

## HEMATOLOGY | ONCOLOGY | LYMPHOMA FISH

| PROBES  | INDICATION-SPECIFIC TESTING and PANELS   |
|---|--|
| <p>Centromere enumeration<br/>6q21<br/>6q23<br/>15q22<br/>19p13 / 19q13<br/>20q12<br/>ABL1 [9q34]<br/>ABL2 [1q25.2]<br/>ALK [2p23]<br/>ATM [11q22.3]<br/>BCL2 [18q21]<br/>BCL6 [3q27]<br/>BCR / ABL1 [t(9;22)] / LSI 9q34<br/>BIRC3 (API2) / MALT1 [t(11;18)]<br/>CBFB [16q22]<br/>CBFB / MYH11 [inv(16)/t(16;16)]<br/>CCND1 [11q13]<br/>CCND2 [12p13]<br/>CCND3 [6p21.1]<br/>CDKN2A (P16) [9p21]<br/>CDKN2C [1p32.3] / CKS1B [1q21.3]<br/>CRLF2 [Xp22.33/Yp11.3]<br/>D13S319 [13q14] / 13q34<br/>D7S486 [7q31] / 7 centromere<br/>DEK/NUP214 [t(6;9)]<br/>EGR1 [5q31]<br/>EPOR [19p13.2]<br/>ETV6 (TEL) [12p13]<br/>ETV6 / RUNX1 (TEL / AML1) [t(12;21)]<br/>FGFR1 [8p12]<br/>FIP1L1 / CHIC2 / PDGFRA [4q12]<br/>IGH [14q32 abnormalities]<br/>IGH / BCL2 [t(14;18)]<br/>IGH / CCND1 [t(11;14)]<br/>IGH / FGFR3 [t(4;14)]<br/>IGH / MAF [t(14;16)]<br/>IGH / MAFB [t(14;20)]<br/>IGH / MALT1 [t(14;18)]<br/>IGH / MYC / 8 centromere [t(8;14)]<br/>IGK [2p11.2]<br/>IGL [22q11]<br/>IRF4 / DUSP22 [6p25.3]<br/>JAK2 [9p24]<br/>KAT6A/CREBBP [t(8;16)]<br/>KMT2A (MLL) [11q23]<br/>MALT1 [18q21] / 18 centromere<br/>MECOM (EV1) [3q26.2]<br/>MLLT10 (AF10) [10p12]<br/>MLLT10 (AF10) / PICALM [t(10;11)]<br/>MYC [8q24]<br/>NUP98 [11p15]<br/>P2RY8 [Xp22.3/Yp11.3]<br/>PBX1 / TCF3 [t(1;19)]<br/>PDGFRB / CSF1R [5q32]<br/>PML / RARA [t(15;17)]<br/>RARA [17q21]<br/>RUNX1T1 / RUNX1 (ETO / AML1) [t(8;21)]<br/>TCL1A [14q32]<br/>TP53 [17p13.1]<br/>TRA/D (TCR) [14q11.2]<br/>TRB (TCRB) [7q34]</p> | <ul style="list-style-type: none"> <li>• <b>Acute Lymphocytic Leukemia/Lymphoma (ALL)-Pediatric</b> <ul style="list-style-type: none"> <li>◦ ABL1 [9q34]</li> <li>◦ ABL2 [1q25.2]</li> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ CRLF2 [Xp22.33/Yp11.3]</li> <li>◦ ETV6 / RUNX1 (TEL/AML1) [t(12;21)]</li> <li>◦ Hyperdiploidy <ul style="list-style-type: none"> <li>4 centromere</li> <li>10 centromere</li> <li>17 centromere</li> </ul> </li> <li>◦ KMT2A (MLL) [11q23]</li> <li>◦ PDGFRB/CSF1R [5q32]</li> </ul> </li> <li>• <b>Acute Lymphocytic Leukemia/Lymphoma (ALL)-Adult</b> <ul style="list-style-type: none"> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ CRLF2 [Xp22.33/Yp11.3]</li> <li>◦ KMT2A (MLL) [11q23]</li> </ul> </li> <li>• <b>Acute Lymphocytic Leukemia/Lymphoma (ALL)-Ph-like</b> <ul style="list-style-type: none"> <li>◦ ABL1 [9q34]</li> <li>◦ ABL2 [1q25.2]</li> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ CRLF2 [Xp22.33/Yp11.3]</li> <li>◦ EPOR [19p13.2]</li> <li>◦ JAK2 [9p24]</li> <li>◦ PDGFRB/CSF1R [5q32]</li> </ul> </li> <li>• <b>Acute Lymphocytic Leukemia/Lymphoma (ALL)-T-cell</b> <ul style="list-style-type: none"> <li>◦ 6q21 / 6q23</li> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ CDKN2A (P16) [9p21]</li> <li>◦ KMT2A (MLL) [11q23]</li> <li>◦ TRA/D (TCR) [14q11.2]</li> <li>◦ TRB (TCRB) [7q34]</li> </ul> </li> <li>• <b>Chronic Myeloid Leukemia (CML)</b> <ul style="list-style-type: none"> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ MECOM [3q26.2]*</li> <li>◦ TP53 [17p13.1]* / 8 centromere*</li> <li>◦ 19p13 / 19q13*</li> <li>* when concurrent Chromosome Analysis is not performed and BCR::ABL1 fusion is detected</li> </ul> </li> <li>• <b>Eosinophilia</b> <ul style="list-style-type: none"> <li>◦ FGFR1 [8p12]</li> <li>◦ FIP1L1 / CHIC2 / PDGFRA [4q12]</li> <li>◦ JAK2 [9p24]</li> <li>◦ PDGFRB [5q32]</li> </ul> </li> <li>• <b>Acute Myeloid Leukemia (AML)</b> <ul style="list-style-type: none"> <li>◦ 8 centromere</li> <li>◦ 20q12</li> <li>◦ CBFB [16q22]</li> <li>◦ D7S486 [7q31] / 7 centromere</li> <li>◦ EGR1 [5q31]</li> <li>◦ KMT2A (MLL) [11q23]</li> <li>◦ MECOM (EV1) [3q26.2]</li> <li>◦ NUP 98 [11p15]</li> <li>◦ PML / RARA [t(15;17)]</li> <li>◦ RARA [17q21]</li> <li>◦ RUNX1T1 / RUNX1 (ETO / AML1) [t(8;21)]</li> </ul> </li> <li>• <b>Myelodysplastic Syndrome (MDS)</b> <ul style="list-style-type: none"> <li>◦ 8 centromere</li> <li>◦ 20q12</li> <li>◦ D7S486 [7q31] / 7 centromere</li> <li>◦ EGR1 [5q31]</li> <li>◦ KMT2A (MLL) [11q23]</li> </ul> </li> <li>• <b>Myeloproliferative Neoplasm (MPN)</b> <ul style="list-style-type: none"> <li>◦ 8 centromere</li> <li>◦ 20q12</li> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ D7S486 [7q31] / 7 centromere</li> <li>◦ D13S319 [13q14] / 13q34</li> </ul> </li> <li>• <b>Myelodysplastic Syndrome/Myeloproliferative Neoplasm (MDS/MPN)</b> <ul style="list-style-type: none"> <li>◦ 8 centromere</li> <li>◦ 20q12</li> <li>◦ BCR / ABL1 [t(9;22)] / LSI 9q34</li> <li>◦ D7S486 [7q31] / 7 centromere</li> <li>◦ D13S319 [13q14] / 13q34</li> <li>◦ EGR1 [5q31]</li> <li>◦ KMT2A (MLL) [11q23]</li> </ul> </li> <li>• <b>Chronic Lymphocytic Leukemia (CLL)</b> <ul style="list-style-type: none"> <li>◦ 6q23</li> <li>◦ 12 centromere</li> <li>◦ ATM [11q22.3]</li> <li>◦ D13S319 [13q14] / 13q34</li> <li>◦ IGH [14q32]</li> <li>◦ IGH / CCND1 [t(11;14)]</li> <li>◦ TP53 [17p13.1]</li> </ul> </li> <li>• <b>Burkitt lymphoma</b> <ul style="list-style-type: none"> <li>◦ IGH / MYC / 8 centromere [t(8;14)]</li> <li>◦ MYC [8q24]</li> </ul> </li> <li>• <b>Follicular Lymphoma</b> <ul style="list-style-type: none"> <li>◦ IGH / BCL2 [t(14;18)]</li> </ul> </li> <li>• <b>Mantle Cell Lymphoma</b> <ul style="list-style-type: none"> <li>◦ IGH / CCND1 [t(11;14)]</li> </ul> </li> <li>• <b>Marginal Zone Lymphoma</b> <ul style="list-style-type: none"> <li>◦ 12 centromere</li> <li>◦ BCL6 [3q27] / 3 centromere</li> <li>◦ D7S486 [7q31] / 7 centromere</li> <li>◦ IGH [14q32]</li> <li>◦ MALT1 [18q21] / 18 centromere</li> </ul> </li> <li>• <b>Non-Hodgkin Lymphoma (NHL)</b> <ul style="list-style-type: none"> <li>◦ BCL6 [3q27]*</li> <li>◦ IGH / BCL2 [t(14;18)]</li> <li>◦ IGH / MYC / 8 centromere [t(8;14)]</li> <li>◦ MYC [8q24]</li> <li>◦ TP53 [17p13.1]</li> <li>* alternate &amp; major breakpoint</li> </ul> </li> <li>• <b>Multiple Myeloma (MM)</b> <ul style="list-style-type: none"> <li>◦ CDKN2C [1p32.3] / CKS1B [1q21.3]</li> <li>◦ D13S319 [13q14] / 13q34</li> <li>◦ Hyperdiploidy <ul style="list-style-type: none"> <li>9 centromere</li> <li>11 centromere</li> </ul> </li> <li>◦ IGH [14q32 abnormalities]</li> <li>◦ IGH / CCND1 [t(11;14)]</li> <li>◦ IGH / FGFR3 [t(4;14)]</li> <li>◦ IGH / MAF [t(14;16)]</li> <li>◦ IGH / MAFB [t(14;20)]</li> <li>◦ TP53 [17p13.1]</li> </ul> </li> </ul> |