

ZytoDot® 2C SPEC EWSR1 Break Apart Probe



Background

The ZytoDot® 2C SPEC EWSR1 Break Apart Probe is designed to detect translocations involving the chromosomal region 22q12.2 harboring the EWSR1 (Ewing sarcoma breakpoint region 1) gene (a.k.a. EWS).

Translocations involving the chromosomal region 22q12.2 are found in 90-95% of patients with Ewing sarcoma or peripheral primitive neuroectodermal tumors (PNET). Ewing sarcoma is the second most common, highly malignant bone tumor in children and young adults. The most frequent translocation involving the EWSR1 gene region is t(11;22)(q24.3;q12.2) juxtaposing the EWSR1 gene in 22q12.2 next to the FLI-1 (friend leukemia virus integration 1) locus in 11q24.3. FLI-1 is a member of the ETS family of transcription factors. Less frequently, EWSR1 can also be fused to ERG, a transcription factor closely related to FLI-1 but located in 21q22.2.

For prognosis and appropriate treatment it is important to differentiate Ewing sarcoma/PNET from classic neuroblastoma, Wilms tumor, and rhabdomyosarcoma. In combination with the histopathological diagnosis, detection of EWSR1 rearrangements by using *in situ* Hybridization can be used to confirm the diagnosis of Ewing sarcoma/PNET.

References

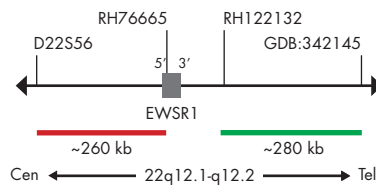
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- Delattre O, et al. (1992) *Nature* 359: 162-5.
- Lee J, et al. (2005) *Cancer Genet Cytogenet* 159: 177-80.
- Romeo S & Dei Tos AP (2010) *Virchows Arch* 456: 219-34.
- Sandberg AA & Bridge JA (2000) *Cancer Genet Cytogenet* 123: 1-26.
- Zucman J, et al. (1993) *EMBO J* 12: 4481-7.

Probe Description

The ZytoDot® 2C SPEC EWSR1 Break Apart Probe is a mixture of a Digoxigenin-labeled probe and a Dinitrophenyl-labeled probe hybridizing to the 22q12.1-q12.2 band. The DNP-labeled probe hybridizes proximal and extends inward intron 4 of the EWSR1 gene, the DIG-labeled probe hybridizes distal to that gene.



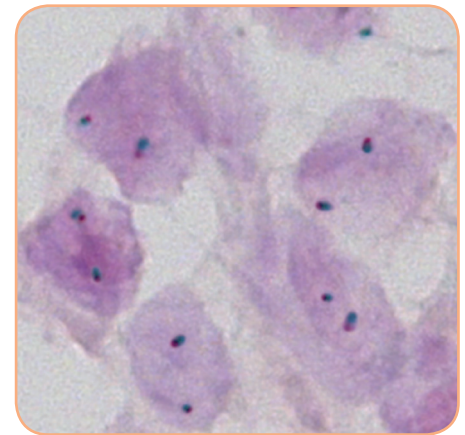
Ideogram of chromosome 22 indicating the hybridization locations.



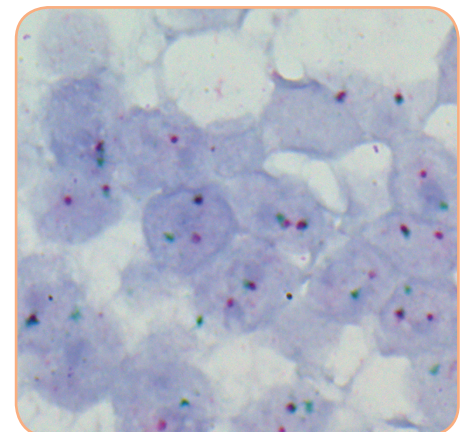
SPEC EWSR1 Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 22q12.1-q12.2 band, using the ZytoDot® 2C CISH Implementation Kit two red/green fusion signals are expected representing two normal (non-rearranged) 22q12.1-q12.2 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 22q12.1-q12.2 locus and one 22q12.1-q12.2 locus affected by a 22q12.1-q12.2 translocation.



SPEC EWSR1 Break Apart Probe hybridized to normal interphase cells as indicated by two red/green fusion signals per nucleus.



Ewing sarcoma tissue section with translocation affecting the 22q12.1-q12.2 locus as indicated by one non-rearranged red/green fusion signal, one red signal, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
C-3043-100	ZytoDot 2C SPEC EWSR1 Break Apart Probe CE IVD	Digoxigenin/DNP	10 (100 µl)

Related Products

C-3044-10	ZytoDot 2C CISH Implementation Kit CE IVD		10
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Incl. Heat Pretreatment Solution EDTA, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 150 ml; 20x Wash Buffer TBS, 50 ml; Anti-DIG/DNP-Mix, 1 ml; HRP/AP-Polymer-Mix, 1 ml; AP-Red Solution A, 0.1 ml; AP-Red Solution B, 4 ml; HRP-Green Solution A, 0.2 ml; HRP-Green Solution B, 4 ml; Nuclear Blue Solution, 4 ml; Mounting Solution (alcoholic), 1 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.