ZytoDot® 2C SPEC MYC Break Apart Probe

CE IVD

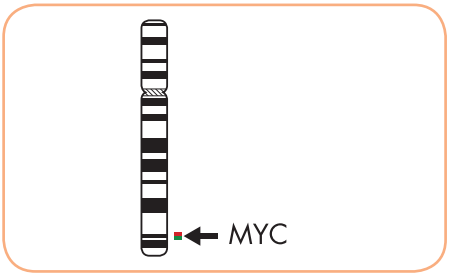
Background

The ZytoDot® 2C SPEC MYC Break Apart Probe is designed to detect translocations involving the chromosomal region 8q24.21 harboring the MYC gene.
The MYC proto-oncogene (v-myc avian myelocytomatosis viral oncogene homolog, a.k.a. CMYC) encodes a transcription factor essential for cell growth and proliferation and is broadly implicated in tumorigenesis. Translocations involving the MYC gene are considered to be cytogenetic hallmarks for Burkitt Lymphoma but are also found in other types of lymphomas.
The most frequent translocation involving the MYC gene region is t(8;14)(q24.21;q32.3) juxtaposing the MYC gene in 8q24.21 next to the IgH (immunoglobulin heavy chain) locus in 14q32.33. Further translocations affecting the MYC gene are t(8;22)(q24.21;q11.2) and t(2;8)(p11.2;q24.21), both of which involve one of the two immunoglobulin light chain loci. All three translocations bring the MYC gene under
the control of a regulatory element from one of the immunoglobulin loci resulting in constitutive overexpression of MYC.

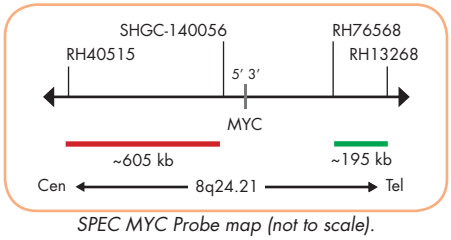
References
Boerma EG, et al. (2009) Leukemia 23: 225-34.
Dalla-Favera R, et al. (1982) PNAS 79: 6497-501.
Haralambieva E, et al. (2004) Genes Chromosomes Cancer 40: 10-8.
Veronese ML, et al. (1995) Blood 85: 2132-8.
Walker BA, et al. (2014) Blood Cancer J 4: e191.

Probe Description

The ZytoDot® 2C SPEC MYC Break Apart Probe is a mixture of a Digoxigenin-labeled and a Dinitrophenyl-labeled probe hybridizing to the 8q24.21 band. The DNP-labeled probe hybridizes proximal to the MYC gene breakpoint region at 8q24.21, the DIG-labeled probe hybridizes distal to the MYC gene breakpoint region.



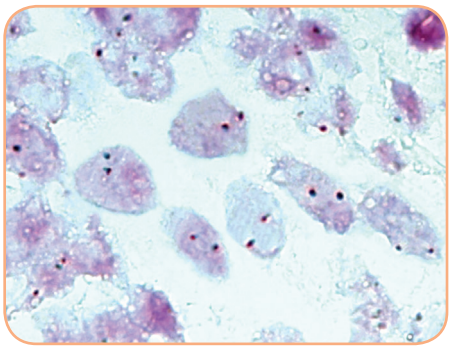
Ideogram of chromosome 8 indicating the hybridization locations.



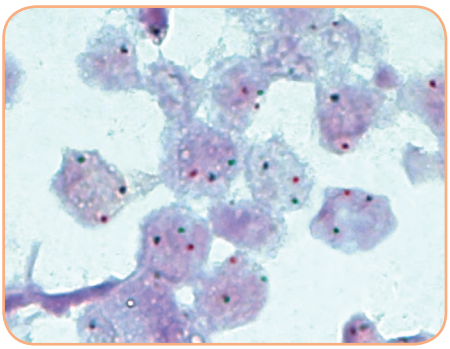
SPEC MYC Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 8q24.21 band, using the ZytoDot® 2C CISH Implementation Kit, two red/green fusion signals are expected representing two normal (non-rearranged) 8q24.21 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 8q24.21 locus and one 8q24.21 locus affected by a translocation.
Alternative break points particularly observed in variant MYC translocations t(8;22) and t(2;8) might result in different signal patterns.



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



Non-Hodgkin lymphoma tissue section with translocation affecting the 8q24.21 locus as indicated by one red/green fusion (non-rearranged) signal, one red signal, and one separate green signal.

Prod. No.	Product	Label	Tests* (Volume)
C-3066-400	ZytoDot 2C SPEC MYC Break Apart Probe CE IVD	Digoxigenin/DNP	40 (400 µl)
Related Products			
C-3044-40	ZytoDot 2C CISH Implementation Kit CE IVD Incl. Heat Pretreatment Solution EDTA, 500 ml; Pepsin Solution, 4ml; Wash Buffer SSC, 500 ml; 20x Wash Buffer TBS, 2x 50 ml; Anti-DIG/DNP-Mix, 4 ml; HRP/AP-Polymer-Mix, 4 ml; AP-Red Solution A, 0.4 ml; AP-Red Solution B, 15 ml; HRP-Green Solution A, 0.8 ml; HRP-Green Solution B, 15 ml; Nuclear Blue Solution, 20 ml; Mounting Solution (alcoholic), 4 ml		40

** 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.*

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