

ZytoDot® 2C SPEC CCND1 Break Apart Probe

Background

The ZytoDot® 2C SPEC CCND1 Break Apart Probe is designed to detect translocations involving the chromosomal region 11q13.3 harboring the CCND1 gene. The CCND1 gene (cyclin D1, a.k.a. PRAD1) encodes a regulatory subunit of cyclin-dependent kinases. Translocations involving the chromosomal region t(11;14)(q13.3;q32.3) are considered to be characteristic for mantle cell lymphomas (MCL) but have also been identified in other lymphoproliferative disorders (LPDs), such as B-prolymphocytic leukemia, and, less frequently, in plasma cell myelomas, B-cell chronic lymphocytic leukemia, and in splenic lymphomas with villous lymphocytes (SLVL). The t(11;14) rearrangement often leads to overexpression of the CCND1 protein. Determination of translocations involving the chromosomal region 11q13.3 can also help to distinguish MCL from other chronic lymphoproliferative disorders. Since the course of MCL is aggressive, and its response to chemotherapy is poor, differential diagnosis is clinically important.

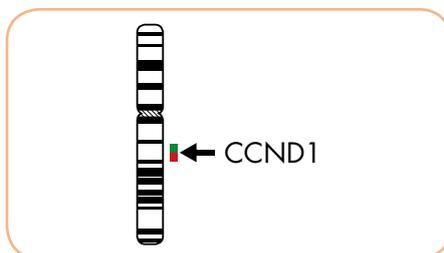
Additionally, it was also shown that a renal oncocytoma (RO) specific breakpoint is located in band 11q13.3, involving the CCND1 locus. The histologic features of RO may overlap with those of chromophobe renal cell carcinoma (ChRCC). CISH can be used as a diagnostic tool for differentiation of RO from ChRCC.

References

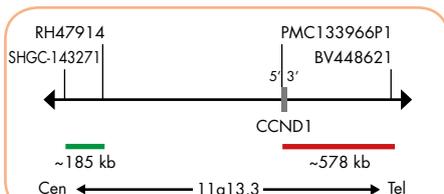
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Probe Description

The ZytoDot® 2C SPEC CCND1 Break Apart Probe is a mixture of a Digoxigenin-labeled and a Dinitrophenyl-labeled probe hybridizing to the 11q13.3 band. The DNP-labeled probe hybridizes distal to the CCND1 gene breakpoint region at 11q13.3, the DIG-labeled probe hybridizes proximal to the CCND1 gene breakpoint region.



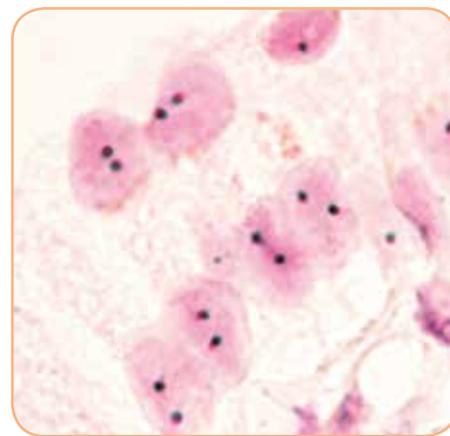
Ideogram of chromosome 11 indicating the hybridization locations.



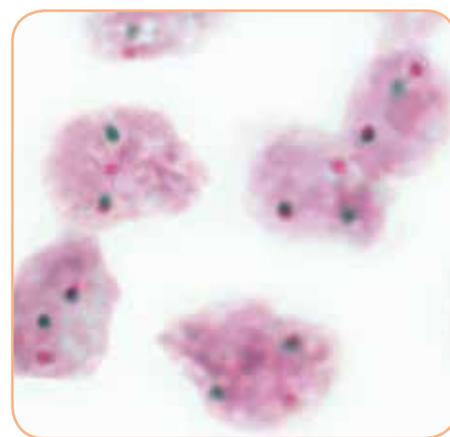
SPEC CCND1 Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 11q13.3 band, using the ZytoDot® 2C CISH Implementation Kit, two red/green fusion signals are expected representing two normal (non-rearranged) 11q13.3 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 11q13.3 locus and one 11q13.3 locus affected by a translocation.



SPEC CCND1 Break Apart Probe hybridized to normal interphase cells as indicated by two red/green fusion signals per nucleus.



Mantle cell lymphoma tissue section with translocation affecting the 11q13.3 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-3075-100	ZytoDot 2C SPEC CCND1 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, 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.