

## ZytoDot® 2C SPEC FGFR2/CEN 10 Probe

### Background

The ZytoDot® 2C SPEC FGFR2/CEN 10 Probe is designed for the detection of FGFR2 gene amplifications frequently observed in breast cancer as well as in gastric cancer.

The FGFR2 (fibroblast growth factor gene 2, a.k.a. BEK) gene is located on chromosome 10q26.13 and encodes splice variants of the receptor tyrosine kinases FGFR2b and FGFR2c.

Amplification of the FGFR2 gene leads to overexpression of the FGFR2 protein and subsequently to signal activation. Additionally, during the amplification process the C-terminal deletion of FGFR2 can occur due to exclusion of the last exon from the FGFR2 amplicon. Both, overexpression and deletion of the last exon result in FGFR2 signaling activation based on constitutive phosphorylation of the FRS2 adaptor molecule.

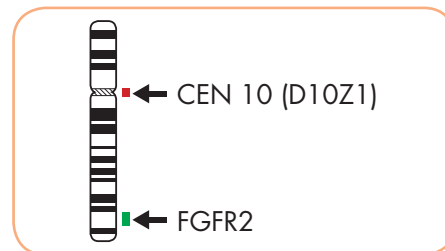
The process of ligand independent FGFR2 signaling leads to a more severe malignant phenotype of these tumors. Moreover, high FGFR2 expression is correlated with poor overall survival (OS) and poor disease-free survival (DFS) rates in breast cancer patients. Consequently, FGFR2 gene amplification detected by Chromogenic *in situ* Hybridization might be used as a prognostic marker in breast cancer.

### References

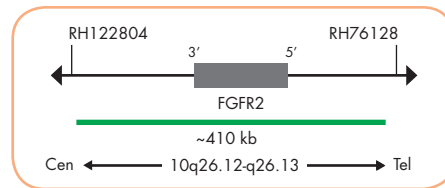
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 Katoh M (2010) *Expert Rev Anticancer Ther* 10: 1375-9.  
 Katoh Y & Katoh M (2009) *Int J Mol Med* 23: 307-11.  
 Moffa AB, et al. (2004) *Mol Cancer Res* 2: 643-52.  
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### Probe Description

The ZytoDot® 2C SPEC FGFR2/CEN 10 Probe is a mixture of a Dinitrophenyl-labeled CEN 10 probe specific for the alpha satellite centromeric region of chromosome 10 (D10Z1) and a Digoxigenin-labeled probe specific for the chromosomal region 10q26.12-q26.13 harboring the FGFR2 gene.



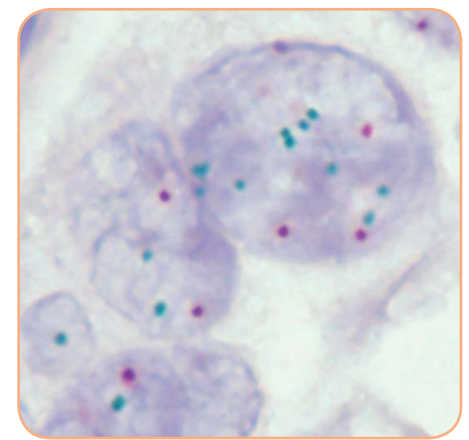
Ideogram of chromosome 10 indicating the hybridization locations.



SPEC FGFR2 Probe map (not to scale).

### Results

In a normal interphase nucleus, using the ZytoDot® 2C CISH Implementation Kit two red (CEN 10) and two green (FGFR2) signals are expected. Nuclei with amplification of the FGFR2 gene locus at 10q26.12-q26.13 or polysomy of chromosome 10 will show multiple copies of the green signal or large green signal clusters.



Breast carcinoma tissue section with FGFR2 (green) amplification.

Prod. No.	Product	Label	Tests* (Volume)
C-3056-400	ZytoDot 2C SPEC FGFR2/CEN 10 Probe CE IVD	Digoxigenin/DNP	40 (400 µl)

### Related Products

C-3044-40	ZytoDot 2C CISH Implementation Kit CE IVD		40
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Incl. Heat Pretreatment Solution EDTA, 500 ml; Pepsin Solution, 4ml; Wash Buffer SSC, 500 ml; 20x Wash Buffer TBS, 2x 50 ml; Anti-DIG/DNP-Mix, 4 ml; HRP/AP-Polymer-Mix, 4 ml; AP-Red Solution A, 0.4 ml; AP-Red Solution B, 15 ml; HRP-Green Solution A, 0.8 ml; HRP-Green Solution B, 15 ml; Nuclear Blue Solution, 20 ml; Mounting Solution (alcoholic), 4 ml

\* Using 10 µl probe solution per test. CE IVD only available in certain countries. All other countries research use only! Please contact your local dealer for more information.