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Product Data Sheet
9p21 (p16) FISH Probe

Catalog#: F-P16-(G,R,A,Y,D)

Gene Information:

p16 (CDKN2A) is a tumor suppressor capable of inducing cell cycle arrest through multiple mechanisms.

Clinical Relevance:

Deletion of p16 (CDKN2A) has been reported in numerous cancers.

Bladder Cancer: Homozygous deletion of 9p21 (p16) is an indicator of Bladder Cancer according to the FDA approved UroVysion Assay (Abbott).[1]

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.[2,3]

Acute Lymphoblastic Leukemia (ALL): Deletion of P16 is observed in 18% of pediatric ALL and associated with poor prognosis.[4]

Lung Cancer: FISH studies have identified that P16 is deleted at a high frequency in Lung Cancer patients.[5]

Melanoma: A commercial kit for the classification of malignant melanoma investigates several cytogenetic abnormalities, but does not evaluate 9p21deletions.[6] More recent studies have identified additional cytogenetic markers that increase the sensitivity and specificity of the assay. These studies have shown that 9p21deletions can aid in the identification of an aggressive subtype of Spitzoid melanoma and aid in the detection of familial melanoma. 9p21 deletions are observed in approximately 40% of familial melanoma cases. See also MYB, MYC, CCND1, and RREB1 as additional markers for Melanoma subtyping.[7]

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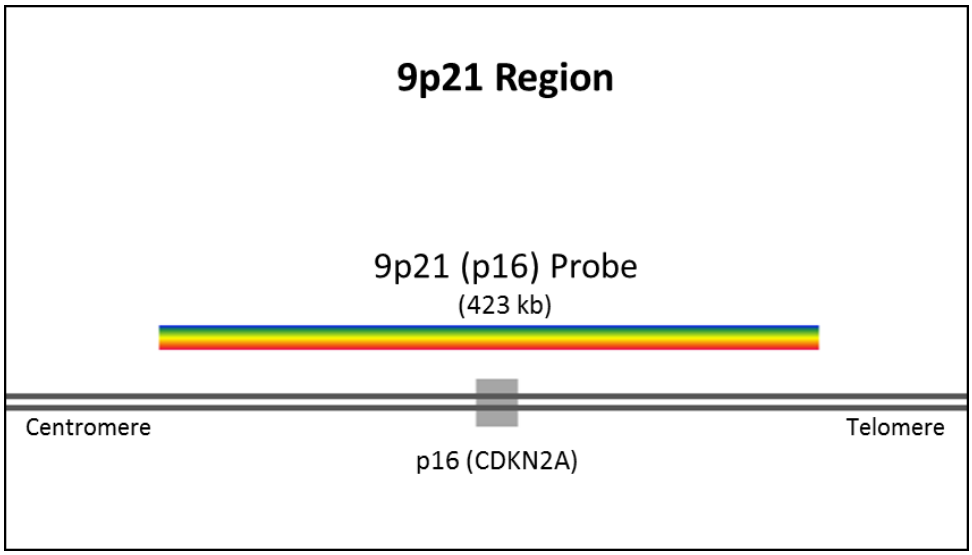
Probe Specifications:

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)
9p21	p16 (CDKN2A)	21,967,751	21,994,490	21,764,403	22,187,312	423

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)

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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. Skacel M, Fahmy M, Brainard JA, Pettay JD, Biscotti CV, Liou LS, Procop GW, Jones JS, Ulchaker J, Zippe CD, Tubbs RR.: Multitarget fluorescence in situ hybridization assay detects transitional cell carcinoma in the majority of patients with bladder cancer and atypical or negative urine cytology. J Urol. 2003 Jun;169(6):2101-5.

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. Kees UR, Burton PR, Lü C, Baker DL. Homozygous deletion of the p16/MTS1 gene in pediatric acute lymphoblastic leukemia is associated with unfavorable clinical outcome. Blood. 1997 Jun 1;89(11):4161-6. PubMed PMID: 9166859.

5. Demirhan O, Taştemir D, Hastürk S, Kuleci S, Hanta I. Alterations in p16 and p53 genes and chromosomal findings in patients with lung cancer: fluorescence in situ hybridization and cytogenetic studies. Cancer Epidemiol. 2010 Aug;34(4):472-7. doi: 10.1016/j.canep.2010.03.018. Epub 2010 May 4. PubMed PMID: 20444664.

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.