

Oncology FISH Probes and Panels

Individual FISH Probes

Chromosome 1

- *MEGF6/TP73* (1p36.3) / *ANGPTL1/ABL2* (1q25.2)
- *NTRK1* (1q23.1) Rearrangement
- *CDKN2C* (1p32.3) / *CKS1B* (1q21.3) Amplification/Deletion

Chromosome 2

- *MYCN [NMYC]* (2p24.3) Amplification / *AFF3 [LAF4]* (2q11.2)
- *ALK* (2p23.2-p23.1) Rearrangement

Chromosome 3

- *EV11* (3q26.2) Rearrangement
- *BCL6* (3q27.3) Rearrangement

Chromosome 4

- *FIP1L1-CHIC2-PDGFR* (4q12) Deletion-Fusion
- *PDGFRA* (4q12) Rearrangement

Chromosome 5

- *D5S630/D5S2064* (5p15.31) / *EGR1* (5q31.2)
- *D5S23, D5S721* (5p15.2) / *CSF1R* (5q33-q34)

Chromosome 6

- *MYB* (6q23.3) Rearrangement
- *MYB/CEP 6* Deletion (6p11.1-q11.1/6q23.3)
- *TFEB* (6p21.1) Rearrangement

Chromosome 7

- *7q31.2/CEP 7* Monosomy/Deletion
- *TCRG* (7p14) Rearrangement
- *EGFR* (7p11.2) / *CEP 7* (7p11.1-q11.1) Amplification
- *BRAF* (7q34) Rearrangement
- *TCRB* (7q34) Rearrangement

Chromosome 8

- *FGFR1* (8p11.23) Rearrangement/Amplification
- *PLAG1* (8q12.1) Rearrangement
- *MYBL1* (8q13.1) Rearrangement
- *MYC* (8q24.21) Rearrangement

Chromosome 9

- *CDKN2A-CCP9* (9p21.3) Deletion
- *JAK2* (9p24.1) Rearrangement
- *MLLT3* (9p21.3) Rearrangement
- *NTRK2* (9q21.33) Rearrangement
- *ABL1* (9q34.12) Rearrangement

Chromosome 10

- *CEP10* (10p11.1-q11.1) / *PTEN* (10q23.31) Deletion

Chromosome 11

- *NUP98* (11p15.4) Rearrangement
- *C11orf95* (11q13.1) Rearrangement
- *RELA* (11q13.1) Rearrangement
- *CCND1* (11q13.3) Rearrangement
- *KMT2A [MLL]* (11q23.3) Rearrangement
- *ATM* (11q22.3) / *TP53* (17p13.1) Deletion

Chromosome 12

- *ETV6* (12p13.2) Rearrangement
- *CEP 12* (12q11.1-q11) / *D13S319* (13q14.3) / *LAMP1* (13q34)

Chromosome 13

- *D13S1477/D13S319/D13S25* (13q14.2-q14.3) Deletion
- *D13S319* (13q14.3) / *LAMP1* (13q34) / *CEP 12* (12q11.1-q11)
- *FOXO1* (13q14.11) Rearrangement
- *D13S1825* (13q34) Deletion
- *RB1* (13q14.2)

Chromosome 14

- *TCRAD* (14q11.2) Rearrangement
- *IGH* (14q32.33) Rearrangement
- *TRAD* (14q11.2) Rearrangement

Chromosome 15

- *NTRK3* (15q25.3) Rearrangement

Chromosome 16

- *FUS* (16p11.2) Rearrangement
- *CBFB* (16q22.1) Rearrangement

Chromosome 17

- *TP53/CEP 17* (17p13.1/17p11.1-q11.1) Deletion
- *TP53* (17p13.1) Deletion / *ATM* (11q22.3)
- *USP6* (17p13.2) Rearrangement
- *LIS1/RARα* (17p13.3/17q21.2) Deletion
- *RARα* (17q21.1-q21.2) Rearrangement

Chromosome 18

- *SYT* (18q11.2) Rearrangement
- *MALT1* (18q21.32) Rearrangement
- *BCL2* (18q21.33) Rearrangement

Chromosome 19

- *E2A [TCF3]* (19p13.3) Rearrangement
- *EPOR* (19p13.2) Rearrangement
- *C19MC-TPM4* (19p13.11-p13.12/19q13.42) Amplification/Deletion

Oncology FISH Probes and Panels, Continued

Individual FISH Probes (continued)

Chromosome 20

- *D20S108/D20S858* (20q12)/*D20S108/D20S858* (20q13.12) Deletion

Chromosome 21

- *DYRK1A/KCNJ6/DSCR8* (21q22.13)

Chromosome 22

- *EWSR1* (22q12.2) Rearrangement
- *PDGFB* (22q13.1) Rearrangement

Chromosome X

- *TFE3* (Xp11.23) Rearrangement
- *CRLF2* (Xp22.3/Yp11.3) Rearrangement

Chromosome X/Y

- Sex Mismatched BMT CEP X/Y

FISH Panels

Hematologic FISH Panels

- **ALL Hyperdiploid:** trisomy 4, 10, 17
- **ALL Risk Stratification:** 4, 10, 17, t(1;19), t(12;21), t(9;22), *KMT2A [MLL]*
- **Ph-like ALL:** *CRLF2, ABL2, PDGFRB, CSF1R, JAK2, ABL1, EPOR*
- **AML:** t(6;9); t(8;21), *NUP98, KMT2A [MLL]*, inv(16)
- **APL:** t(15;17), *RARα*
- **Burkitt Lymphoma:** t(8;14), *MYC*
- **CLL:** 13q14.3, 13q34, 12 centromere, *ATM, TP53*, t(11;14)
- **Double Hit Lymphoma:** *BCL6, MYC*, t(8;14), t(14;18)
- **Eosinophilia:** 4q12, *PDGFRB, FGFR1, CFBF*
- **Fanconi Anemia:** 1q25, 3q27, monosomy 7 / del(7q)
- **Multiple Myeloma (CD138+):** 1p32.3/1q21, t(4;14), t(11;14), monosomy 13/del 13q, t(14;16), t(14;20), *TP53*
- **MDS:** mono 5/del 5q, mono 7/del 7q, tri 8, *TP53*, del (20q)
- **MPD:** 4q12, *PDGFRB, FGFR1, BCR/ABL1*
- **SDS:** mono 7/del 7q, tri 8, del (20q)
- **Large cell NHL:** t(11;14), t(14;18), *TP53, BCL6, ALK*
- **Small B-cell NHL:** t(11;14), t(14;18), 18q21 (*MALT1*)
- **Combined NHL:** t(11;14), t(14;18), *TP53, BCL6, ALK*, 18q21 (*MALT1*)
- **T-Cell Lymphoma:** *TRA/TRD, TRB; TRG, BCR/ABL1, KMT2A [MLL]*

Non-Hematologic FISH Panels

- **Melanocytic Tumor:** *RREB1, MYC, CDKN2A* [p16], *CCND1*
- **Medulloblastoma:** *MYB, LIS1/RARα, MYC, MYCN*
- **High-Grade Glioma:** *PDGFRA, CDKN2A, NTRK2, MYCN*
- **Low-Grade Glioma:** *TP73, FGFR1, MYB, BRAF, MYBL1*
- **Pilocytic Astrocytoma:** *BRAF, CDKN2A*
- **Ependymoma:** *ABL2, CDKN2A* (9p21), *C11orf95, RELA*
- **Lung Cancer:** *ALK, ROS1, MET, RET*

Individual Dual Fusion FISH Probes

- t(1;19) *PBX1* (1q23.3)/*E2A [TCF3]* (19p13.3)
- t(4;14) *IGH* (14q32)/*FGFR3* (4p16)
- t(6;9) *DEK* (6p22.3)/*NUP214* (9q34.12-q34.13)
- t(8;14) *IGH* (14q32)/*MYC* (8q24)/CEP 8
- t(8;21) *RUNX1T1* (8q21.3)/*RUNX1* (21q22)
- t(9;22) *BCR* (22q11.2)/*ABL1* (9q34)
- t(11;14) *IGH* (14q32)/*CCND1* (11q13)
- t(11;18) *BIRC3* (11q21)/*MALT1* (18q21)
- t(12;21) *ETV6* (12p13)/*RUNX1* (21q22)
- t(14;16) *IGH* (14q32)/*MAF* (16q32)
- t(14;18) *IGH* (14q32)/*BCL2* (18q21)
- t(14;18) *IGH* (14q32)/*MALT1* (18q21)
- t(14;20) *IGH* (14q32)/*MAFB* (20q12)
- t(14;20) *IGH* (14q32)/*MAFB* (20q12)