

## ZytoDot® SPEC ESR1 Probe

### Background

The ZytoDot® SPEC ESR1 Probe is designed for the detection of ESR1 gene amplification frequently observed in breast cancer.

The ESR1 (estrogen receptor 1) gene is located in the chromosomal region 6q25.1 and encodes estrogen receptor alpha (ER). ER expression is one of the most important known factors in the development of breast cancer, and assessing its status by immunohistochemistry is important for determining the use of anti-estrogen receptor therapies.

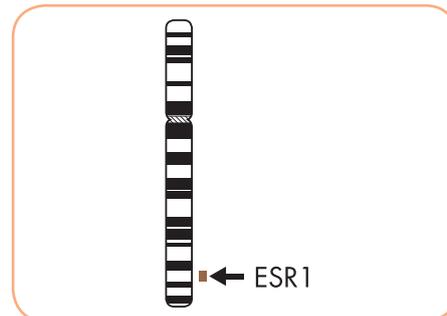
ESR1 gene amplification has been found frequently in ER-positive breast tumors. Additionally, it has been recently shown for breast cancer patients receiving adjuvant tamoxifen monotherapy that survival is significantly longer in cases of ESR1 gene amplification as determined by FISH compared to immunohistochemically ER-positive cases without gene amplification. Additionally, it has been shown that response to tamoxifen is dependent on the absolute ESR1 copy number. Thus, determination of ESR1 amplification may identify a subgroup of breast cancer patients particularly likely to respond to anti-estrogen therapy.

#### References

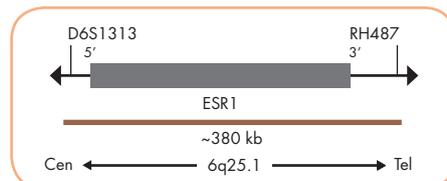
Holst F, et al. (2007) Nature Genet 39: 655-60.  
 Lacroix M (2006) Endocr Relat Cancer 13: 1033-67.  
 Marchio C, et al. (2008) J Pathol 215: 398-410.  
 Nembrot M, et al. (1990) Biochem Biophys Res Comm 166: 601-7.  
 Nesslering M, et al. (2005) Cancer Res 65: 439-47.

### Probe Description

The ZytoDot® SPEC ESR1 Probe is a Dig-oxigenin-labeled probe specific for the ESR1 gene region at 6q25.1, processed by the unique ZytoVision® Repeat Subtraction Technique resulting in advanced specificity and less background.



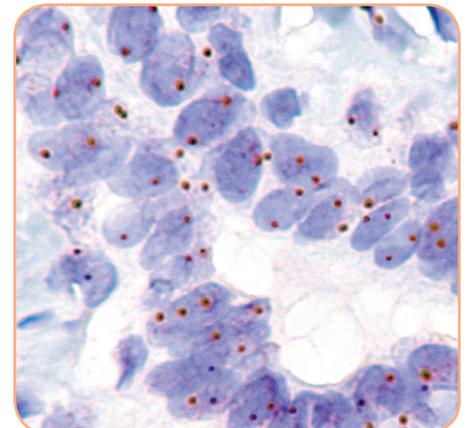
Ideogram of chromosome 6 indicating the hybridization locations.



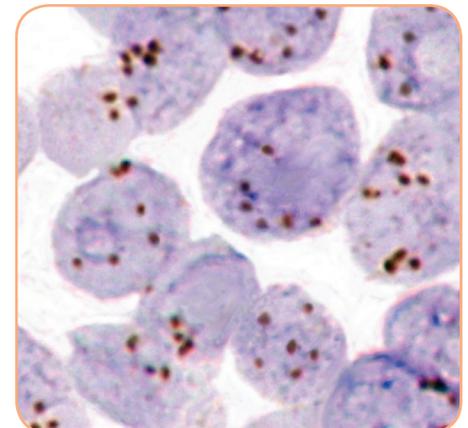
SPEC ESR1 Probe map (not to scale).

### Results

In normal cells, two distinct dot-shaped signals per nucleus will be observed. Nuclei with amplification of the ESR1 gene locus or aneupomy of chromosome 6 will show multiple dots or large signal clusters.



Normal nuclei each with two ESR1 signals.



Breast carcinoma tissue section with ESR1 amplification.

| Prod. No.  | Product                                      | Label       | Tests* (Volume) |
|------------|--|-------------|-----------------|
| C-3024-400 | ZytoDot SPEC ESR1 Probe <b>CE</b> <b>IVD</b> | Digoxigenin | 40 (400 µl)     |

#### Related Products

|           |  |  |    |
|-----------|--|--|----|
| C-3018-40 | ZytoDot CISH Implementation Kit <b>CE</b> <b>IVD</b> |  | 40 |
|-----------|--|--|----|

Incl. Heat Pretreatment Solution EDTA, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 560 ml; PBS/Tween, good for 2000 ml; Blocking Solution, 4 ml; Mouse-anti-DIG, 4 ml; Anti-Mouse-HRP-Polymer, 4 ml; DAB Solution A, 0.3 ml; DAB Solution B, 10 ml; Mayer's Hematoxylin 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.