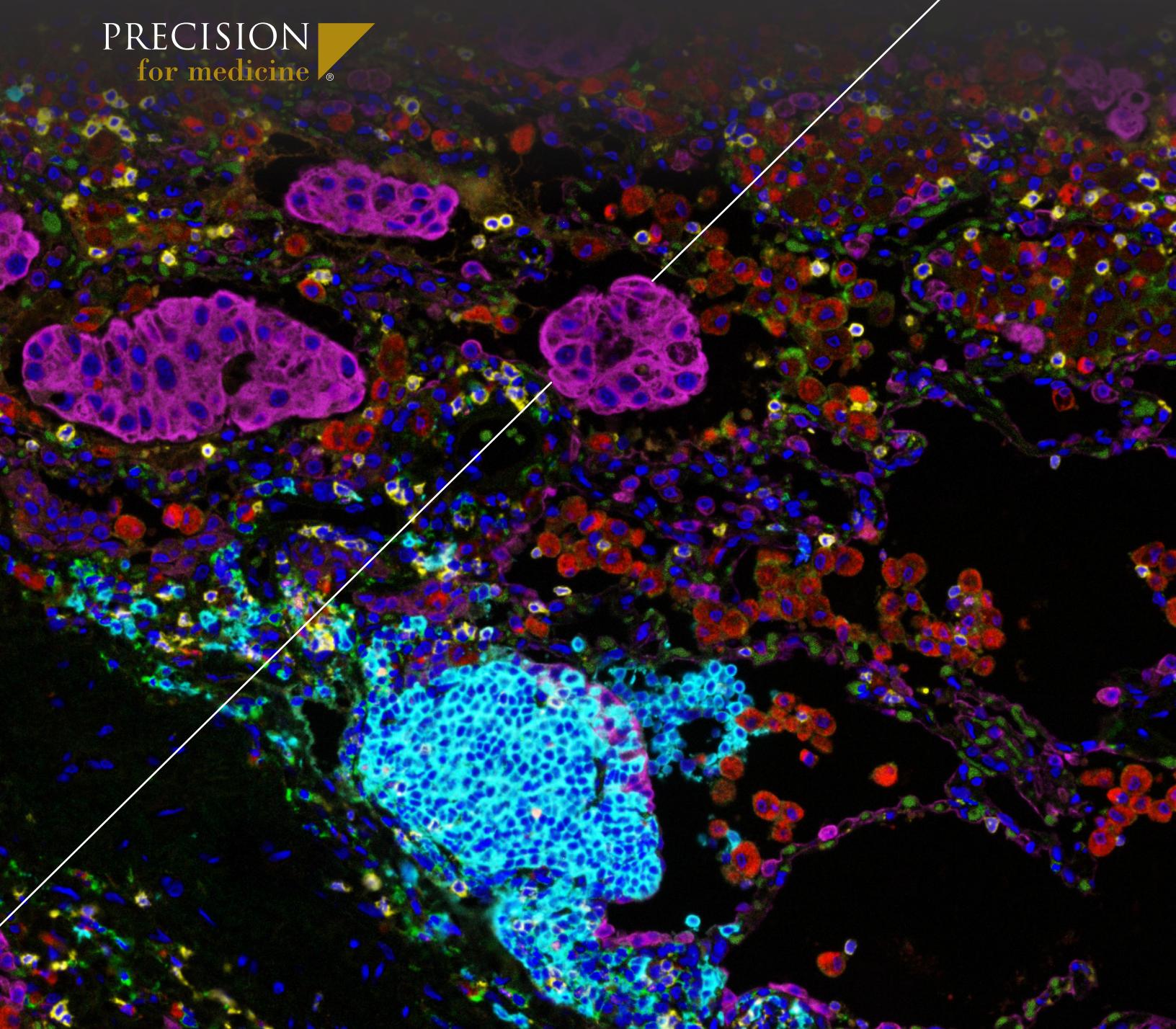


Immunohistochemistry (IHC) and Multiplex Immunofluorescence (mIF) Marker Test Menu

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Precision for Medicine's scientists have experience in performing IHC and mIF across hundreds of markers. The IHC and mIF markers in the tables below include markers of all validation levels; please inquire with questions about any specific markers.

In addition to analysis, Precision has an extensive biorepository of available tissue samples, and in-house pathologists to support scoring and analysis.

| Immunohistochemistry Markers | | | | |
|-------------------------------------|---------------|-----------------------------|------------------|--------------|
| 41BB/CD137 | ALPPL-2 | BMP-9 | CD11b | CD223/LAG3 |
| 53BP1 | AMP841 | BRAF | CD11c | CD226/DNAM1 |
| 5T4 | Aquaporin 3 | BTNL8 | CD123 | CD227/MUC1 |
| A2AR | AR | BubR1 | CD133 | CD23 |
| a2m globulin | AR-V7 | C5AR1 | CD134/OX40 | CD24 |
| ABCD1 | ASC1 | CA-125/MUC16 | CD137/41BB | CD25/IL2R |
| ABCG2 | α-synuclein | CA19-9 | CD138/Syndecan-1 | CD276/B7H3 |
| Acetyl-histone H3 | AT8 (PHF-Tau) | Calcitonin (Polyclonal) | CD14 | CD3 |
| AcK27-H3 | ATM | Calponin | CD141 | CD30 |
| AcK40-Tubulin | Axin2 | Calreticulin | CD142 | CD300b |
| AcK9-H3 | AXL | Calretinin (CAL6) | CD146 | CD303 |
| Ac-tubulin Lys40 | B12 | Caspase 3-cleaved and total | CD15 | CD309/VEGFR2 |
| ACPP | B7-2/CD86 | CBLB | CD16 | CD31 |
| Adipophilin | B7-H3/CD276 | CBLC | CD163 | CD32 |
| AE1/AE3 | B7-H4 | CC1 | CD172a | CD33 |
| AKR1B10 | B-Catenin | CC8 | CD177 | CD34 |
| AKR1C1/C2 | BAD | CCR2 | CD184 | CD36 |
| AKR1C3 | Bax | CCR7 | CD19 | CD38 |
| AKT | Bcl-xl | CCR8 | CD1a | CD3e |
| ALDH1 | BCL2 | CD10 | CD1c | CD4 |
| ALDH1A1 | BCL6 | CD103 | CD20 | CD40 |
| ALDH3A1 | BCMA | CD105 | CD200 | CD40L |
| ALK Protein (ALK-1) | BLC2 | CD10CD15 | CD206 | CD41 |
| Alpha-Methylacyl-CoA Racemase/P504S | BMP-10 | CD117 | CD21 | CD43 |
| CD44 | CK20 | Detyrosinated α Tubulin | GATA-3 | HLA-DR |
| CD45 | CK5 | DNAI1 | GD3 | HMB45 |

Immunohistochemistry Markers (continued)

| | | | | |
|---|-----------------------------|--------------------|-------------------|----------------------------------|
| CD45RO | CK7 | E2F1 | GDF5 | HP |
| CD46 | CK903/Cytokeratin HMW | EBER (EBV) ISH | GFAP | HSP90 |
| CD47 | CK AE1/AE3 | E-Cadherin (E-CAD) | g-H2AX | Herpes Simplex Virus I (HSV I) |
| CD5 | CKB | EGFR | Gingipain R1 | Herpes Simplex Virus II (HSV II) |
| CD56 | Claudin -1 | Elastin | Gingipain R2 | IBA-1 |
| CD61 | Claudin-18 | EMA | GITR | ICAM-1 |
| Mono CEA/ Carcinoembryonic Antigen (CD66) | Cleaved Caspase 3 | Ep-CAM (BER-EP4) | GITRL | ICOS |
| CD66b/CEACAM8 | Cleaved Gasdermin D | ER | Glu-Tubulin | Id1 |
| CD68/SR-D1 | c-MAF | ErbB2/HER2 | GPR15 | IDO-1 |
| CD69 | c-Met | ErbB2/pHER2 | GPR17 | IgG2 |
| CD7 | c-Met (phospho) | ErbB3/HER3 | GPR52 | IgG4 |
| CD71 | CMV | ErbB3/pHER3 | Granzyme B | IL10RA |
| CD73 | c-Myc (total) | ERG | H7CR | IL11RA |
| CD79a | Coagulation Factor III | ERK1/2 (phospho) | HA | L-12p70 |
| CD8 | Collagen I | ERK1/2 (total) | HAS-1 | IL18 |
| CD80 | Collagen III | ERK 12 | HA-tag | IL18 R1 |
| CD86/B7-2 | CREB-2 | EZH2 | <i>H. pylori</i> | IL18 RAP |
| CD87 | CTLA-4 | F4/80 | Helios/IkZF2 | IL23R/CD25 |
| CDK1 | CTPS2 | Factor XIII | HER2/ErbB2 | IFN gamma |
| CDX2 | Cyclin A2 | FAP | HER3/ErbB3 | Ig light chain kappa lambda |
| CEA | Cyclin B1 | FAP alpha | Her4 | iNOS |
| CEACAM5 | Cyclin D1 | FGFR1 | Herceptest (Her2) | IRF (phospho) |
| CEACAM6 | Cytokeratin | Fibrillin | HGF | KAPPA ISH |
| CEACAM7 | Cytokeratin LMW (CAM5.2) | Filaggrin | HHV8 | Keratin-16 |
| CEACAM8/CD66b | DCR3 | FoxM1 | HIF 1a | Ki-67 |
| Chromogranin A | Dectin-2 | FoxP3 | HLA-1 | KLH |
| cIAP-1 | Desmin | FRS2 | HLA-A2 | LAG3/CD223 |
| CK16 | Desmoglein 3 | G6PD | HLA-ABC | LAMBDA ISH |

Immunohistochemistry Markers (continued)

| | | | | |
|--------------------|----------------------------------|----------------------------|--|--|
| Lamin B1 | MUC5B | PD-L2 | PVRL2/CD112 | THOC7 |
| LC3 | MUM1 | pEGFR | RAD51 | TIGIT |
| LC3A | Myelin Basic Protein (MBP) | pEIF2A | Ran | TIM3 |
| LIGHT | Myeloperoxidase | pERK | RB1 | TMIGD1 |
| Lingo1 | Myf-4 | Perforin | ROR1 | TNFR2 |
| Loricrin | Myosin | pERK 12 | ROR2 | TOP1 |
| LRP6 | Napsin-A | pFAK | RORgT | TOP2 |
| Ly6C | N-Cadherin | pFRS2 | ROS1 | TOX |
| Ly6G | NCAM1 | PGD | S100 | <i>Treponema pallidum</i> |
| Lys-gingipain | Neutrophil elastase | Pgp 9.5 | S1P1 | TrkA (phospho) |
| MADCAM1 | Nfr2 | pHER2/ErbB2 (Tyr1221/1222) | S1P5 | TROP2 |
| MAPK/p44/42 | NRP-1 | pHER3/ErbB3 | SARS-CoV-2 nucleocapsid | TRPM8 |
| Mast cell tryptase | Occludin | Phospho-histone H3 (ser10) | SDMA | Tryptase |
| MCL-1 | OX40/CD134 | PIN4 (HMW/P63/P504S) | SEMA4A | Thyroid Transcription Factor-1 (TTF-1) |
| Melan A | p16 | Plectin | SEZ6 | TUNEL |
| MERTK | P21 | PMS2 | SMA | TWIST |
| Mesothelin | p27 | PMP70 | SMAD5 | TYRP1 |
| Midasin | P53 | PR | SMOX | Uroplakin1b |
| MLH1 | P63 | ProSP-C | Snail | Uteroglobin |
| MMP1 | pAKT | PSA | SOX10 | VAMP1 |
| MMP12 | pAKT(S129) | pSeparase (Ser1126) | SPHK2 | VEGFR2/CD309 |
| MMP14 | pAKT(S473) | PSMA | Stathmin 1 | Versican |
| MOG | PanMel (HMB45+MART-1+TYROSINASE) | pSMAD-5 | STEAP2 | Vimentin |
| MRGPRX2 | PARP-cleaved | pSTAT1 | ST2.1 | VIPR1 |
| MSH2 | PAX-5 | PTEN | Synaptophysin | VISTA |
| MSH6 | PAX-8 | PTGR1 | Syndecan-1/CD138 | VZV |
| MUC16/CA-125 | PCK | PVR/CD155 | Terminal Deoxynucleotidyl Transferease (TdT) | ZO-1 |
| MUC5 | PD-L1 (5 different clones) | PVR2 | TF | |
| MUC5AC | PD-L2 | PVRIG | TGF-beta | |

Multiplex Immunofluorescence Markers

| | | | | |
|------------------|---------------|--------------|-----------------------------|---------------------|
| A2AR | CD15 | CD86/B7-2 | HLA-ABC | PMP70 |
| ABCD1 | CD16 | CDK1 | HLA-DR | ProSP-C |
| AcK27-H3 | CD163 | CK5 | IFN gamma | pSeparase (Ser1126) |
| AcK40-Tubulin | CD177 | c-MAF | Ig light chain kappa lambda | p-STAT1 |
| AcK9-H3 | CD19 | c-myc | IL10RA | PVR/CD155 |
| Ac-tubulin Lys40 | CD1a | Collagen I | IL-12p70 | PVRIG |
| ALK | CD1c | Collagen III | Keratin-16 | PVRL2/CD112 |
| Aquaporin 3 | CD20 | Cyclin A2 | Ki-67 | RB |
| B7H3/CD276 | CD206 | Cyclin B1 | LAG3/CD223 | ROR1 |
| B7H4 | CD226/DNAM1 | Cyclin D1 | Lamin B1 | RORyT |
| BAD | CD25/IL2R | DCR3 | LIGHT | ROS1 |
| Bax | CD3 | DNAI1 | Ly6C | S1P1 |
| B-Catenin | CD30 | E2F1 | Ly6G | S1P5 |
| Bcl-xl | CD31 | E-Cadherin | MCL-1 | SOX10 |
| C5aR1 | CD33 | Elastin | MMP1 | SPHK2 |
| CBLB | CD34 | EpCAM | MMP12 | TIGIT |
| CBLC | CD38 | ERK 12 | MRGPRX2 | TIM-3 |
| CCR7 | CD3e | F4/80 | MUC5AC | TNFR2 |
| CCR8 | CD4 | Fibrillin | MUC5B | TOX |
| CD103 | CD45 | FoxM1 | MUM1 | Tryptase |
| CD11b | CD45RO | FoxP3 | p16 | TYRP1 |
| CD11c | CD56 | Granzyme B | pAKT(S479) | Uteroglobin |
| CD123 | CD66b/CEACAM8 | HA | PCK | Versican |
| CD138/Syndecan-1 | CD68/SR-D1 | HAS-1 | PD-1 | Vimentin |
| CD14 | CD69 | HA-tag | PD-L1 | VISTA |
| CD141 | CD7 | HLA-1 | PD-L1 (E1L3N) | vWF |
| CD146 | CD8 | HLA-A2 | p-ERK 12 | ZO-1 |

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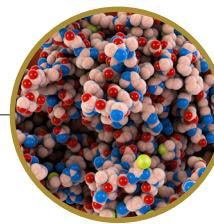
DNA



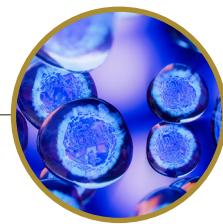
RNA



Protein



Cell



Tissue



- PCR—ddPCR, qPCR
- NGS—whole exome and targeted resequencing

- Gene expression profiling—NanoString
- CAR T and virus (ie, gene therapy) biodistribution
- rtPCR
- MicroRNA analysis

- Comprehensive large molecule bioanalysis—PK, ADA, NAB
- Multiplex cytokine profiling, receptor occupancy, tetramer staining
- Custom ligand binding assays—ELISA, MSD, Biacore
- Quantitative image analysis of protein expression (eg, phosphorylation, signaling)

- Flow cytometry—standard and spectral flow up to 64 color panels
- Functional assays—eg, T-cell activation, ADCC, ELISpot
- Single-cell quantitative image analysis
- Proprietary cell separation technology for CTCs and cfDNA
- Immunophenotyping via proprietary epigenetic platform

- Multiplex IHC with centralized pathology reading
- Quantitative IF—up to 9 concurrent markers
- FISH, ISH, sequencing



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