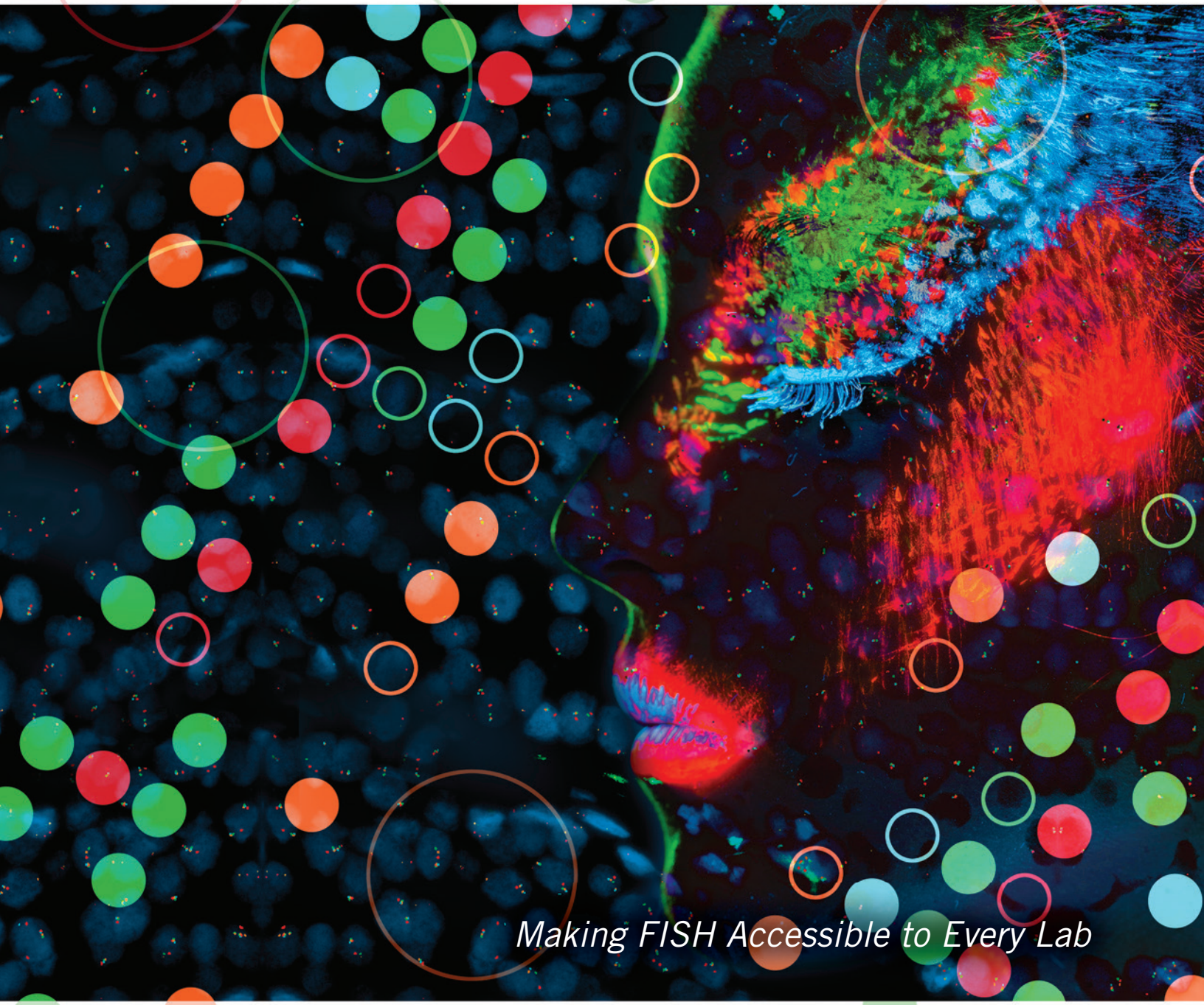
BIOCARE MEDICAL

CymoGenDx

Next-Gen™ FISH Probes



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CymoGenDx Innovations in FISH Technology

Next-Gen™ FISH Technology

The most advanced sequence and cancer research information available is incorporated into all of CymoGen's probes. When searching for gene deletions, probes designed to cover only the minimally deleted region ensure control over both false negatives and false positives.

Clear-View FISH™ Probe Labeling

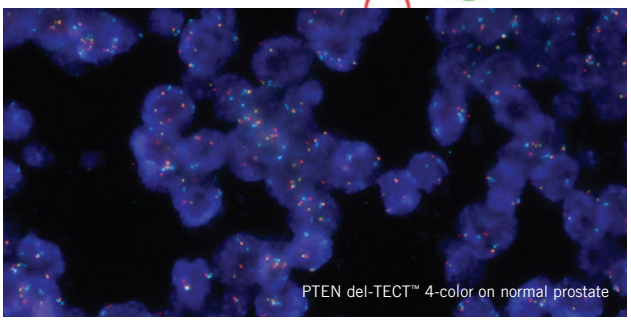
Our proprietary labeling process produces intense, bright and clean signals. A diffuse and lackluster FISH signal is more than just an aesthetic problem, it can reduce analytical confidence. With Clear-View Probe labeling, questionable signals are a thing of the past.

Why Choose CymoGenDx FISH Technology?

- del-TECT™ probe design ensures accurate deletion detection
- Clear-View™ punctate signals lead to faster, clearer results
- Expansive library of probes in multiple colors for customization
- Less than half the cost of leading competitive probes
- Integrates perfectly into any existing FISH protocol
- No minimum purchase or long term commitment

del-TECT™ Four Color Probes

Looking for gene deletions in FFPE tissue samples presents a unique challenge. Most importantly, the truncation artifact causes false positives with conventional two-color tests. Four color del-TECT probes limit guesswork and the requirement for high cut-off values. The location of probes around and near the target of interest ensures that deletion detection is accomplished with a high degree of certainty.


PTEN del-TECT™ 4-color on normal prostate

Ordering Information

Description	Colors	Catalog Number
PTEN del-TECT™ Four Color		CYMO-PND-23-100
TMP/ERG del-TECT™ Four Color		CYMO-21D-23-100
CDKN2A del-TECT™ Four Color		CYMO-CA-23-100
ALK-EML4 del-TECT™ Four Color		CYMO-AE-23-100
TP53 del-TECT™ Four Color		CYMO-T3-23-100
8p del/NKX del/cMYC del-TECT™ Four Color		CYMO-NM-23-100
13q del-TECT™ Four Color		CYMO-13Q-23-100

Ordering Information

Product	Colors	Catalog Number
AR (Xq12) + CC Xp11.21		CYMO-AR-14-100
PHLPP1 + CC18		CYMO-P118-14-100
CDKN2A (p16) 9p21		CYMO-CA-8-025
5p15.2 Single Color		CYMO-5P-2-025
5p15.2 Single Color		CYMO-5P-12-025
U-5p15.2 Single Color		CYMO-5Pu-12-100
U-Copy Control 10		CYMO-CC10u-2-100
U- Copy Control 3		CYMO-CC3u-1-100
U-Copy Control 7		CYMO-CC7u-8-100
ALK Break Apart - 2p23.2		CYMO-AK-10-100
ALK Break Apart - 2p23.2		CYMO-AK-14-100
ALK-EML4 Tri-Color		CYMO-AET-15-100
TERC (3q)/5p15/20q13/CC 10		CYMO-T5Z1-23-100
TERC (3q26) Single Color		CYMO-TC-8-025
20q13.2		CYMO-Z17-8-025
ERBB2 Orange		CYMO-E2-8-025
ERBB2 Red		CYMO-E2-12-025
ERBB2 (17q12) Orange + CC 17 Green		CYMO-E2-10-100
ERBB2 (17q12) Red + CC 17 Green		CYMO-E2-14-100
MYC - 8q24 Single Color		CYMO-MC-2-025
MYC - 8q24 Single Color		CYMO-MC-8-025
MYC - 8q24 Single Color + CC 8		CYMO-MY8-10-100
RREB1 (6p25) + CC 6 (6q11.1)		CYMO-RB1-10-100
RREB1 (6p25)		CYMO-RB1-8-025
CCND1 - 11q13 + CC 11		CYMO-C1-10-100
CCND1 (BCL1) -11q13		CYMO-C1-2-100
CCND1 (BCL1) -11q13		CYMO-C1-8-100
CCND1 Break Apart - 11q13		CYMO-CBA-10-100

*All CymoGenDx individual probes are ASR (Analyte Specific Reagents), analytical and performance characteristics are not established. All probe cocktails and sets are Research Use Only (RUO).

Genetic Anomalies & FISH

There are a wide array of genetic anomalies (deletions, translocations, amplifications) that can be addressed by FISH. These include chromosomal replication errors and rare microdeletions important to pre-natal testing, alterations that are associated with leukemias and other hematopathological conditions and those shown to be either causative and/or tightly associated with stage progression of solid tumors and cancers of bodily tissues. The table below provides just a small sampling of some known chromosomal abnormalities and the disease states that are associated with them.

Chromosome Abnormalities

Genetic Alteration	Locus	Disease Significance
PTEN deletion	10q23	Strongly correlates with upgrade to radical prostatectomy[1]
TMPRSS2 break-apart and ERG fusion	21q22	Alterations of ERG stratify outcome categories (prostate)[2]
AR (Androgen Receptor) amplification	Xq12	With ERG fusion, further stratifies prostate cancer aggressiveness[3]
PHLPP1 deletion	18q21	Tumor suppressor, potential drug target, synergistic with PTEN[4]
CHD1 deletion	5q21	Impairs AR-dependent transcription, a prerequisite for ERG translocation[5]
CDKN2A (P16) deletion	9p21	Tumor suppressor, associated with many cancers including breast and bladder[6]
CTNND2 amplification, translocation	5p15	Implicated in bladder and cervical cancer tumor progression[7]
Chromosome 10 aneusomy	10p11.1-q11.1	Among many chromosomes observed to be amplified in bladder cancer[8]
Chromosome 3 aneusomy	3p11.1-q11.1	Most frequently observed instance of aneuploidy in bladder cancer[8]
Chromosome 7 aneusomy	7p11.2	Among many chromosomes observed to be amplified in bladder cancer[8]
ALK break-apart and ALK/EML4 fusion	2p23	Indicates potential therapeutic option in low frequency of NSCLC cases[9]
TERC amplification	3q26.2	Associated with progression of HPV infection from low-grade lesions to cancer[10]
ZNF217 amplification	20q13.2	Widely observed (incl. breast, colorectal, cervical, pancreatic, ovarian & gastric)[11]
Chromosome 1, p arm deletion	1p36	Differentiation (with 19q) of oligodendroglioma from astrocytoma[12, 13]
Chromosome 19, q arm deletion	19q13	Differentiation (with 1p) of oligodendroglioma from astrocytoma[12, 13]
Chromosome1, q arm deletion	1q25	With 1p36, ratio necessary to confirm deletion status[12, 13]
Chromosome 19, p arm deletion	19p13	With 19q13, ratio necessary to confirm deletion status[12, 13]
ERBB2 amplification	17q12	Seen in metastatic gastric cancer. Gene for HER2, breast cancer therapeutic target[14]
MYC amplification	8q24	Highly correlated with advanced gastric carcinoma[15]
RREB1 amplification	6p25	Isochromosome 6 is common in all variants of cutaneous melanoma[16]
CCND1 amplification	11q13	Most frequently observed anomaly in sun damaged melanomas[16]
FGFR1 amplification	8p11.2	Anchorage-independent proliferation and endocrine therapy resistance in breast cancer[17]

1. Lotan TL, *et al.* Modern Pathology. 2015 Jan;28(1):128-37 2. Attard G, *et al.* Oncogen. 2008 Jan;27(3):253-63. 3. Qu X, *et al.* PLoS One. 2013 Sep; 8(9): e74671. 4. Chen M, *et al.* Cancer Cell. 2011 Aug;20(2):173-86. 5. Burkhardt L, *et al.* Cancer Res. 2013 May; 73(9):2795-805. 6. Williamson MP, *et al.* Hum Mol Genet. 1995 Sep; 4(9):1569-77. 7. Zheng M, *et al.* Am J Pathol. 2004 Jul; 165(1):63-9. 8. Shackney SE, *et al.* Cytometry. 1995 Dec;22(4):307-16. 9. Solomon B, *et al.* J Thorac Oncol. 2009 Dec; 4(12):1450-4. 10. Rodolakis A, *et al.* Int J Gynecol Cancer. 2012 Jun;22(5):742-7. 11. Weiss MM, *et al.* J Pathol. 2003 Jul;200(3):320-6. 12. Horbinski C, Surg Pathol Clin. 2012 5(4):919-39. 13. Siegal T, J Clin Neurosci. 2014 in press. 14. Bayrak M, *et al.* Clin Transl Oncol. 2013 Apr; 15(4):307-12. 15. Choi JS, *et al.* Anticancer Res. 2012 Nov; 32(11):5031-7. 16. Gerami P, *et al.* Arch Dermatol. 2010 Mar;146(3):273-8. 17. Turner N, *et al.* Cancer Res. 2010 Mar;70(5):2085-94.

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