

## HEMATOLOGY | ONCOLOGY | LYMPHOMA FISH

▶ PROBES	▶ INDICATION-SPECIFIC TESTING and PANELS
<p>Centromere enumeration                      6q21                      6q23                      15q22                      19p13 / 19q13                      20q12                      ABL1 [9q34]                      ABL2 [1q25.2]                      ALK [2p23]                      ATM [11q22.3]                      BCL2 [18q21]                      BCL6 [3q27]                      BCR::ABL1 [t(9;22)] / LSI 9q34                      BIRC3 (API2)::MALT1 [t(11;18)]                      CBFB [16q22]                      CBFB::MYH11 [inv(16)t(16;16)]                      CCND1 [11q13]                      CCND2 [12p13]                      CCND3 [6p21.1]                      CDKN2A (P16) [9p21]                      CDKN2C [1p32.3] / CKS1B [1q21.3]                      CRLF2 [Xp22.33/Yp11.3]                      D13S319 [13q14] / 13q34                      D7S486 [7q31] / 7 centromere                      DEK::NUP214 [t(6;9)]                      DUSP22 / IRF4 [6p25.3]                      EGR1 [5q31]                      EPOR [19p13.2]                      ETV6 (TEL) [12p13]                      ETV6::RUNX1 (TEL / AML1) [t(12;21)]                      FGFR1 [8p12]                      FIP1L1 / CHIC2 / PDGFRA [4q12]                      IGH [14q32 abnormalities]                      IGH::BCL2 [t(14;18)]                      IGH::CCND1 [t(11;14)]                      IGH::FGFR3 [t(4;14)]                      IGH::MAF [t(14;16)]                      IGH::MAFB [t(14;20)]                      IGH::MALT1 [t(14;18)]                      IGH::MYC / 8 centromere [t(8;14)]                      IGK [2p11.2]                      IGL [22q11]                      IRF4 / DUSP22 [6p25.3]                      JAK2 [9p24]                      KAT6A::CREBBP [t(8;16)]                      KMT2A (MLL) [11q23]                      MALT1 [18q21] / 18 centromere                      MECOM (EVI1) [3q26.2]                      MLLT10 (AF10) [10p12]                      MLLT10 (AF10)::PICALM [t(10;11)]                      MYC [8q24]                      NUP98 [11p15]                      P2RY8 [Xp22.3/Yp11.3]                      PBX1::TCF3 [t(1;19)]                      PDGFRB / CSF1R [5q32]                      PML::RARA [t(15;17)]                      RARA [17q21]                      RUNX1::RUNX1T1 (AML1::ETO) [t(8;21)]                      TCL1A [14q32]                      TP53 [17p13.1]                      TRA/D (TCR) [14q11.2]                      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 4 centromere 10 centromere 17 centromere</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 (EVI1) [3q26.2]</li> <li>◦ NUP 98 [11p15]</li> <li>◦ PML / RARA [t(15;17)]</li> <li>◦ RARA [17q21]</li> <li>◦ RUNX1::RUNX1T1 (ETO::AML1) [t(8;21)]</li> <li>◦ TP53 [17p13.1]</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> <li>◦ TP53 [17p13.1]</li> <li>◦ MECOM (EVI1) [3q26.2]</li> <li>◦ NUP98 [11p15]</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> <li>◦ MECOM (EVI1) [3q26.2]</li> <li>◦ NUP98 [11p15]</li> <li>◦ TP53 [17p13.1]</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]* / 3 centromere</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 9 centromere 11 centromere</li> <li>◦ IGH [14q32 abnormalities] IGH::CCND1 [t(11;14)] IGH::FGFR3 [t(4;14)] IGH::MAF [t(14;16)] IGH::MAFB [t(14;20)]</li> <li>◦ TP53 [17p13.1]</li> </ul> </li> </ul>