**Oncology Testing Services**

**Hematology | Oncology | Lymphoma | Solid Tumor**

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**CHROMOSOME ANALYSIS**
- Performed on bone marrow, peripheral blood, lymph node biopsy, solid tumor tissue, and other body fluid specimens
- Identifies numerical and structural chromosomal aberrations with diagnostic and prognostic implications
- Monitors response to therapy, disease progression, and treatment-related secondary malignancies

**FLUORESCENCE IN SITU HYBRIDIZATION (FISH)**

As new assays are validated, our oncology FISH test menu is continually updated. Visit us online or contact our laboratory with questions regarding probe availability.
- Performed on all oncology specimens accepted by our laboratory
- Detects diagnostic and prognostic aberrations of interest
- Monitors response to therapy and opposite sex transplant status
- Utilizes an indication-specific testing approach for all specimen types
  - Single probes for gene or chromosome of interest
  - Multi-probe panels for specific diagnoses (e.g., ALL, AML, CLL, CML, MDS, MPD, Multiple Myeloma, and Lymphoma [including specific subtypes])
  - Custom probes for rare cancers; including solid tissue tumors
- Allows for STAT results to be communicated to referring health care provider within 24 hours of specimen receipt

**MICROARRAY ANALYSIS**
- Allows for testing on fresh and fixed specimens, including those specimens of suboptimal quality or with low mitotic indexes
- Provides high resolution, global assessment of the genome
- Detects loss, gain, and amplification of known and novel disease-associated regions of the genome at a higher resolution than Chromosome Analysis and FISH
- Identifies loss of heterozygosity (LOH), which is particularly significant in regions of the genome that contain tumor suppressor genes

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**INDICATIONS FOR TESTING**

**Hematologic Disorders / Lymphoma**
- Anaplastic large cell lymphoma
- Burkitt lymphoma
- Diffuse large B-cell lymphoma
- Follicular lymphoma
- Leukemias (ALL, AML, CLL, and CML)
- MALT lymphoma
- Mantle cell lymphoma
- Marginal zone lymphoma
- Multiple myeloma and other plasma cell diseases
- Myelodysplastic syndromes (MDS)
- Myeloproliferative disorders (MPD)
- Non-Hodgkin lymphoma
- Waldenström’s macroglobulinemia / lymphoplasmacytic lymphoma

**Solid Tissue Tumors**
- Bladder cancer
- Bone and soft tissue tumors
- Breast cancer *(ERBB2/HER2/neu)*
- Carcinomas
- Neurological cancer, including neuroblastoma
- Sarcomas
Hematology | Oncology | Lymphoma Fish

### Probes

- **Centromere enumeration**
  - 6q21
  - 6q23
  - 15q22
  - 20q12 / 20q13
  - ALK [2p23]
  - ATM [11q22.3]
  - BCL2 [18q21]
  - BCL6 [3q27]
  - BCL6 [3q27] / 3 centromere
  - BCR / ABL1 [t(9;22)] / LSI 9q34
  - BIRC3 (AP12) / MALT1 [t(11;18)]
  - CBFB [16q22]
  - CCND1 [11q13]
  - CCND2 [12p13]
  - CCND3 [6p21.11]
  - CDKN2A (P16) [9p21]
  - CDKN2C [1p32.3] / CKS1B [1q21.3]
  - CRLF2 [Xp22.33/Yp11.3]
  - D13S319 [13q14] / 13q34
  - D7S486 [7q31] / 7 centromere
  - EGR1 [6q31]
  - ETV6 (TEL) [12p13]
  - ETV6 / RUNX1 (TEL / AML1) [t(12;21)]
  - FGF11 [6p21]
  - FIP1L1 / CHIC2 / PDGFRa [4q12]
  - IGH [14q32 abnormalities]
  - IGH / BCL2 [t(14;18)]
  - IGH / CCND1 [t(11;14)]
  - IGH / FGFR3 [t(14;11)]
  - IGH / MAF [t(14;16)]
  - IGH / MAFB [t(14;20)]
  - IGH / MALTI1 [t(14;18)]
  - IGH / MYC / 8 centromere [t(8;14)]
  - IGK [2p11.2]
  - IGL [22q11]
  - IRF4 / DUSP22 [6p25.3]
  - JAK2 [9p24]
  - KMT2A (MLL) [11q23]
  - MALTI1 [18q21] / 18 centromere
  - MECOM (EVII) [3q26.2]
  - MLLT10 (AF10) [10p12]
  - MLLT10 (AF10) / PICALM [t(10;11)]
  - MYC [8q24]
  - P2RY8 [Xp22.3/Yp11.3]
  - PBX1 / TCF3 [t(1;19)]
  - PDGFRB [5q33]
  - PML / RARA [t(15;17)]
  - RUNX1T1 / RUNX1 (ETO / AML1) [t(8;21)]
  - TCL1A [14q32]
  - TP53 [17p13.1]
  - TRA/D (TCR) [14q11.2]
  - TRB (TCRB) [7q34]

### Indication-Specific Testing and Panels

#### Acute Lymphocytic Leukemia/Lymphoma (ALL)
- 6q21 / 6q23
- BCR / ABL1 [t(9;22)] / LSI 9q34
- CDKN2A (P16) [9p21]
- CRLF2 [Xp22.33/Yp11.3]
- ETV6 / RUNX1 (TEL / AML1) [t(12;21)]
- ETV6 (TEL) [12p13]
- Hyperdiploidy
  - 4 centromere
  - 10 centromere
  - 17 centromere
- KMT2A (MLL) [11q23]
- P2RY8 [Xp22.33/Yp11.3]
- PBX1 / TCF3 [t(1;19)]
- PDGFRB [5q33]
- TRA/D (TCR) [14q11.2]
- TRB (TCRB) [7q34]

#### Adult B-cell ALL Panel
- BCR / ABL1 [t(9;22)] / LSI 9q34
- CRLF2 [Xp22.33/Yp11.3]
- KMT2A (MLL) [11q23]
- Hyperdiploidy
  - 4 centromere
  - 10 centromere
  - 17 centromere
- KMT2A (MLL) [11q23]
- PDGFRB [5q33]
- TRA/D (TCR) [14q11.2]
- TRB (TCRB) [7q34]

#### Pediatric B-cell ALL Panel
- BCR / ABL1 [t(9;22)] / LSI 9q34
- CRLF2 [Xp22.33/Yp11.3]
- ETV6 / RUNX1 (TEL / AML1) [t(12;21)]
- Hyperdiploidy
  - 4 centromere
  - 10 centromere
  - 17 centromere
- KMT2A (MLL) [11q23]
- PDGFRB [5q33]

#### T-cell ALL Panel
- 6q21 / 6q23
- BCR / ABL1 [t(9;22)] / LSI 9q34
- CDKN2A (P16) [9p21]
- TRA/D (TCR) [14q11.2]
- TRB (TCRB) [7q34]

#### Acute Myeloid Leukemia (AML)
- 8 centromere
- CBFB [16q22]
- DT5486 [7q31] / 7 centromere
- KMT2A (MLL) [11q23]
- MECOM (EVII) [3q26.2]
- MLLT10 (AF10) [10p12]
- RUNX1T1 / RUNX1 (ETO / AML1) [t(8;21)]
- MYC [8q24]
- P2RY8 [Xp22.3/Yp11.3]
- PBX1 / TCF3 [t(1;19)]
- PDGFRB [5q33]
- PML / RARA [t(15;17)]
- TP53 [17p13.1]

#### Chronic Lymphocytic Leukemia (CLL)
- 6q23
- 12 centromere
- ATM [11q22.3]
- D13S319 [13q14] / 13q34
- IGH [14q32]
- IGH / CCND1 [t(11;14)]
- TP53 [17p13.1]

#### Chronic Myeloid Leukemia (CML)
- BCR / ABL1 [t(9;22)] / LSI 9q34
- TP53 [17p13.1] * / 8 centromere *
  * when concurrent Chromosome Analysis is not performed

#### Eosinophilia
- FGFR1 [8p12]
- FGFR1 / CHIC2 / PDGFRa [4q12]
- JAK2 [9q24]
- PDGFRB [5q33]

#### Lymphoma
- 6q21 / 6q23
- ALK [2p23]
- BCL2 [18q21]
- BCL6 [3q27]
- BIRC3 (AP12) / MALT1 [t(11;18)]
- CCND1 [11q13]
- CCND2 [12p13]
- CCND3 [6p21.1]
- IGH [14q32 abnormalities]
  - IGH / BCL2 [t(14;18)]
  - IGH / CCND1 [t(11;14)]
  - IGH / MALT1 [t(11;18)]
  - IGH / MYC / 8 centromere [t(8;14)]
- IGK [2p11.2]
- IGL [22q11]
- IRF4 / DUSP22 [6p25.3]
- MYC [8q24]
- TGLA [14q32]
- TRA/D (TCR) [14q11.2]
- TRB (TCRB) [7q34]

#### Marginal Zone
- 12 centromere
- BCL6 [3q27] / 3 centromere
- D7S486 [7q31] / 7 centromere
- KMT2A (AF10) [10p12]
- MALTI1 [18q21] / 18 centromere

#### Non-Hodgkin Lymphoma (NHL)
- BCL6 [3q27]
- IGH / BCL2 [t(14;18)]
- IGH / MYC / 8 centromere [t(8;14)]
- MYC [8q24]
- TP53 [17p13.1]
  * alternate & major breakpoint

#### Multiple Myeloma (MM)
- 6q21 / 6q23
- CDKN2C [1p32.3] / CKS1B [1q21.3]
- D13S319 [13q14] / 13q34
- Hyperdiploidy
  - 9 centromere
  - 11 centromere
  - 15q22
- IGH [14q32 abnormalities]
  - IGH / CCND1 [t(11;14)]
  - IGH / FGFR3 [t(4;14)]
  - IGH / MAF [t(14;16)]
  - IGH / MAFB [t(14;20)]
- TP53 [17p13.1]

#### Myelodysplastic Syndrome (MDS)
- 8 centromere
- 20q12 / 20q13
- D7S486 [7q31] / 7 centromere
- EGR1 [5q31]
- KMT2A (MLL) [11q23]

#### Myeloproliferative Disorder (MPD)
- 8 centromere
- 20q12 / 20q13
- BCR / ABL1 [t(9;22)] / LSI 9q34
- D7S486 [7q31] / 7 centromere
- D13S319 [13q14] / 13q34

Please call for updates, as our probe inventory and availability is constantly expanding.
### SOLID TUMOR FISH

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<td>DDIT3 (CHOP) [12q13]</td>
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<tr>
<td>Bladder Cancer (UroVysion®)</td>
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<td>3 centromere</td>
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<td>7 centromere</td>
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<td>CDKN2A (P16) [9p21]</td>
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<td>Breast Cancer (PathVysion®)</td>
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<td>Dermatofibrosarcoma Protuberans (DFSP)</td>
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<td>COL1A1 / PDGFB [t(17;22)]</td>
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<td>Desmoplastic Small Round Cell Tumor (DSRCT)</td>
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<td>Ewing Sarcoma (ES) / Primitive Neuroectodermal Tumor (PNET)</td>
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<td>Lipoblastoma</td>
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<td>PLAG1 [8q12.1]</td>
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