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Product Data Sheet
Cervical FISH Probe Cocktail

Catalog#'s: P-F-001, P-F-005, P-F-009

Product Contents:

This Product insert covers three independent FISH probe cocktails, "Cervical 3q26 (TERC) FISH Probe Cocktail", "Cervical 8q24 (MYC) FISH Probe Cocktail", and "Cervical 5p15 (CTNND2) FISH Probe Cocktail". The Cervical FISH Probe Cocktails are provided ready to use in hybridization buffer. 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)

Included FISH Probes:

The following table indicates each of the individual FISH probes and associated colors included in the "**Cervical 3q26 (TERC) FISH Probe Cocktail**".

Gene	Locus	Color	Dye	Absorbance	Emission
3q26	TERC	Yellow	Alexa532	532	554
CEN7	D7Z1	Green	Alexa488	495	519

The following table indicates each of the individual FISH probes and associated colors included in the "**Cervical 8q24 (MYC) FISH Probe Cocktail**".

Gene	Locus	Color	Dye	Absorbance	Emission
8q24	MYC	Green	Alexa488	495	519
CEN7	D7Z1	Yellow	Alexa532	532	554

The following table indicates each of the individual FISH probes and associated colors included in the "**Cervical 5p15 (CTNND2) FISH Probe Cocktail**".

Gene	Locus	Color	Dye	Absorbance	Emission
5p15	CTNND2	Green	Alexa488	495	519
CEN7	D7Z1	Aqua	DEAC	432	472

Clinical Relevance:

Virtually all cervical cancers are caused by HPV infections. However, the vast majority of infections regress. Several genetic abnormalities have been identified and correlated with the transformation of cervical cells to carcinoma. The identification of these genetic abnormalities can be used to predict which patients are likely to progress to cervical carcinoma.

3q26 (TERC): Research has indicated that in increased copy number of the TERC gene is a strong predictor of progression from CIN1/CIN2 to CIN3 and invasive carcinoma in cervical lesions. [1,2]

8q24 (MYC): 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. [3]

5p15 (CTNND2): Studies have revealed copy number gains in 5p in 43% of cervical carcinomas. These studies have demonstrated gains of the entire 5p chromosomal arm which contains numerous potential oncogenes including CTNND2 at 5p15. [4]

Probe Specifications:

Centromere Specific Probe Specifications:

Each of the centromere specific probes target the α-satellite region of the centromere specific for the indicated chromosome.

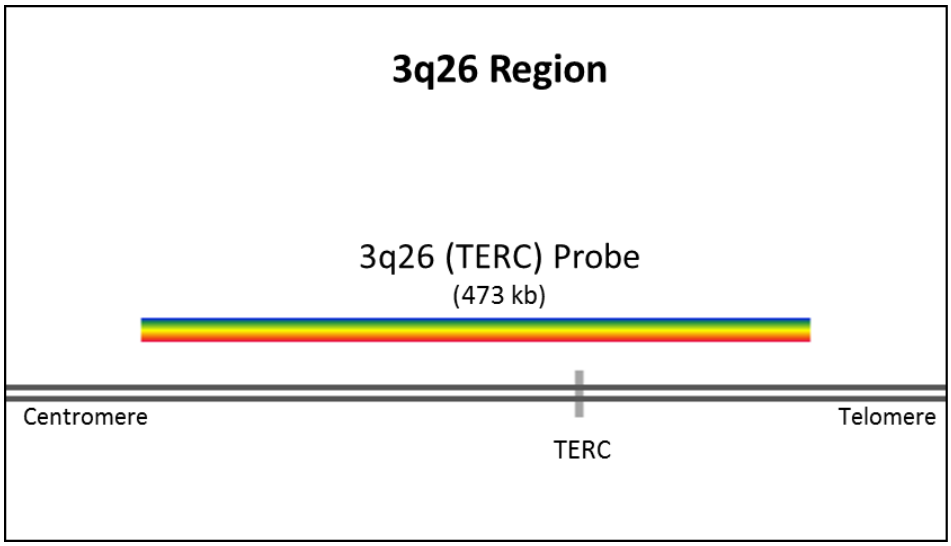
Locus Specific Probes:

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.

TERC (3q26) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
3q26	TERC	169,482,398	169,482,848	169,172,922	169,645,626	473

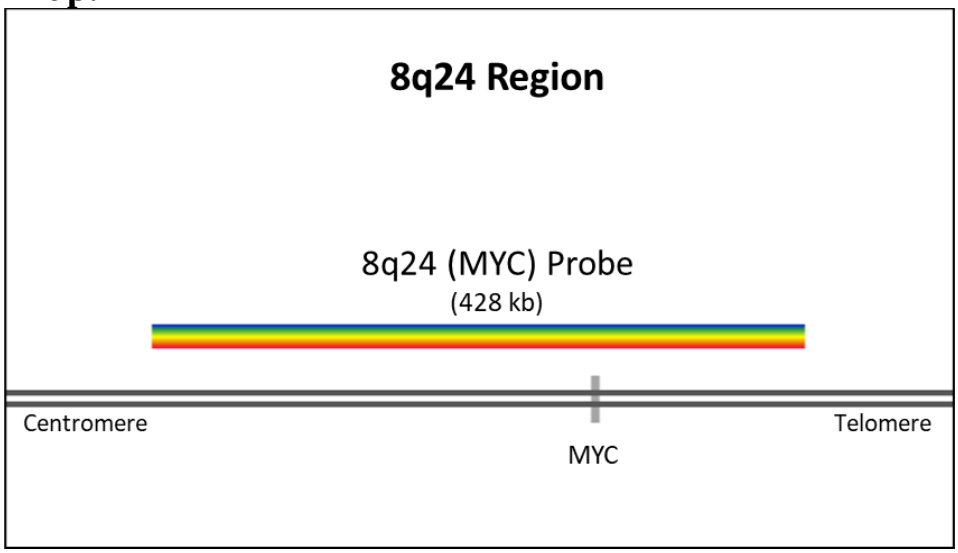
Probe Map:



MYC (8q24) Probe Specifications:

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:



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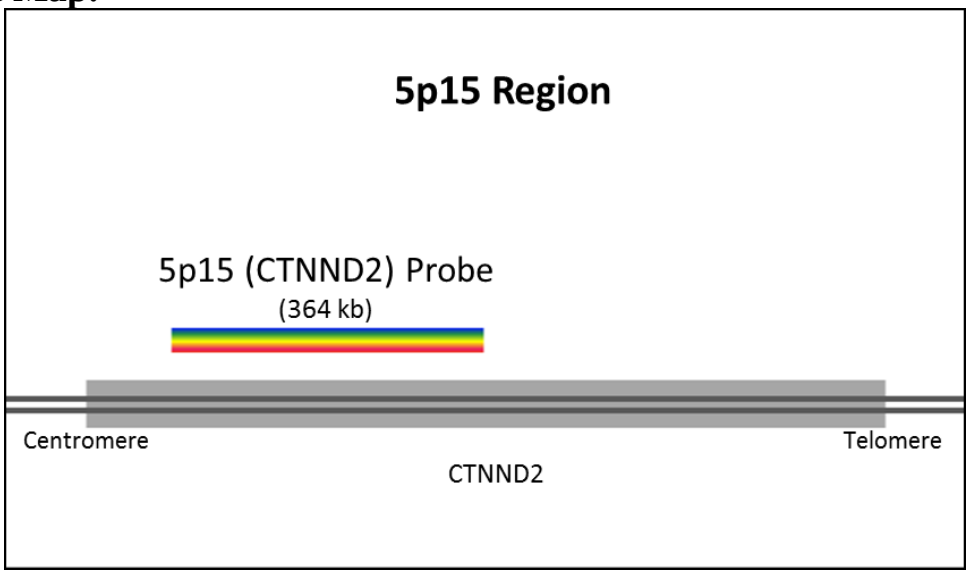
CTNND2 (5p15) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
5p15	CTNND2	10,971,952	11,904,110	11,070,648	11,434,358	364

Probe Map:



Storage:

Store at +4°C to -20°C
Protect from direct light.

References:

1. Heselmeyer-Haddad K, Janz V, Castle PE, Chaudhri N, White N, Wilber K, Morrison LE, Auer G, Burroughs FH, Sherman ME, Ried T.: Detection of genomic amplification of the human telomerase gene (TERC) in cytologic specimens as a genetic test for the diagnosis of cervical dysplasia. Am J Pathol. 2003 Oct;163(4):1405-16.

2. Heselmeyer-Haddad K, Sommerfeld K, White NM, Chaudhri N, Morrison LE, Palanisamy N, Wang ZY, Auer G, Steinberg W, Ried T.: Genomic amplification of the human telomerase gene (TERC) in pap smears predicts the development of cervical cancer. Am J Pathol. 2005 Apr;166(4):1229-38.
3. 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.
4. Gopeshwar Narayan and Vundavalli V Murty: Integrative genomic approaches in cervical cancer: implications for molecular pathogenesis. Future Oncol. 2010 October ; 6(10): 1643–1652.