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## Product Data Sheet

### 8q24 (MYC) FISH Probe

Catalog#: F-MYC-(G,R,A,Y,D)

#### Gene Information:

MYC codes for a transcription factor that plays a role in cell cycle progression, apoptosis and cellular transformation. Mutations, overexpression, rearrangement, and translocations lead to dis-regulated expression of numerous genes under its control and are associated with numerous cancers.

#### Clinical Relevance:

**Cervical Carcinoma:** MYC is the most common site of HPV DNA integration. Studies have demonstrated that a copy number increase in either 8q24 (MYC) and/or 3q26 (TERC) has the ability to identify which patients with a cervical cytology diagnosis of LSIL are most likely to have or progress to CIN2+ on clinical follow up.<sup>1</sup>

**Barrett's Esophagus:** Copy number increases in ERBB2 (17q12), MYC (8q24), or ZNF217 (20q13) are associated with high grade dysplasia/ adenocarcinoma while copy number decrease of the 9p21 locus is associated with low or high grade dysplasia. Additional studies have shown increased risk of recurrence in patients who have copy number increases in either ERBB2, MYC, ZNF217 or copy number decrease in 9p21.<sup>2,3</sup>

**Prostate Cancer:** MYC amplification has been shown to contribute to disease initiation, progression, and is a key precursor to invasive prostatic adenocarcinoma.<sup>4</sup>

**Lung Cancer (NSCLC):** Research has shown that MYC as frequently amplified in early-stage NSCLC and is a strong predictor of poor survival.<sup>5</sup>

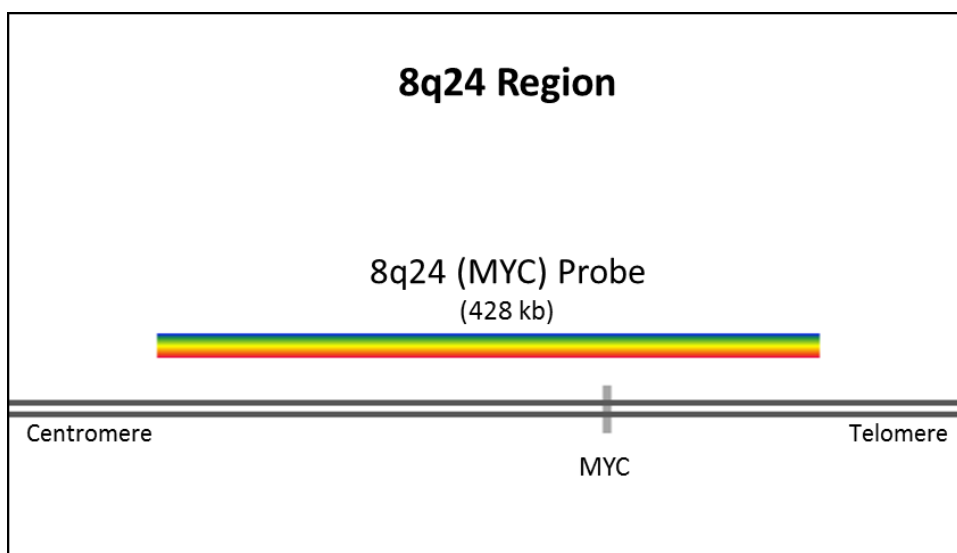
**Melanoma:** A commercial kit for the classification of malignant melanoma investigates several cytogenetic abnormalities, but does not evaluate MYC amplifications.<sup>6</sup> More recent studies have identified additional cytogenetic markers that increase the sensitivity and specificity of the assay. These studies have shown that detection of MYC amplifications can aid in reinforcing a Melanoma diagnosis and is indicative of an aggressive subtype. See also MYB, 9p21, CCND1, and RREB1 as additional markers for Melanoma subtyping.<sup>7</sup>

## Probe Specifications:

Probe and target gene boundaries are indicated in relation to proximity to the centromere or telomere. Positions are based on UCSC genome assembly GRCh37/hg19.

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
8q24	MYC	128,748,315	128,753,680	128,459,594	128,887,949	428

## Probe Map:



## Product Contents:

All individual or FISH probe cocktails are provided ready to use in hybridization buffer and can be blended with up to 4 total probes. Blocking DNA is included to suppress non-specific binding to similar sequences outside of the indicated binding sites. Researchers are advised to optimize slide processing and hybridization conditions.

Volume: 250µl  
 Reactions: 50 (5µl/ reaction)

## Product Options:

All FISH probes are available in 5 standard color options (Red, Gold, Yellow, Green, and Aqua). Alternative custom color options are available.

Color	Dye	Absorbance	Emission	Ordering Code Extension
Red	Alexa594	590	615	R
Gold	Alexa555	555	565	D
Yellow	Alexa532	532	554	Y
Green	Alexa488	495	519	G
Aqua	DEAC	432	472	A

## Storage:

Store at -20°C  
Protect from direct light.

## References:

1. Voss JS, Kipp BR, Campion MB, Sokolova IA, Henry MR, Halling KC, Clayton AC.: Assessment of fluorescence in situ hybridization and hybrid capture 2 analyses of cervical cytology specimens diagnosed as low grade squamous intraepithelial lesion for the detection of high grade cervical intraepithelial neoplasia. *Anal Quant Cytol Histol.*, 2010 Jun;32(3):121-30.
2. Prasad GA, Wang KK, Halling KC, Buttar NS, Wongkeesong LM, Zinsmeister AR, Brankley SM, Westra WM, Lutzke LS, Borkenhagen LS, Dunagan K.: Correlation of histology with biomarker status after photodynamic therapy in Barrett esophagus. *Cancer.* 2008 Aug 1;113(3):470-6.
3. Brankley SM, Wang KK, Harwood AR, Miller DV, Legator MS, Lutzke LS, Kipp BR, Morrison LE, Halling KC.: The development of a fluorescence in situ hybridization assay for the detection of dysplasia and adenocarcinoma in Barrett's esophagus. *J Mol Diagn.* 2006 May;8(2):260-7.
4. MYC and Prostate Cancer. Koh CM, Bieberich CJ, Dang CV, Nelson WG, Yegnasubramanian S, De Marzo AM. *Genes Cancer.* 2010 Jun;1(6):617-28.
5. Flacco A, Ludovini V, Bianconi F, Ragusa M, Bellezza G, Tofanetti FR, Pistola L, Siggillino A, Vannucci J, Cagini L, Sidoni A, Puma F, Varella-Garcia M, Crinò L. MYC and human telomerase gene (TERC) copy number gain in early-stage non-small cell lung cancer. *Am J Clin Oncol.* 2015 Apr;38(2):152-8. doi: 10.1097/COC.0000000000000012. PubMed PMID: 25806711; PubMed Central PMCID: PMC4607281.
6. Gaiser T, Kutzner H, Palmedo G, Siegelin MD, Wiesner T, Bruckner T, Hartschuh W, Enk AH, Becker MR. Classifying ambiguous melanocytic lesions with FISH and correlation with clinical long-term follow up. *Mod Pathol.* 2010 Mar;23(3):413-9. doi: 10.1038/modpathol.2009.177. Epub 2010 Jan 15. PubMed PMID: 20081813.
7. Ferrara G, De Vanna AC. Fluorescence In Situ Hybridization for Melanoma Diagnosis: A Review and a Reappraisal. *Am J Dermatopathol.* 2016 Apr;38(4):253-69. doi: 10.1097/DAD.0000000000000380. PubMed PMID: 26999337.

For Investigational Use Only. The performance characteristics of this product have not been established.