

## HIGH QUALITY, CUSTOMIZED, ACCURATE

Fluorescence in situ hybridization (FISH) is a molecular diagnostic technique utilizing labeled DNA probes to detect or confirm gene or chromosome abnormalities; often used in oncology decision-making.

Our FISH probes offer:

- Full customization (dye, fusions, quantity)
- GMP manufacturing standards
- High sensitivity & specificity
- Superior quality testing
- Easy to follow standard protocols
- Rapid turnaround time-as soon as 7 days on custom probes
- Money back guarantee

Below please find a sample of our FISH probe library by disease:

### ~ Solid Tumor Pathology ~

- **Lung Cancer**

- |                          |                         |
|--------------------------|-------------------------|
| * NTRK1 (1q23)           | * EML4/ALK (2p21/2p23)  |
| * ALK (2p23)             | * CREB1 (2q34)          |
| * VHL (3p25)             | * WWTR1 (3q25.1)        |
| * PIK3CA (3q26)          | * TP63 (3q28)           |
| * FGFR3 (4p16.3)         | * KIT (4q12)            |
| * PDGFR- $\alpha$ (4q12) | * VEGFR2 (4q12)         |
| * TERT (5p15.33)         | * CD74-ROS1 (5q33/6q22) |
| * NPM1 (5q35)            | * GOPC (6q21)           |
| * PHF1 (6q21.3)          | * ROS1 (6q22)           |
| * EGFR (7p11)            | * NCF1 (7q11.23)        |
| * MET (7q31.2)           | * BRAF (7q34)           |
| * FGFR1 (8p11.23-p11.22) | * FGFR1 (8p12)          |
| * PREX2 (8q13)           | * KIF5B-RET (10p11-q11) |
| * RET (10q11)            | * PTEN (10q23)          |
| * FGFR2 (10q26)          | * WT1 (11p13)           |
| * WT1 (11p13)            | * MAML2 (11q)           |
| * CCND1 (11q13)          | * KRAS (12p12)          |
| * CDK4 (12q13)           | * HMGA2 (12q15)         |
| * AKT1 (14q32)           | * HER2 (17q12)          |
| * BCL2 (18q21.3)         | * TFE3 (Xp11)           |

- **Nodular fasciitis / Aneurysmal Cyst**

- \* USP6 (17p13)

- **Alveolar Rhabdomyosarcoma (ARMS)**

- \* CCND1 (11q13)

- \* FOXO1 (13q14)

- \* CDK4 (12q13)

- **Bladder Cancer**

- \* CEP 3, 7, 17

- \* KIT (4q12)

- \* PDGFRB (5q32)

- \* FGFR1 (8p11.23-p11.22)

- \* FGFR2 (10q26)

- \* CDKN2D (19p13)

- \* TP63 (3q28)

- \* FGFR3 (4p16.3)

- \* RREB1 (6p24)

- \* p16 (9p21)

- \* CDK4 (12q13)

- **Breast Cancer**

- \* REL (2q16)

- \* WWTR1 (3q25.1)

- \* PHF1 (6q21.3)

- \* NCF1 (7q11.23)

- \* FGFR1 (8p11.23-p11.22)

- \* PREX2 (8q13)

- \* FGFR2 (10q26)

- \* BIRC3 (11q22)

- \* CDK4 (12q13)

- \* NTRK3 (15q25)

- \* CEP 17

- \* TOP2A (17q21)

- \* CIC (19q13.2)

- \* PDGFB (22q13)

- \* CREB1 (2q34)

- \* TERT (5p15.33)

- \* MYB (6q22-q23)

- \* MET (7q31.2)

- \* NCOA2 (8q13)

- \* PTEN (10q23)

- \* CCND1 (11q13)

- \* CHEK1 (11q24.2)

- \* HMGA2 (12q15)

- \* MAF (16q22-q23)

- \* HER2 (17q12)

- \* BCL2 (18q21.3)

- \* ZNF217 (20q13)

- \* XIST (Xq13.2)

- **Colorectal Cancer**

- \* WWTR1 (3q25.1)

- \* NCF1 (7q11.23)

- \* PREX2 (8q13)

- \* ZNF217 (20q13)

- \* PHF1 (6q21.3)

- \* MET (7q31.2)

- \* CHEK1 (11q24.2)

- **Cervical Cancer**

- \* WWTR1 (3q25.1)

- \* MYB (6q22-q23)

- \* MAML2 (11q)

- \* PDGFRA (4q12)

- \* MET (7q31.2)

- \* BCL2 (18q21.3)

- **Ewing Sarcoma**

- \* EWSR1 (22q12)

## FISH PROBES

- **Fibrosarcoma**

- \* COL1A1/PDGFB t(17;22)(q21.3;q13.1)

- **GIST**

- \* KIT (4q11-q12)
  - \* BRAF (7q34)
  - \* YWHAE (17p13)

- \* PDGFRA (4q12)
  - \* KRAS (12p12.1)
  - \* ZNF217 (20q13)

- **Glioma**

- \* 1p/19q
  - \* PDGFRB (5q32)
  - \* SMARCB1 (22q11)

- \* TERT (5p15.33)
  - \* ROS1 (6q22)
  - \* PDGFB (22q13)

- **Liver Cancer**

- \* TERT (5p15.33)
  - \* NCF1 (7q11.23)
  - \* PREX2 (8q13)

- \* PHF1 (6q21.3)
  - \* MET (7q31.2)
  - \* YWHAE (17p13)

- **Melanoma**

- \* KIT (4q12)
  - \* RREB1 (6p24)
  - \* PREX2 (8q13)
  - \* BCL2 (18q21.3)

- \* TERT (5p15.33)
  - \* MAGI2 (7q21)
  - \* CDK4 (12q13)

- **Myxoid Liposarcoma**

- \* DDIT3 (12q13)
  - \* HMGA2 (12q15)

- **Neuroblastoma**

- \* NTRK1 (1q23)
  - \* MYC (8q24)
  - \* NTRK3 (15q25)

- **Ovarian Cancer**

- \* GPC3 (6q21)
  - \* WT1 (11p13)
  - \* CHEK1 (11q24.2)
  - \* HMGA2 (12q15)
  - \* CDKN2D (19p13)
  - \* ZNF217 (20q13)
  - \* XIST (Xq13.2)

## FISH PROBES

### • Prostate Cancer

- \* HPC1 (1q24-25)
- \* CENPF (1q41)
- \* CREB1 (2q34)
- \* ETV5 (3q27)
- \* NCF1 (7q11.23)
- \* MET (7q31.2)
- \* HGF (17q21.1)
- \* PREX2 (8q13)
- \* ETV6-RUNX1 (12p13)/(21q22)
- \* MAF (16q22-q23)
- \* BCL2 (18q21.3)
- \* PHF1 (6q21.3)
- \* ETV1 (7p21)
- \* MAGI2 (7q21)
- \* MET (7q31.2)
- \* NCOA2 (8q13)
- \* MSR1 (8p22)
- \* FOXM1/CENPF(12p13.3/1q41)
- \* ELAC2 (17p12)
- \* TMPRSS2 (21q22.3)

### • Renal Cell Carcinoma

- \* mTOR (1p36)
- \* TFEB (6p21)
- \* MET (7q31.2)
- \* FLCN (17p11)
- \* SMARCB1 (22q11)
- \* VHL (3p25)
- \* c-MET (7q31)
- \* HIF1A (14q23)
- \* YWHAE (17p13)

### • Round Cell Sarcoma

- \* WT1/EWSR1 (11p13/22q12.2)
- \* CIC (19q13.2) (Adult and Pediatric)

### • Skin Cancer

- \* KIT (4q12)
- \* RREB1 (6p24)
- \* CDK4 (12q13)
- \* PDGFB (22q13)
- \* PDGFRA (4q12)
- \* JAK2 (9p24)
- \* SMARCB1 (22q11)

### • Smooth Muscle Tumors

- \* HMGA2 (12q14)

### • Stomach Cancer

- \* PDGFRA (4q12)
- \* JAK2 (9p24)
- \* NTRK3 (15q25)
- \* MET (7q31.2)
- \* YWHAE (17p13)
- \* ZNF217 (20q13)

### • Synovial Sarcoma

- \* SS18 (18q11)

- **Testicular Cancer**

- \* PDGFRA (4q12)
- \* CDK4 (12q13)
- \* CDKN2D (19p13)
- \* XIST (Xq13.2)

- **Thyroid Cancer**

- \* NTRK1 (1q23)
- \* PDGFRA (4q12)

- **Uterine Cancer**

- \* KIT (4q12)
- \* BIRC3 (11q22)
- \* BCL2 (18q21.3)

- **Vascular Tumors**

- \* CAMTA1/WWTR1

- **Wilms Tumor**

- \* WT1 (11p13)
- \* HMGA2 (12q14)

- \* PAX8/PPARG (2q13/3p25)
- \* KIT (4q12)

- \* MYB (6q22-q23)
- \* YWHAE (17p13)
- \* XIST (Xq13.2)

- \* NTRK3 (15q25)
- \* SMARCB1 (22q11)

## FISH PROBES

- **Multiple Myeloma (MM)**

- \* CDKN2C/CKS1B (1p/1q)
- \* FGFR3 (4p16)
- \* CEP 7, CEP 9, CEP 11, CEP 17
- \* BIRC3 (11q22)
- \* RB1 (13q14)
- \* IGH (14q32.33)
- \* MAF (16q22-q23)
- \* TP53 (17p13)
- \* CIC (19q13.2)
- \* BRD4 (19p13.12)

### IGH reflex

- \* FGFR3/IGH t(4;14)
- \* CCND1/IGH t(11;14)
- \* IGH/MAF t(14;16)

- **Acute Lymphoblastic Leukemia (ALL)**

### Adult

- \* MYB/CEP 6 (6q23 del)
- \* ABL1 (9q34.1)
- \* BCR/ABL1 t(9;22)
- \* BCR/ABL with ASS1 t(9;22)
- \* PAX5 (9p13.2)
- \* CDKN2A/CEP 9 (9p21.3 del)
- \* JAK2 (9p24)
- \* MLL (11q23)
- \* EPOR t(14;19)(q32;p13.1)
- \* IGH (14q32.33)
- \* 21q (21q22.13-q22.2)

### Pediatric

- \* CEP 4, CEP 10, CEP 17
- \* ABL1 (9q34.1)
- \* BCR/ABL1 t(9;22)
- \* BCR/ABL with ASS1 t(9;22)
- \* CDKN2A/CEP9 (9p21.3 del)
- \* MLL (11q23)
- \* ETV6/RUNX1 t(12;21)
- \* IGH (14q32.33)

- **Acute Lymphocytic Leukemia**

- \* BCL2 (18q21.3)

- **Acute Myelogenous Leukemia (AML)**

- \* MECOM (3q26.2)
- \* DEK/NUP214 t(6;9)(p22;q34)
- \* RUNX1T1/RUNX1 t(8;21)
- \* PML/RARA t(15;17)
- \* KIT (4q12)
- \* FGFR1 (8p11.2)
- \* BCR/ABL with ASS1 t(9;22)
- \* CBFB inv(16), t(16;16)

- **Acute Myelomonocytic Leukemia**

- \* MECOM (3q26.2)
- \* Del20q/20p

- **Acute Myeloid Leukemia**

- \* MECOM (3q26.2)
- \* TERT (5p15.33)
- \* MYB (6q22-q23)
- \* RREB1 (6p24)
- \* NCOA2 (8q13)
- \* WT1 (11p13)

- **Acute Promyelocytic Leukemia**

- \* CHEK1 (11q24.2)
- \* PML/RARA t(15;17)
- \* RARA (17q21)

- **Burkitt Lymphoma**

- \* IGH/MYC/CEP 8 t(8;14)
- \* MYC (8q24)

- **Chronic Lymphocytic Leukemia (CLL)** [IGH reflex](#)

- \* BIRC3 (11q22)
- \* ATM (11q22.3 del)
- \* CEP 12 (trisomy 12)
- \* D13S319 (13q del)
- \* RB1 (13q14 del)
- \* IGH (14q32)
- \* TP53 (17p13.1)
- \* BCL2 (18q21.3)
- \* CCND1/IGH t(11;14)
- \* IGH/BCL2 t(14;18)

- **Chronic Myelogenous Leukemia (CML)**

- \* MYB (6q22-q23)
- \* BCR/ABL with ASS1 t(9;22)
- \* BCR/ABL1 t(9;22)
- \* ABL1 (9q34.1)

- **Follicular Lymphoma (FL)**

- \* IGH/BCL2 t(14;18)

- **Large B-Cell Lymphoma (LBCL)**

- \* BCL6 (3q27)
- \* BCL2 (18q21.3)

- **MALT Lymphoma**

- \* IGH (14q32.33)
- \* MALT1 (18q21)
- \* BCL2 18q21.3



- **Mantle Cell Lymphoma (MCL)**

- \* BIRC3 (11q22)
- \* CCND1/IGH t(11;14)
- \* IGH (14q32.33)

## FISH PROBES

- **Myelodysplastic Syndrome (MDS)**

- \* -5/5q- (5q31 del)
- \* CEP 8 (trisomy 8)
- \* MLL (11q23)
- \* -7/7q- (7q31 del)
- \* CEP 9 (trisomy 9)
- \* 20q- (20q12 del)

- **Myeloid Neoplasms with Eosinophilia**

- \* PDGFRA/CHIC2/FIP1L1 (4q12)
- \* PDGFRB (5q33)
- \* FGFR1 (8p12)

- **Myeloproliferative Neoplasms (MPN)**

- \* -5/5q- (5q31 del)
- \* CEP 8 (trisomy 8)
- \* RB1 (13q14 del)
- \* -7/7q- (7q31 del)
- \* CEP 9 (trisomy 9)
- \* 20q- (20q12 del)

- **Non – Hodgkin Lymphoma**

- \* 11q23.3 – 11q24
- \* IGH (14q32.33)
- \* BCL2 (18q21.3)

- **NUT Midline Carcinoma**

- \* NUT/BRD4 (15q14/19p13.1)

- **T-cell Leukemia/Lymphoma**

- \* FGFR3 t(4p16.3)
- \* FGFR1 t(8p11.2)
- \* Isochromosome 7q
- \* TRA (14q11.2)

- **Lymphoma Probes**

- \* MALTA1 (1p/1q)
- \* DUSP22 t(6;7) (p25.3;q32.3)
- \* CCND1/IGH t(11;14)
- \* BCL6 (14q32)
- \* ALK (2p23)
- \* MYC/IGH t(8;14)
- \* IGH/BCL2 t(14;18)

- **Transplant**

- \* XX/XY for sex mismatched transplants