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Product Data Sheet
17q12 (HER2) FISH Probe

Catalog#: F-HER2-(G,R,A,Y,D)

Gene Information:

ERBB2 (HER2) a member of the EGFR family of receptor tyrosine kinases. While ERBB2 does not have a ligand binding domain, it binds tightly to other ligand-bound EGF receptor family members to form a heterodimer, stabilizing ligand binding and enhancing kinase-mediated activation of downstream signaling pathways.

Clinical Relevance:

Amplification and/or overexpression of HER2 have been reported in numerous cancers. HER2 is a therapeutic target of several treatments such as Herceptin and amplification is an indication for treatment.

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.[1,2]

Breast Cancer: Amplification is associated with increased risk of progression, poor sensitivity to hormone therapy, but good response to HER2 specific treatments such as Herceptin.[3]

Gastric Cancer: Amplification is correlated with poor outcomes and a more aggressive disease.[4]

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)
17q12	ERBB2 (HER2)	37,856,254	37,884,915	37,572,511	38,066,611	494

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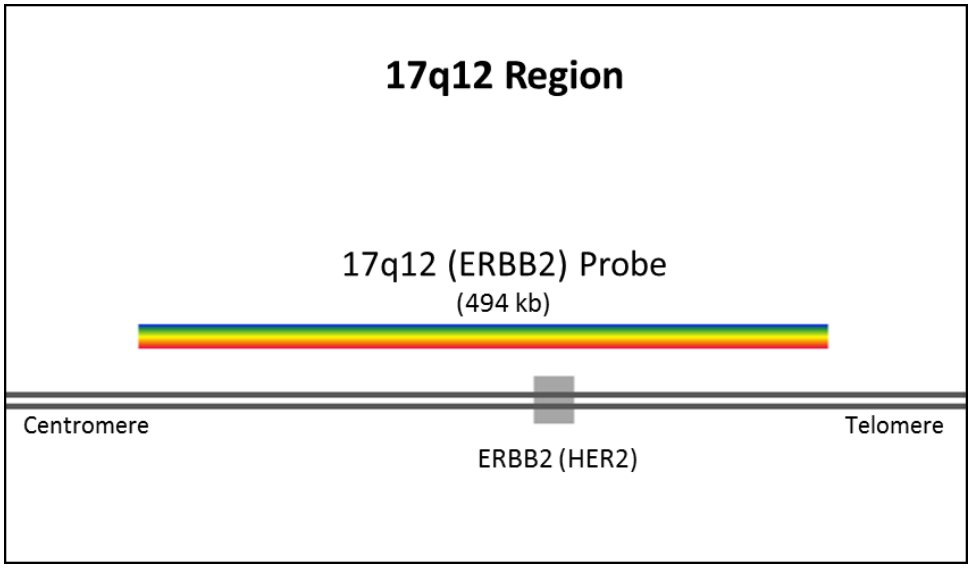
Probe Map:



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. 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.

2. 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.

3. Arteaga CL, Sliwkowski MX, Osborne CK, Perez EA, Puglisi F, Gianni L. Treatment of HER2-positive breast cancer: current status and future perspectives. Nat Rev Clin Oncol. 2011 Nov 29;9(1):16-32. doi: 0.1038/nrclinonc.2011.177. Review. PubMed PMID: 22124364.

4. Gravalos C, Jimeno A. HER2 in gastric cancer: a new prognostic factor and a novel therapeutic target. Ann Oncol. 2008 Sep;19(9):1523-9. doi: 10.1093/annonc/mdn169. Epub 2008 Apr 25. Review. PubMed PMID: 18441328.