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Product Data Sheet
Melanoma FISH Probe Cocktail

Catalog#'s: PNX-MELA and PNX-MELB

Product Contents:

This Product insert covers two independent FISH probe cocktails, "Melanoma FISH Probe Cocktail A" and "Melanoma FISH Probe Cocktail B". The Melanoma 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 "**Melanoma A FISH Probe Cocktail**".

Gene	Locus	Color	Dye	Absorbance	Emission
CCND1	11q13	Green	Alexa488	495	519
CEN6	D6Z1	Aqua	DEAC	432	472
MYB	6q23	Yellow	Alexa532	532	554

The following table indicates each of the individual FISH probes and associated colors included in the "**Melanoma B FISH Probe Cocktail**".

Gene	Locus	Color	Dye	Absorbance	Emission
RREB1	6p25	Red	Alexa594	590	615
MYC	8q24	Green	Alexa488	495	519
CEN9	D9Z1	Aqua	DEAC	432	472
P16 (CDKN2A)	9p21	Yellow	Alexa532	532	554

Clinical Relevance:

It is estimated that Melanoma will account for approximately 4.5% of all new cancer cases and 1.7% of all cancer deaths in the U.S. in 2016.[1] The most common method of Melanoma diagnosis is histological examination. However this method is characterized by poor accuracy. In a study where 11 expert pathologists reviewed 37 'classic' melanocytic lesions there was total agreement in only 30% of cases.[2] A commercial kit for the classification of malignant melanoma is an improvement, but is still characterized by relatively low diagnostic accuracy in morphologically ambiguous melanocytic neoplasms.[3,4] More recent studies have identified additional cytogenetic markers that increase the sensitivity and specificity of the assay.[4]

RREB1 (6p25): Amplifications of RREB1 are associated with aggressive subtypes of typical Melanoma and Spitzoid Melanoma.4 Part of the original FISH panel.3

CCND1 (11q13): Amplifications of CCND1 are associated with aggressive subtypes of typical Melanoma and Spitzoid Melanoma.4 Part of the original FISH panel.3

P16 (9p21): 9p21 deletions are observed in approximately 40% of familial melanoma cases. The detection of 9p21 deletions can aid in the detection of familial melanoma and is indicative of an aggressive subtype of Spitzoid melanoma.4 This is an addition to the original FISH panel.3

MYC (8q24): Detection of MYC amplifications can aid in reinforcing a Melanoma diagnosis and is indicative of an aggressive subtype.4 This is an addition to the original FISH panel.3

MYB (6q23): The identification of MYB amplifications is a part of the original FISH panel for the diagnosis of melanoma.3 More recent studies did not see a significant association of MYB amplifications in typical Melanoma, but did see a slight increase risk factor in Spitzoid Melanoma.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.

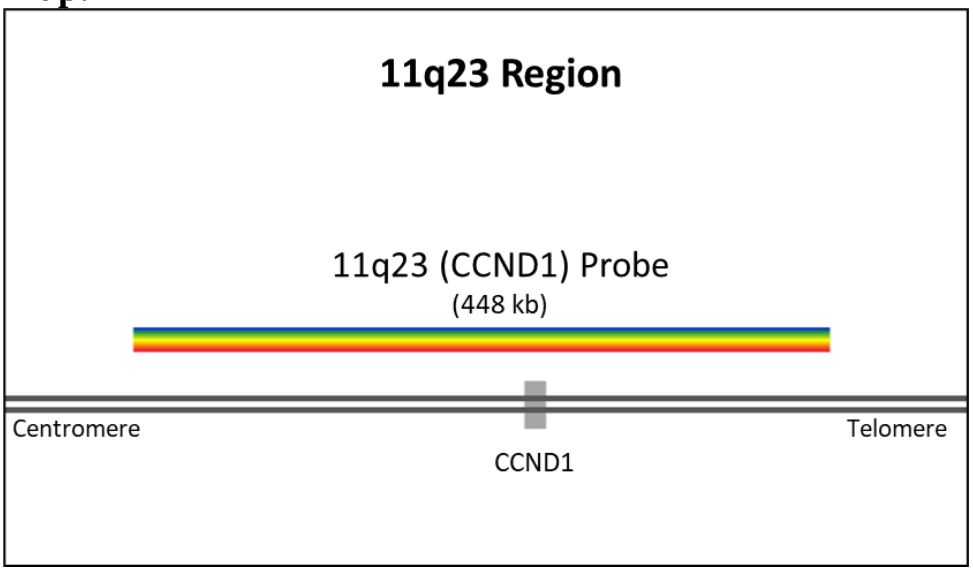
Locus Specific Probes:

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.

CCND1 (11q13) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
11q23	CCND1	69,455,873	69,469,242	69,203,864	69,651,502	448

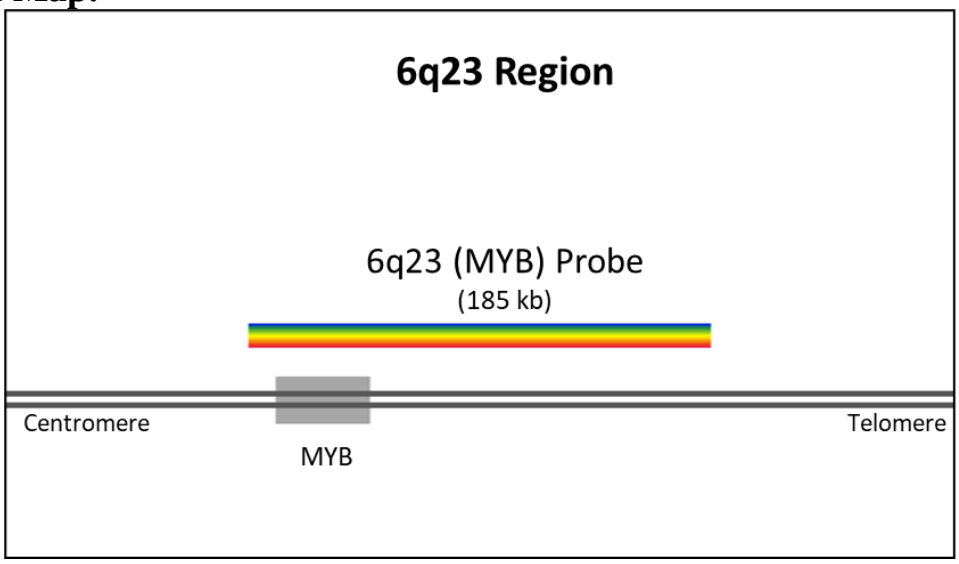
Probe Map:



MYB (6q23) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
6q23	MYB	135,502,453	135,540,311	135,491,383	135,676,863	185

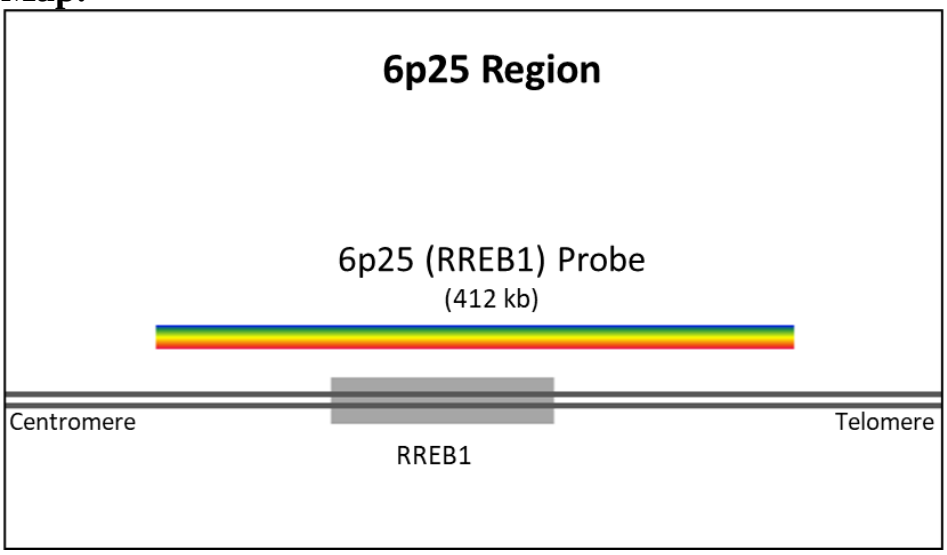
Probe Map:



RREB1 (6p25) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
6p25	RREB1	7,108,086	7,252,213	6,995,162	7,406,673	412

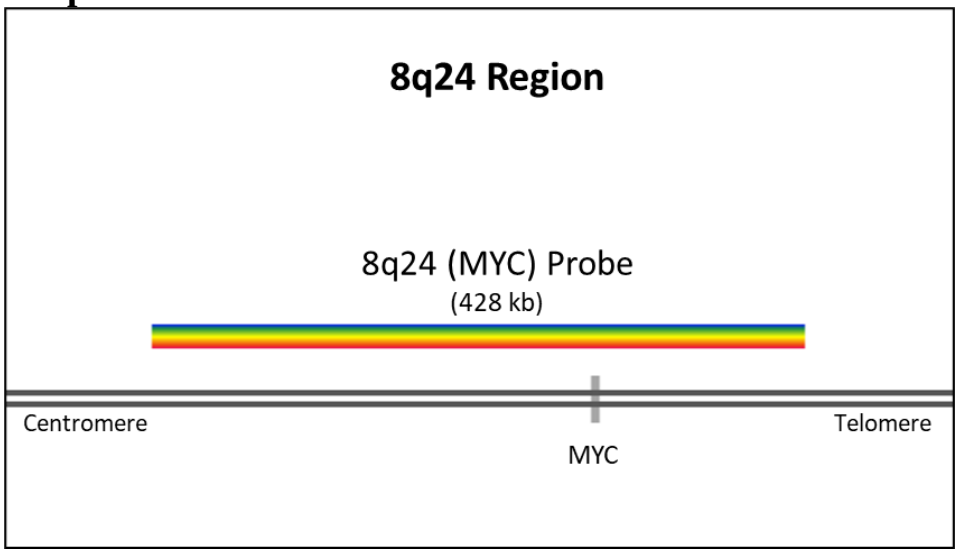
Probe Map:



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

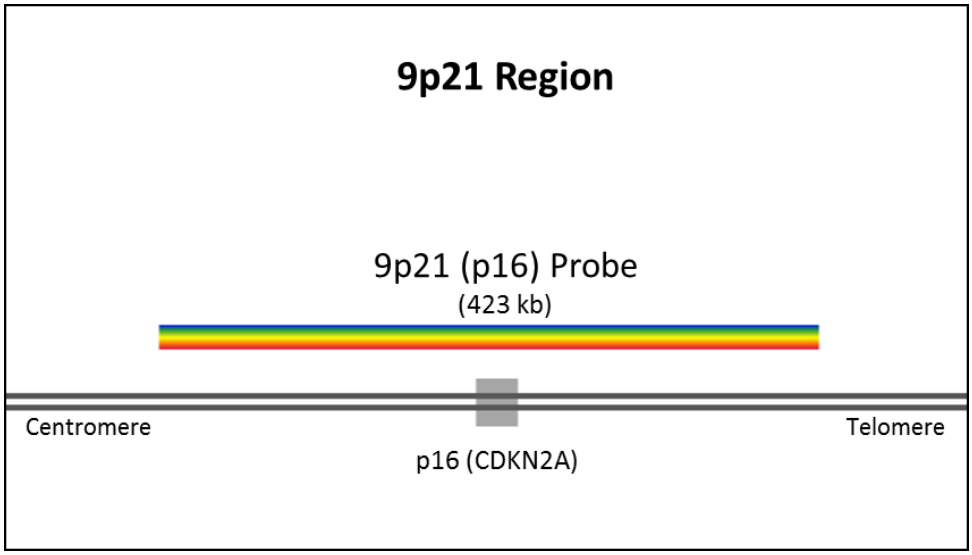
Probe Map:



P16 (9p21) Probe Specifications:

Locus	Target			Probe		
	Gene	Centromere	Telomere	Centromere	Telomere	Size (Kb)
9p21	p16 (CDKN2A)	21,967,751	21,994,490	21,764,403	22,187,312	423

Probe Map:



Storage:

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

References:

1. National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program, 2016.
2. Ackerman AB. Discordance among expert pathologists in diagnosis of melanocytic neoplasms. Hum Pathol. 1996 Nov;27(11):1115-6. PubMed PMID: 8912817.
3. 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.
4. 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.