

# ZytoLight® SPEC ERBB4/2q11 Dual Color Probe



## Background

The *ZytoLight*® SPEC ERBB4/2q11 Dual Color Probe is designed for the detection of amplifications of the chromosomal regions harboring the ERBB4 gene. The ERBB4 (a.k.a. HER4) gene encodes a transmembrane glycoprotein acting as a cellular growth factor receptor. It belongs to the epidermal growth factor receptor subgroup of the receptor tyrosine kinase superfamily also including ERBB1 (EGFR), ERBB2, which is known to be affected by gene amplifications in a number of malignant tumors, and ERBB3. Although EGFR and ERBB2 have been shown to represent good predictive markers and appropriate targets for therapeutic approaches, relatively less is known of comparable significance for ERBB3 and ERBB4. However, there is growing evidence that cooperation of all four members of the ERBB gene family contributes to a more aggressive tumor phenotype and influences therapeutic response. Accordingly, it is assumed that the assessment of the combined amplification status of ERBB1 to ERBB4 may improve the diagnostic value significantly. Recently it was shown in a retrospective study that responsiveness to Herceptin™ turned out to be more efficient if tumor cells show ERBB4 gene amplification.

## References

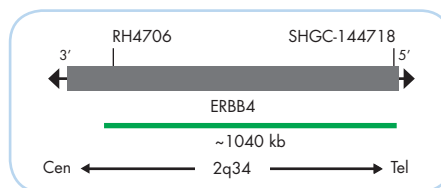
- Alimandi M, et al. (1995) *Oncogene* 10: 1813-21.
- Begnami MD, et al. (2011) *J Clin Oncol* 29: 3030-6.
- Brockhoff G, et al. (2011) *Acta Derm Venereol* 91: 488-90.
- Brunner K, et al. (2010) *Anal Quant Cytol Histol* 32: 78-89.
- Plowman GD, et al. (1993) *Proc Natl Acad Sci U S A* 90: 1746-50.
- Sassen A, et al. (2008) *Breast Cancer Res* 10: R2.
- Sassen A, et al. (2009) *Breast Cancer Res* 11: R50.
- Zaczek A, et al. (2005) *Histol Histopathol* 20: 1005-15.
- Zimonjic DB, et al. (1995) *Oncogene* 10: 1235-7.

## Probe Description

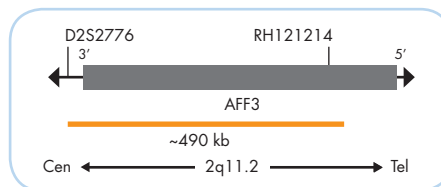
The SPEC ERBB4/2q11 Dual Color Probe is a mixture of a green fluorochrome direct labeled SPEC ERBB4 probe hybridizing to intronic sequences of the human ERBB4 gene in the chromosomal region 2q34 and an orange fluorochrome direct labeled SPEC 2q11 probe. The SPEC 2q11 probe is specific for the AFF3 (AF4/FMR2 family, member 3) gene region in 2q11.2. Due to cross-hybridizations of chromosome 2 alpha satellites to other centromeric regions, probes specific for 2q11 are frequently used for chromosome 2 copy number detection.



Ideogram of chromosome 2 indicating the hybridization locations.



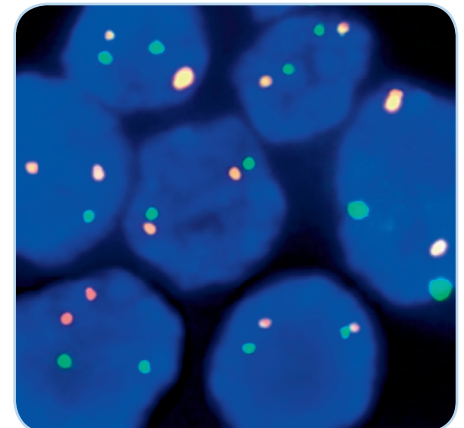
SPEC ERBB4 Probe map (not to scale).



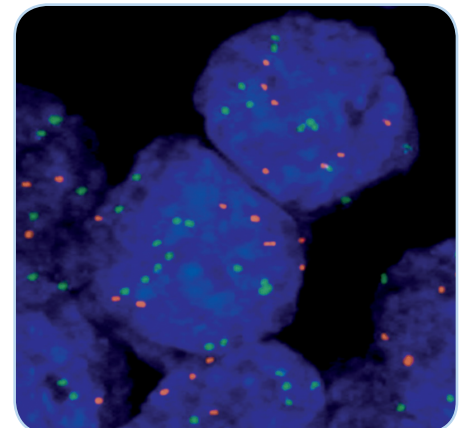
SPEC 2q11 Probe map (not to scale).

## Results

Using the SPEC ERBB4/2q11 Dual Color Probe in a normal interphase nucleus, two green and two orange signals are expected. In a cell with amplification of the ERBB4 gene locus, multiple copies of the green signal or green signal clusters will be observed.



SPEC ERBB4/2q11 Dual Color Probe hybridized to normal interphase cells as indicated by two green and two orange signals in each nucleus.



Breast cancer tissue section with amplification of the ERBB4 gene (green), SPEC 2q11 (orange).

Image kindly provided by Prof. Brockhoff, Regensburg, Germany.

Prod. No.	Product	Label	Tests* (Volume)
Z-2057-200	ZytoLight SPEC ERBB4/2q11 Dual Color Probe CE IVD	●/●	20 (200 µl)
<b>Related Products</b>			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD		20
Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 560 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 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.