

## Compilation of positive controls for primary antibodies used in immunohistochemistry

### Antigen/Antibody Positive control

|   |   |
|---|---|
| 14-3-3 Beta Protein                         | Prostate carcinoma, liver tumour                  |
| 14-3-3 Zeta Protein                         | Breast carcinoma                                  |
| ACTH  | Pituitary gland                                   |
| Actin (Muscle)                              | Skeletal muscle                                   |
| Actin (Muscle, Pan)                         | Skeletal muscle                                   |
| Actin alpha (Sarcomeric)                    | Skeletal muscle                                   |
| Actin alpha (Skeletal Muscle)               | Skeletal muscle                                   |
| Actin alpha (Smooth Muscle)                 | Leiomyosarcoma                                    |
| Actinin alpha                               | Skeletal muscle                                   |
| Adenovirus                                  | Adenovirus-infected tissue                        |
| ADH-5 (Breast Marker Double Stain Cocktail) | Breast carcinoma                                  |
| AFP (Alpha Fetoprotein)                     | Fetal liver                                       |
| Akt1  | Breast carcinoma                                  |
| Akt1/2                                      | Breast carcinoma                                  |
| Albumin (HSA)                               | Liver   |
| Aldh 1a1 (Alkohol Dehydrogenase 1)          | Colon carcinoma, breast carcinoma                 |
| ALK /p80 (Anaplastic Lymphoma Kinase)       | ALK-positive lymphoma                             |
| Alpha-1-Antichymotrypsin                    | Tonsil  |
| Alpha-1-Antitrypsin (AAT)                   | Tonsil  |
| Alpha-2-Macroglobulin                       | Tonsil  |
| Amylin (Peptide)                            | Pancreas  |
| Amyloid A Component                         | Kidney  |
| Amyloid Beta (A4)                           | Alzheimer brain                                   |
| Amyloid Beta-Protein                        | Alzheimer brain                                   |
| Amyloid Precursor Protein (APP)             | Brain   |
| Androgen Receptor                           | Prostate carcinoma                                |
| Annexin A1                                  | Hairy cell leukaemia                              |
| Annexin IV                                  | Liver   |
| APC (Adenomatous Polyposis Coli)            | Colon carcinoma                                   |
| ATM (Ataxia Telangiectasia Mutated)         | Breast carcinoma                                  |
| BAG-1/RAP46/HAP1                            | Breast carcinoma                                  |
| Bak   | Tonsil  |
| Bax   | Hodgkin's Lymphoma                                |
| BCA-225 (BRST-1)                            | Breast carcinoma                                  |
| Bcl-2                                       | Tonsil  |
| Bcl-6                                       | Tonsil  |
| Bcl-10                                      | Tonsil  |
| Bcl-X                                       | Hodgkin's Lymphoma                                |
| Bcl-XL                                      | Hodgkin's Lymphoma                                |
| BCRP  | Drug-sensitive cell line (MCF-7), fetal intestine |
| beta-HCG                                    | Placenta  |

### Antigen/Antibody Positive control

|  |  |
|--|--|
| BG-1 Precursor (Blood Group Antigen)   | Kidney, ureter                               |
| BG-2 A (Blood Group Antigen)           | Kidney, ureter                               |
| BG-3 B (Blood Group Antigen)           | Kidney                                       |
| BG-4 0 (Blood Group Antigen)           | Colon, colon carcinoma                       |
| BG-5 Lewis a (Blood Group Antigen)     | Colon, colon carcinoma                       |
| BG-6 Lewis b (Blood Group Antigen)     | Colon carcinoma                              |
| BG-7 Lewis x (Blood Group Antigen)     | Kidney                                       |
| BG-8 Lewis y (Blood Group Antigen)     | Colon carcinoma                              |
| BOB.1                                  | Tonsil, lymph node                           |
| BRCA1                                  | Ovary carcinoma                              |
| C3d                                    | Graft rejection after kidney transplantation |
| C4d                                    | Graft rejection after kidney transplantation |
| CA 19-9 (Colon)                        | Colon carcinoma                              |
| CA 72.4 Antigen/TAG-72 (BRST-3)        | Breast carcinoma                             |
| CA 125 Antigen                         | Ovary carcinoma, colon carcinoma             |
| Cadherin (Pan)                         | Tonsil                                       |
| E-Cadherin                             | Ductal breast carcinoma                      |
| Calbindin                              | Kidney                                       |
| Calcitonin                             | Thyroid gland                                |
| Caldesmon (HMW)                        | Skeletal muscle                              |
| Calmodulin-dependend Protein Kinase IV | Brain  |
| Calpain                                | Breast carcinoma                             |
| Calpastatin                            | Breast carcinoma                             |
| Calponin                               | Breast carcinoma                             |
| Calretinin                             | Mesothelioma                                 |
| Caspase-1                              | Placenta                                     |
| Caspase 3 (CPP32)                      | Tonsil                                       |
| Caspase 3, cleaved (CPP32)             | Tonsil, colon carcinoma, apoptotic cells     |
| Caspase 6 (MCH2)                       | Tonsil                                       |
| Caspase 8 (FLICE)                      | Stomach                                      |
| Caspase 9 (Apaf-3)                     | Stomach, tonsil                              |
| Caspase 10 (FLICE2)                    | Liver carcinoma                              |
| Catenin (alpha)                        | Breast carcinoma                             |
| Catenin (beta)                         | Breast carcinoma                             |
| Catenin (delta), p120                  | Breast carcinoma                             |
| Catenin (gamma) (Plakoglobin)          | Breast carcinoma                             |
| Cathepsin D                            | Breast carcinoma                             |
| Cat Scratch Disease                    | Bartonella henselae-infected tissue          |
| Caveolin-1                             | Lung carcinoma                               |
| CCR7                                   | Small intestine                              |
| CD1a                                   | Histiocytosis X, tonsil                      |

# Immunohistology

## positive controls



### Antigen/Antibody Positive control

|   |  |
|---|--|
| CD2                                     | Tonsil                                     |
| CD3                                     | Tonsil                                     |
| CD3 zeta                                | Jurkat cells, tonsil                       |
| CD4                                     | Tonsil                                     |
| CD5                                     | Tonsil, mantle cell lymphoma               |
| CD7                                     | Tonsil                                     |
| CD8                                     | Tonsil                                     |
| CD9                                     | Tonsil                                     |
| CD10 (CALLA)                            | Small intestine, tonsil                    |
| CD11c                                   | Hairy cell leukaemia                       |
| CD14                                    | Tonsil, diffuse large-cell B-cell lymphoma |
| CD15                                    | Reed-Sternberg cells, tonsil               |
| CD19                                    | Tonsil                                     |
| CD20                                    | Tonsil                                     |
| CD21                                    | Tonsil                                     |
| CD23                                    | Tonsil                                     |
| CD25                                    | Tonsil                                     |
| CD29 (Integrin-beta1)                   | Cerebellum                                 |
| CD30 (Ki-1)                             | Small intestine, tonsil                    |
| CD31 (PECAM-1)                          | Placenta, tonsil                           |
| CD34 (Endothelial cells)                | Tonsil                                     |
| CD35 (CR1) (Dendritic Reticulum)        | Tonsil                                     |
| CD40                                    | Tonsil                                     |
| CD43 (Leukosialin, Sialophorin)         | Lymph node, tonsil                         |
| CD44 (H-CAM)                            | Tonsil                                     |
| CD45 (LCA)                              | Tonsil                                     |
| CD45RA                                  | Tonsil                                     |
| CD45RB                                  | Tonsil                                     |
| CD45RO                                  | Lymph node, tonsil                         |
| CD56 (N-CAM, NKH1, SCLC)                | Small-cell lung carcinoma, neuroblastoma   |
| CD57 (NK cells)                         | Lymph node, tonsil                         |
| CD61 (Integrin beta 3)                  | Tonsil                                     |
| CD63 (NK-1/C3)                          | Melanoma                                   |
| CD68 (Macrosialin, macrophage antigen)  | Tonsil                                     |
| CD74                                    | Tonsil                                     |
| CD79a                                   | Tonsil                                     |
| CD95 (Fas, Apo-1)                       | Small intestine                            |
| CD95L (FAS Ligand) CD178                | Prostate                                   |
| CD99/MIC2 (Ewing's sarcoma)             | Ewing sarcoma, pancreas                    |
| CD105 (Endoglin, TGF beta 1/3 Receptor) | Tonsil                                     |
| CD117 (c-Kit)                           | Tonsil, stroma tumour (GIST)               |
| CD138 (Syndecan-1)                      | Plasmocytoma, tonsil                       |
| CD163                                   | Lung                                       |
| CD274 (B7-H1)                           | Tonsil, lung, skeletal muscle              |
| CDC25A                                  | Tonsil                                     |
| CDC25B                                  | Tonsil                                     |
| CDC25C                                  | Breast carcinoma                           |
| CDC37                                   | Thymus                                     |
| CDC47                                   | Breast carcinoma                           |

### Antigen/Antibody Positive control

|  |  |
|--|--|
| Cdk2 (Cyclin dependent Kinase 2)           | Tonsil   |
| Cdk4 (Cyclin dependent Kinase 4)           | Liposarcoma                                    |
| Cdk5 (Cyclin dependent Kinase 5)           | Brain  |
| CDw75 (B-Cell)                             | Tonsil   |
| CDX1                                       | Small intestine                                |
| CDX2                                       | Colon carcinoma                                |
| CEA (Carcinoembryonic Antigen, CD66e)      | Colon carcinoma                                |
| c-FOS                                      | Skin   |
| CFTR                                       | Pancreas                                       |
| Cholecystokinin (26-33)                    | Small intestine                                |
| Chromogranin A                             | Pancreas                                       |
| CITED-1 (CBP, CREB-binding protein, p300)  | Papillary thyroid gland carcinoma              |
| Claudin 1                                  | Skin, breast carcinoma                         |
| Claudin 2                                  | Colon carcinoma, ovary carcinoma, tonsil       |
| Claudin 3                                  | Small intestine                                |
| Claudin 4                                  | Ovary carcinoma, tonsil                        |
| Claudin 5                                  | Colon carcinoma, lung                          |
| Claudin 7                                  | Colon carcinoma                                |
| Claudin 10                                 | Brain, skeletal muscle                         |
| c- Met (Hepatocyte Growth Factor Receptor) | Breast carcinoma                               |
| c-Myc                                      | Breast carcinoma                               |
| Collagen IV                                | Skin   |
| Connexin 43                                | Heart  |
| COX-1 (Cyclooxygenase 1)                   | Skin   |
| COX-2 (Cyclooxygenase 2)                   | Colon carcinoma, breast carcinoma              |
| c-TEN                                      | Liver carcinoma                                |
| CUL-1                                      | Tonsil   |
| CUL-2                                      | Tonsil   |
| CUL-3                                      | Tonsil   |
| Cyclin A                                   | Tonsil   |
| Cyclin B1                                  | Breast carcinoma, tonsil                       |
| Cyclin D1 (Bcl-1)                          | Breast carcinoma, mantle cell lymphoma, tonsil |
| Cyclin D3                                  | Breast carcinoma, tonsil                       |
| Cyclin E                                   | Breast carcinoma, placenta                     |
| Cyr61                                      | Placenta                                       |
| Cystatin A                                 | Brain  |
| Cytokeratin (Acidic)                       | Skin   |
| Cytokeratin (Basic)                        | Skin   |
| Cytokeratin (HMW)                          | Skin, prostate                                 |
| Cytokeratin (OSCAR)                        | Bladder, skin, liver, breast carcinoma         |
| Cytokeratin (Pan)                          | Skin, tonsil                                   |
| Cytokeratin (Wide Spectrum)                | Skin   |
| Cytokeratin 4                              | Skin   |
| Cytokeratin 5                              | Skin   |
| Cytokeratin 5 & 6                          | Skin, prostate                                 |
| Cytokeratin 5 & 8                          | Skin, lung                                     |
| Cytokeratin 5 & 14                         | Skin, prostate                                 |
| Cytokeratin 6                              | Skin   |
| Cytokeratin 7                              | Skin, breast carcinoma                         |

# Immunohistology

## positive controls



### Antigen/Antibody Positive control

|   |  |
|---|--|
| Cytokeratin 8   | Skin                                   |
| Cytokeratin 8 & 18                                    | Skin, breast carcinoma                 |
| Cytokeratin 10  | Skin                                   |
| Cytokeratin 10 & 13                                   | Skin                                   |
| Cytokeratin 13  | Skin                                   |
| Cytokeratin 14  | Skin, squamous cell carcinoma          |
| Cytokeratin 15  | Skin                                   |
| Cytokeratin 16  | Skin, squamous cell carcinoma          |
| Cytokeratin 17  | Skin                                   |
| Cytokeratin 18  | Skin, lung carcinoma, breast carcinoma |
| Cytokeratin 19  | Skin, colon carcinoma                  |
| Cytokeratin 20  | Skin, colon carcinoma                  |
| Cytomegalovirus (CMV)                                 | CMV-infected tissue                    |
| Desmin  | Leiomyoma                              |
| DHFR (Dihydrofolate Reductase)                        | Breast carcinoma                       |
| DNA Polymerase B                                      | Testicles                              |
| DOG1  | Gastrointestinal stroma tumour         |
| Dysferlin   | Skeletal muscle                        |
| Dystrophin  | Skeletal muscle                        |
| E2F-1 Transcription Factor                            | Breast carcinoma, tonsil               |
| E2F-4 Transcription Factor                            | Breast carcinoma, tonsil               |
| E-Cadherin  | Ductal breast carcinoma                |
| EGFr (Epidermal Growth Factor Receptor)               | Placenta, squamous cell carcinoma      |
| Elastin   | Heart                                  |
| EMA (Epithelial Membrane Antigen)                     | Colon carcinoma, breast carcinoma      |
| eNOS (endothelial NO-Synthase)                        | Vascular endothelia                    |
| Epithelial Specific Antigen (ESA, Ep-CAM)             | Breast carcinoma                       |
| Epstein Barr Virus (EBV)(Cocktail)(LMP-1)             | EBV-infected tissue                    |
| ERAB  | Alzheimer brain                        |
| ERCC1   | Tonsil, lung carcinoma                 |
| ERG   | Prostate carcinoma                     |
| ERK1 (Extracellular Regulated Kinase)                 | Breast carcinoma                       |
| ERK2 (Extracellular Regulated Kinase)                 | Breast carcinoma                       |
| Estrogen Receptor                                     | Breast carcinoma                       |
| Estrogen Receptor beta                                | Breast carcinoma, ovary, endometrium   |
| Ezrin (p81, Cytovillin)                               | Lung                                   |
| F4/80   | Mouse lung                             |
| Factor VIII Related Antigen (v. Willebrand Factor)    | Tonsil                                 |
| Factor XIIIa (Fibrinolygase, Plasma Transglutaminase) | Placenta                               |
| Fas-Associated Phosphatase (FAP-1)                    | Placenta                               |
| FGFr1 (Fibroblast Growth Factor Receptor)             | Breast carcinoma                       |
| FGFr2 (Fibroblast Growth Factor Receptor)             | Liver cell carcinoma                   |
| FGFr3 (Fibroblast Growth Factor Receptor)             | Breast carcinoma                       |
| Fibronectin   | Kidney                                 |
| Fli-1   | Angiosarcoma                           |
| FLIP (Flice Inhibitor Protein)                        | Colon carcinoma, placenta              |
| Follicular Dendritic Cells (FDC)                      | Lymph node, thyroid gland, tonsil      |
| FOXA1   | Breast carcinoma                       |

### Antigen/Antibody Positive control

|   |                                   |
|---|-----------------------------------|
| FOXP3   | Tonsil                            |
| FOXP4 (Forkhead BOX P4)                         | Lung                              |
| Fra2 (Fos Related Antigen 2)                    | Prostate carcinoma                |
| FSH (Follicle Stimulating Hormone)              | Pituitary gland                   |
| Galectin-3                                      | Thyroid gland                     |
| Gamma Glutamylcysteine Synthase (GCS)           | Kidney, testicles                 |
| Gastrin   | Stomach                           |
| GCDFP-15 (BRST-2)                               | Breast carcinoma, salivary gland  |
| GFAP (Glial Fibrillary Acidic Protein)          | Astrocytome, brain                |
| Glial Derived Neurotrophic Factor               | Brain tumour                      |
| Glucagon  | Pancreas                          |
| GLUT1 (Glucose Transporter 1)                   | Breast carcinoma                  |
| GLUT3 (Glucose Transporter 3)                   | Placenta                          |
| Glutamat Decarboxylase 65                       | Pancreas                          |
| Glycophorin A                                   | Erythrocytes                      |
| Glycophorin C (CD236R)                          | Tonsil                            |
| Glypican-3                                      | Liver cell carcinoma              |
| GNB2 (Guanine nucleotide binding protein 2)     | Placenta                          |
| Granulocyte (Myeloid Cell Marker)               | Lymph node, tonsil                |
| Granzyme B                                      | Hodgkin's lymphoma, tonsil        |
| Growth Hormone, human (hGH)                     | Pituitary gland                   |
| Hairy Cell Leukemia                             | Tonsil                            |
| HCG (Human Chorionic Gonadotropin)              | Placenta                          |
| HDAC1 (Histone Deacetylase 1)                   | Tonsil                            |
| HDAC2 (Histone Deacetylase 2)                   | Tonsil                            |
| Heat Shock Protein 60 (HSP60)                   | Breast carcinoma                  |
| Heat Shock Protein 70 (HSP70)                   | Breast carcinoma                  |
| Helicobacter pylori                             | H. pylori-infected tissue         |
| Hemoglobin A                                    | Bone marrow, spleen, placenta     |
| Hepatitis B Core Antigen (HBcAg)                | HBV-infected liver                |
| Hepatitis B Surface Antigen (HBsAg)             | HBV-infected liver                |
| Hepatitis C Virus (HCV)                         | HCV-infected liver                |
| Hepatocyte (HepPar1)                            | Liver                             |
| Hepatocyte Factor Homologue-4                   | Lung                              |
| HER2 (c-erbB-2) Extracellulär domain            | Breast carcinoma                  |
| HER2 (c-erbB-2) Intracellulär domain            | Breast carcinoma                  |
| HER3 (c-erbB-3)                                 | Breast carcinoma, skeletal muscle |
| HER4 (c-erbB-4)                                 | Breast carcinoma                  |
| Heregulin (NDF, GGF, Neuregulin)                | Prostate carcinoma                |
| HGAL  | Tonsil, lymph node                |
| HHV8 (Human Herpes Virus)                       | HHV8-infected tissue              |
| HIF-1 alpha ( Hypoxia Inducible Factor-1 alpha) | Breast carcinoma                  |
| HLA-DR, DP, DQ, DX                              | Lymph node, tonsil                |
| HMGA2   | Breast carcinoma                  |
| HPV 16, L1 (Papilloma virus Type 16)            | HPV 16-infected tissue            |
| HSV I (Herpes Simplex Virus)                    | HSV I-infected tissue             |
| HSV I & II (Herpes Simplex Virus)               | HSV I & II-infected tissue        |
| HSV II (Herpes Simplex Virus)                   | HSV II-infected tissue            |
| Huntingtin-Interacting Protein 1 (HIP-1)        | Colon carcinoma                   |

# Immunohistology

## positive controls



### Antigen/Antibody Positive control

### Antigen/Antibody Positive control

|   |   |
|---|---|
| IgA   | Tonsil                                    |
| IgD   | Tonsil                                    |
| IgE   | Tonsil                                    |
| IgG   | Tonsil                                    |
| IgG4  | Tonsil                                    |
| IgM   | Tonsil                                    |
| IKAROS  | Tonsil                                    |
| Inhibin, alpha  | Ovary, testicles                          |
| INI-1   | Brain, astrocytome, endothelial cells     |
| iNOS (inducible NO-Synthase)                            | Lung                                      |
| Insulin   | Pancreas                                  |
| Insulin-Like Growth Factor 1 Receptor (IGF1R)           | Breast carcinoma, placenta                |
| Insulin Receptor Substrate (IRS)                        | Colon carcinoma                           |
| Integrin beta 3 (CD61)                                  | Tonsil                                    |
| Integrin beta 5   | Small intestine, bone marrow              |
| Involucrin  | Skin                                      |
| IPO-38 (Proliferation Marker)                           | Spleen, tonsil                            |
| JAK3  | Colon carcinoma, tonsil                   |
| J-Chain   | Tonsil                                    |
| Kappa Light Chain                                       | Tonsil                                    |
| Ki-67   | Breast carcinoma, tonsil                  |
| KOC/L5235   | Prostate carcinoma, placenta              |
| K-RAS   | Colon carcinoma                           |
| Ksp-Cadherin  | Kidney                                    |
| Ku (p70)  | Tonsil                                    |
| Lactogen (Placental)                                    | Placenta                                  |
| Lambda Light Chain                                      | Tonsil                                    |
| Laminin   | Skin                                      |
| LK26  | Ovary carcinoma                           |
| LMO2  | Tonsil                                    |
| LPAP (Lymphocyte Phosphatase-Associated Phosphoprotein) | Tonsil                                    |
| Lung Related Protein, MVP (Major Vault Protein)         | Breast carcinoma, adrenal gland           |
| Luteinizing Hormone (LH)                                | Pituitary gland                           |
| Lymphatic Endothelium Marker (D2-40, Podoplanin)        | Lymphatic endothelia (tonsil or appendix) |
| Lysozyme (Muraminidase)                                 | Tonsil                                    |
| LYVE-1  | Lymphatic endothelia (tonsil or appendix) |
| Macrophage  | Lymph node, tonsil                        |
| MADL  | Adenocarcinoma of lung                    |
| MAGE-1  | Melanoma, tonsil                          |
| Mammaglobin   | Breast carcinoma                          |
| MART-1 (MelanA)   | Melanoma                                  |
| Mast Cell Chymase                                       | Tonsil                                    |
| Mast Cell Tryptase                                      | Tonsil                                    |
| MCL-1 (Myeloid Cell Leukemia)                           | Tonsil                                    |
| MCM2  | Tonsil                                    |
| MCM5  | Cervix carcinoma                          |

|  |                            |
|--|----------------------------|
| MDM2 (Murine Double Minute 2)                | Breast carcinoma           |
| MDR1 (Multi Drug Resistance Protein, pg170J) | Colon, liver, kidney       |
| MDR1+3 (Multi Drug Resistance Protein)       | Adrenal cortex             |
| MEF-2  | Brain                      |
| Melanoma (pan, MART-1+HMB45+Tyrosinase)      | Melanoma                   |
| Melanoma (HMB45)                             | Melanoma                   |
| Melanoma Associated Antigen                  | Melanoma                   |
| Mesothelin                                   | Mesothelioma               |
| Mesothelioma                                 | Mesothelioma               |
| MGMT   | Colon carcinoma, tonsil    |
| Microglia (Iba1)                             | Brain                      |
| MIP-1alpha                                   | Lung carcinoma             |
| MiTF (Microphthalmia Transcription Factor)   | Melanoma                   |
| MLH1   | Colon, melanoma, tonsil    |
| MMP-1 (Matrix Metalloproteinase 1)           | Breast carcinoma, placenta |
| MMP-2 (Matrix Metalloproteinase 2)           | Breast carcinoma, placenta |
| MMP-3 (Matrix Metalloproteinase 3)           | Breast carcinoma, placenta |
| MMP-7 (Matrix Metalloproteinase 7)           | Breast carcinoma, placenta |
| MMP-9 (Matrix Metalloproteinase 9)           | Breast carcinoma, placenta |
| MMP-10 (Matrix Metalloproteinase 10)         | Breast carcinoma, placenta |
| MMP-11 (Matrix Metalloproteinase 11)         | Placenta                   |
| MMP-14/MT-MMP (Matrix Metalloproteinase 14)  | Breast carcinoma, placenta |
| MMP-15/MT2-MMP (Matrix Metalloproteinase 15) | Placenta                   |
| MMP-19 (Matrix Metalloproteinase 19)         | Placenta                   |
| MMP-23 (Matrix Metalloproteinase 23)         | Placenta                   |
| MSH2 (MutS homologue 2)                      | Colon carcinoma, tonsil    |
| MSH3 (MutS homologue 3)                      | Colon carcinoma, tonsil    |
| MSH6 (MutS homologue 6)                      | Colon carcinoma, tonsil    |
| mTOR   | Breast carcinoma           |
| MUC1 (Mucin 1, CD227)                        | Breast carcinoma           |
| MUC2 (Mucin 2)                               | Small intestine            |
| MUC 5AC (Mucin 5AC)                          | Stomach                    |
| MUC18 (CD146)                                | Angiosarcoma               |
| MUM1 Protein                                 | Plasma cells, tonsil       |
| Myelin Basic Protein (MBP)                   | Brain                      |
| Myeloperoxidase (MPO)                        | Spleen, tonsil             |
| Myo D1                                       | Tonsil                     |
| Myogenin                                     | Rhabdomyosarcoma           |
| Myoglobin                                    | Skeletal muscle            |
| Myosin                                       | Skeletal muscle            |
| Napsin A                                     | Adenocarcinoma of the lung |
| NCK2   | Breast carcinoma           |
| N-Cadherin (Cadherin 2)                      | Pituitary gland            |
| Nephrin                                      | Kidney                     |
| Neurofilament H (200 kDa)                    | Brain                      |
| Neurofilament I & H (70/200 kDa)             | Brain                      |
| NF kappa B (p50)                             | Testicles                  |
| NF kappa B (p65) (rel A)                     | Placenta, prostate         |



# Immunohistology

## positive controls



### Antigen/Antibody Positive control

|  |  |
|--|--|
| NGF-Receptor   | Neurofibroma                             |
| Nkx3.1   | Prostate carcinoma                       |
| eNOS (endothelial NO-Synthase)                         | Vascular endothelia                      |
| iNOS (inducible NO-Synthase)                           | Lung                                     |
| uNOS (universal NO-Synthase)                           | Placenta                                 |
| Notch-1  | Colon carcinoma, breast carcinoma        |
| Nrf2 (TCF 11)  | Placenta                                 |
| NSE (Neuron Specific Enolase)                          | Pancreas                                 |
| Nucleophosmin (NPM, Numatrin)                          | Tonsil                                   |
| Occludin   | Lung, A431 cells                         |
| Oct-1 (Octamer Binding Transcription Factor 1)         | Tonsil                                   |
| Oct-2 (Octamer Binding Transcription Factor 2)         | Tonsil                                   |
| Oct-3/Oct-4 (Octamer Binding Transcription Factor 3/4) | Seminoma                                 |
| Oct-4 (Octamer Binding Transcription Factor 4)         | Seminoma                                 |
| Osteopontin  | Stomach carcinoma, osteosarcoma          |
| p14 (ARF)  | Breast carcinoma, cervix carcinoma       |
| p14 (ARF) / p16 beta                                   | Cervix carcinoma, fibroadenoma of breast |
| p15 (ink4b)  | Colon carcinoma                          |
| p19 (ink4d)  | Colon carcinoma                          |
| p21 (ros, WAF1)  | Colon carcinoma, tonsil                  |
| p27 (KIP1)   | Colon carcinoma                          |
| p34 (CDC2)   | Breast carcinoma                         |
| p40  | Squamous cell carcinoma of lung          |
| p53  | Colon carcinoma, breast carcinoma        |
| p56 DOK2   | Breast carcinoma                         |
| p57 (KIP2)   | Colon carcinoma, placenta                |
| p59 (Fyn)  | Lymphoma                                 |
| p62 DOK1   | Breast carcinoma                         |
| p63  | Skin, squamous cell carcinoma, prostate  |
| p120 (Catenin delta)                                   | Breast carcinoma                         |
| P504S (AMACR)  | Prostate carcinoma                       |
| P504S & p63 (PIN Cocktail)                             | Prostate carcinoma                       |
| Pan Basal-Cell Cocktail (p63 & Cytokeratin 5/14)       | Prostate, breast                         |
| Pan B Cocktail (CD20 & PAX-5)                          | Tonsil                                   |
| Pancreatic Polypeptide                                 | Pancreas                                 |
| Par-4 (Prostate Apoptosis Response)                    | Alzheimer brain, myocardium              |
| Parathyroid Hormone (PTH)                              | Parathyroid gland                        |
| Parathyroid Hormone Receptor 1 (PTHr)                  | Breast carcinoma                         |
| PAX-2  | Kidney cell carcinoma                    |
| PAX-5  | Tonsil                                   |
| PAX-8  | Kidney cell carcinoma                    |
| Paxillin   | Colon carcinoma                          |
| PCNA (Proliferating Cell Nuclear Antigen)              | Lymph node, tonsil                       |
| PD-1   | Tonsil, lymph node                       |
| PDGF (Platelet Derived Growth Factor)                  | Breast carcinoma                         |

### Antigen/Antibody Positive control

|  |                                   |
|--|-----------------------------------|
| PDGF (beta-chain) (Platelet Derived Growth Factor) | Angiosarcoma                      |
| PDGFr-alpha (CD140a)                               | Ovary carcinoma                   |
| PDGFr-beta (CD140b)                                | Ovary carcinoma                   |
| Perforin   | Spleen                            |
| Phosphohistone H3 (pHH3)                           | Breast carcinoma, tonsil          |
| Phospholipase C beta 1                             | Brain                             |
| Phospholipase C gamma 2                            | Hodgkin's lymphoma                |
| Phosphoprotein (Pan) (PS/PT/PY)                    | Breast carcinoma                  |
| Phosphotyrosine                                    | Breast carcinoma                  |
| PI3K/p85   | Placenta, Breast carcinoma        |
| PI3K/p110 beta                                     | Placenta                          |
| PIN Cocktail (P504S & p63)                         | Prostate carcinoma                |
| PLAP (Placental Alkaline Phosphatase)              | Seminoma                          |
| PML Protein  | Lymphoma                          |
| PMP22 (Peripheral Myelin Protein)                  | Nerve tissue                      |
| PMS2   | Colorectal carcinoma              |
| Pneumocystis carinii                               | Infected lung tissue              |
| Podocin  | Kidney                            |
| Podoplanin   | Lymphatic endothelia              |
| Progesterone Receptor                              | Breast carcinoma                  |
| Prohibitin   | Heart                             |
| Prolactin (LTH, Luteotropic Hormone)               | Pituitary gland                   |
| Protein Gene Product 9.5 (PGP9.5, UCH-L1)          | Pancreatic carcinoma, tonsil      |
| PSA (Prostate Specific Antigen)                    | Prostate                          |
| PsAP (Prostatic Acid Phosphatase)                  | Prostate                          |
| PsCA (Prostate Stem Cell Antigen)                  | Prostate carcinoma                |
| PSMA (Prostate Specific Membrane Antigen)          | Prostate                          |
| PTEN (MMAC1,TEP1)                                  | Prostate, breast carcinoma        |
| PU.1   | Lymph node, tonsil                |
| Ran  | Mamma, Hela- or A431 cells        |
| Ras  | Tonsil                            |
| RCAS (BAG9)  | Breast carcinoma                  |
| RCC1 (Regulator of Chromosome Condensation1)       | Colon carcinoma                   |
| Renal Cell Carcinoma, gp200 (RCC)                  | Kidney, Kidney cell carcinoma     |
| Ret Oncoprotein                                    | Small intestine                   |
| Retinoblastoma (Rb)                                | Colon carcinoma, breast carcinoma |
| ROC1   | Tonsil                            |
| RPA (p34) (Replication Protein A)                  | Tonsil                            |
| RRM1 (Ribonucleotide Reductase M1 Polypeptide)     | Placenta                          |
| S6 Ribosomal                                       | Breast carcinoma                  |
| S100   | Melanoma, nerve tissue            |
| S100A4   | Melanoma                          |
| S100P  | Ductal adenocarcinoma of pancreas |
| SALL4  | Seminoma                          |
| Secretagogin                                       | Pancreas, brain                   |
| Smad3  | Breast carcinoma                  |
| Somatostatin Receptor 1 (SSTR1)                    | Prostate                          |

# Immunohistology

## positive controls

### Antigen/Antibody Positive control

|  |  |
|--|--|
| Somatostatin Receptor 2A (SSTR2A)              | Pancreas including Langerhans cells    |
| Somatostatin Receptor 5 (SSTR5)                | Pancreas including Langerhans cells    |
| SOX2   | Newborn brain                          |
| SOX4   | Brain                                  |
| SOX9   | Testicles                              |
| SOX11  | Mantle cell lymphoma                   |
| SOX14  | Fetal tissue                           |
| STAT3  | Tonsil                                 |
| STAT5a   | Tonsil                                 |
| STAT6  | Breast carcinoma                       |
| Stathmin                                       | Tonsil, breast carcinoma, Jurkat-cells |
| Surfactant Apoprotein-A                        | Lung carcinoma                         |
| Survivin                                       | Lymphoma                               |
| Synaptophysin                                  | Pancreas                               |
| Syndecan-1 (CD138)                             | Tonsil                                 |
| Syntaxin 1A                                    | Brain                                  |
| Synuclein (alpha)                              | Brain                                  |
| Synuclein (beta) (Phosphoneuroprotein 14)      | Brain                                  |
| Synuclein (Pan)                                | Colon carcinoma, breast carcinoma      |
| TAG-72 (Tumor associated Glycoprotein)         | Alzheimer brain                        |
| TAU  | Thymus                                 |
| T-bet  | Tonsil, hairy cell leukaemia           |
| TdT (Terminal Deoxynucleotidyl Transferase)    | Squamous cell carcinoma, tonsil        |
| TGF alpha (Transforming Growth Factor)         | Small intestine                        |
| TGF beta I (Transforming Growth Factor)        | Placenta                               |
| TGF beta I Receptor                            | Placenta                               |
| TGF beta II (Transforming Growth Factor)       | Small intestine                        |
| TGF beta III (Transforming Growth Factor)      | Placenta                               |
| TGF beta III Receptor                          | Placenta                               |
| Thioredoxin Reductase 2 (TrxR2)                | Colorectal carcinoma                   |
| Thrombin R                                     | Pancreas                               |
| Thrombospondin (TSP)                           | Breast carcinoma                       |
| Thymidine Phosphorylase                        | Breast carcinoma                       |
| Thymidylate Synthase                           | Colon carcinoma                        |
| Thyroglobulin                                  | Thyroid gland                          |
| Thyroid Hormone Receptor alpha 1/2             | Colon carcinoma                        |
| Thyroid Hormone Receptor beta                  | Thyroid gland                          |
| Thyroid Peroxidase (TPO)                       | Breast carcinoma, ovary carcinoma      |
| TIE-1  | Tonsil                                 |
| TIMP-1 (Tissue Inhibitor of Metalloproteinase) | Colon carcinoma, pancreas carcinoma    |
| TIMP-2 (Tissue Inhibitor of Metalloproteinase) | Breast carcinoma, Placenta             |

### Antigen/Antibody Positive control

|  |  |
|--|--|
| TIMP-3 (Tissue Inhibitor of Metalloproteinase) | Breast carcinoma, Placenta                 |
| TKTL-1   | Testicular carcinoma, urothelial carcinoma |
| TNFr-2 (Tumor Necrosis Factor Receptor 2)      | Tonsil                                     |
| Topoisomerase II (alpha)                       | Tonsil, mantle cell lymphoma               |
| Topoisomerase II (beta)                        | Tonsil                                     |
| Toxoplasma gondii                              | Infected brain tissue                      |
| TRADD  | Liver carcinoma                            |
| Transferrin                                    | Liver                                      |
| Transglutaminase II                            | Breast carcinoma                           |
| Treponema pallidum                             | Infected tissue                            |
| Trypsin  | Pancreas                                   |
| TSH (Thyroid Stimulating Hormone)              | Pituitary gland                            |
| TTF-1 (Thyroid Transcription Factor 1)         | Lung, thyroid gland                        |
| Tubulin, alpha                                 | Skin, lung                                 |
| Tubulin, beta                                  | Skin, lung                                 |
| Tyrosinase                                     | Melanoma                                   |
| Ubiquitin                                      | Alzheimer brain                            |
| uNOS (universal NO-Synthase)                   | Umbilical cord, placenta                   |
| Upstream Transcription Factor 2 (USF2)         | Breast carcinoma                           |
| Urocortin                                      | Pituitary gland                            |
| Uroplakin III                                  | Urothelial tissue                          |
| URO Triple Stain Cocktail (CD44+p53+CK20)      | Urothelial carcinoma, colon carcinoma      |
| VEGF-A (Vascular Endothelial Growth Factor)    | Astrocytome, haemangiosarcoma              |
| VEGFr-1 (Flt-1)                                | Angiosarcoma                               |
| VEGFr-2 (Flk-1)                                | Angiosarcoma                               |
| VEGFr-3 (Flt-4)                                | Placenta, breast carcinoma                 |
| VGSC   | Brain                                      |
| Villin   | Small intestine, kidney                    |
| Vimentin                                       | Skin, melanoma, sarcoma                    |
| Vinculin                                       | Skin                                       |
| WNT1   | Breast carcinoma                           |
| WT1 (Wilm's Tumor Protein-1)                   | Wilm's tumour                              |
| XRCC1  | Testicles                                  |
| XRCC2  | Testicles                                  |
| ZAP-70   | Tonsil                                     |
| ZO-3   | Small intestine                            |

This information is supplied without liability.