing
TLE-1	Synovial sarcoma, other tumors
Toxoplasmosis	Toxoplasmosis gondii
Transthyretin (prealbumin)	Choroid plexus tumors, some types of amyloid
TRAP immunostain	Hairy cell leukemia, histiocytes
Triploidy (FISH)	Partial mole
Trypsin	Acinar cell tumor of pancreas
Tryptase, mast cell	Mast cell marker
TSH	Pituitary tumors
TTF-1	Lung & thyroid marker, also some neuroendocrine tumors
Tyrosinase	Melanoma maker
Ubiquitin	Alzheimer's disease, recognition of Mallory bodies in liver
Urinary FISH panel (FISH on urine)	Cytologic diagnosis of bladder cancer
Uroplakin II	Urothelial tumors
Varicella Zoster	Varicella Zoster infection
VEGF	Misc tumors
Villin	Metastatic carcinoma unknown primary
Vimentin	Metastatic carcinoma unknown primary
VIP	Pancreatic endocrine tumors
VS38	Plasma cells, plasmacytoid, epithelial cells
Whipple's disease	Whipple's disease
WT-1 (6F-H2)	Mesothelioma and serous carcinoma marker
WWTR-CAMTA1 probe (FISH)	Epithelioid hemangioendothelioma
ZAP-70	CLL prognostication

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