

ZytoDot® 2C SPEC FUS Break Apart Probe

Background

The ZytoDot® 2C SPEC FUS Break Apart Probe is designed to detect translocations involving the chromosomal region 16p11.2 harboring the FUS (FUS RNA binding protein, a.k.a. TLS, FUS/TLS, hnRNP P2) gene (a.k.a. TLS, FUS/TLS, hnRNP P2).

The FUS gene encodes an RNA-binding protein, the C-terminal end of which is involved in protein and RNA binding and which appears to be involved in transcriptional activation with its N-terminal end. It shares distinct characteristics with EWS and TAF15 which together with FUS are frequently referred to as the FET family of proteins.

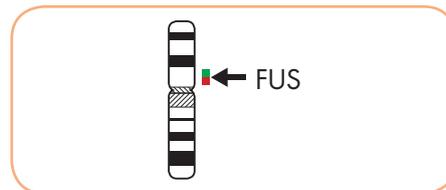
FUS gene rearrangements have been shown to be involved in both solid tumors and leukemias fusing the N-terminal end of FUS to various fusion partners. The most frequent translocation involving the FUS gene region is t(12;16)(q13.3;p11.2). Occurring in over 90% of myxoid liposarcomas, the FUS-DDIT3 fusion protein is regarded as being consequential for the development of myxoid liposarcomas by acting as an abnormal transcription factor and thus deregulating FUS-DDIT3 target genes. Differential diagnosis of liposarcomas and accurate classification, the latter being especially important with regard to appropriate treatment and prognosis, are often problematic. Therefore, detection of FUS rearrangements via *in situ* Hybridization analysis is a valuable tool to confirm the histopathological diagnosis of myxoid liposarcoma.

References

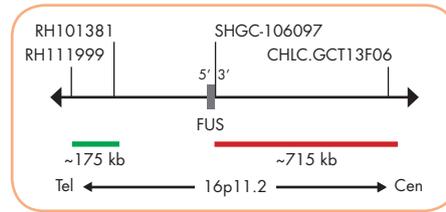
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Probe Description

The ZytoDot® 2C SPEC FUS Break Apart Probe is a mixture of a Digoxigenin-labeled and a Dinitrophenyl-labeled probe hybridizing to the 16p11.2 band. The DNP-labeled probe hybridizes proximal to the FUS gene, the DIG-labeled probe hybridizes distal to that gene.



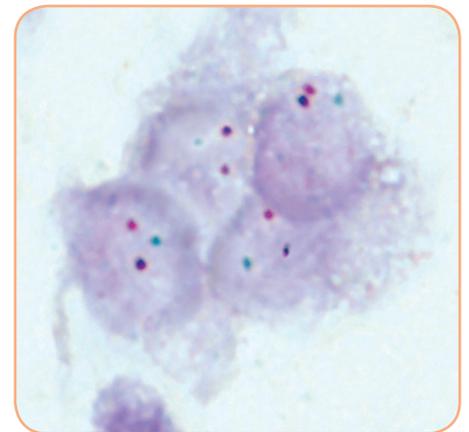
Ideogram of chromosome 16 indicating the hybridization locations.



SPEC FUS Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 16p11.2 band, using the ZytoDot® 2C CISH Implementation Kit two red/green fusion signals are expected representing two normal (non-rearranged) 16p11.2 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 16p11.2 locus and one 16p11.2 locus affected by a 16p11.2 translocation.



Myxoid liposarcoma tissue section with translocation affecting the 16p11.2 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-3054-100	ZytoDot 2C SPEC FUS Break Apart Probe CE IVD	Digoxigenin/DNP	10 (100 µl)
Related Products			
C-3044-10	ZytoDot 2C CISH Implementation Kit CE IVD		10
Incl. Heat Pretreatment Solution EDTA, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 210 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.