ZytoDot ® 2C SPEC ALK Break Apart Probe

CE IVD

Background

The ZytoDot ® 2C SPEC ALK Break Apart Probe is designed to detect rearrangements involving the chromosomal region 2p23.2 harboring the ALK (anaplastic lymphoma receptor tyrosine kinase, a.k.a. CD246) gene.

ALK encodes a transmembrane receptor tyrosine kinase. This gene exerts characteristic oncogenic activities through fusion to several gene partners or mutations both in hematopoietic and non-hematopoietic solid tumors.

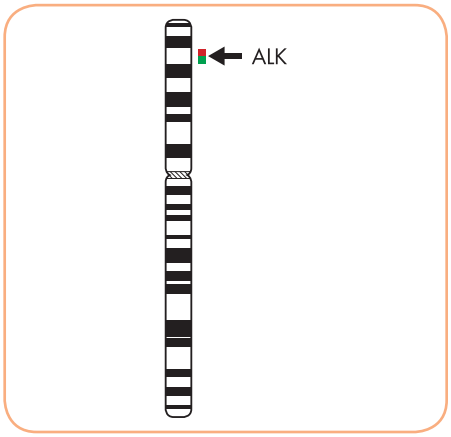
Translocations affecting the ALK gene locus are frequently found in anaplastic large cell lymphoma (ALCL), an aggressive non-Hodgkin lymphoma arising from T-cells. The most frequent translocation t(2;5) results in a fusion with the NPM1 (nucleophosmin a.k.a. nucleolar phosphoprotein B23, numatrin) gene located on chromosome 5q35. This rearrangement results in a NPM1/ALK fusion protein, which is constitutively activated through autophosphorylation, and that in turn mediates malignant cell transformation by activating downstream effectors like e.g. STAT3.

Additionally, inversions affecting the ALK gene located on the short arm of chromosome 2 [inv(2)(p21p23)] have been frequently detected in non-small cell lung cancer (NSCLC) and lead to the formation of EML4-ALK fusion transcripts.

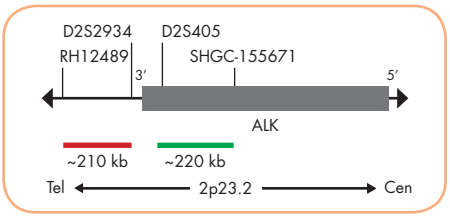
ALK kinase targeted therapies may represent a very effective therapeutic strategy in NSCLC patients carrying EML4-ALK rearrangements.

Probe Description

The ZytoDot ® 2C SPEC ALK Break Apart Probe is a mixture of a Digoxigenin-labeled probe and a Dinitrophenyl-labeled probe hybridizing to the 2p23.2 band. The Digoxigenin-labeled probe hybridizes proximal to the ALK gene at 2p23.2, the Dinitrophenyl-labeled probe hybridizes distal to the ALK gene at 2p23.2.



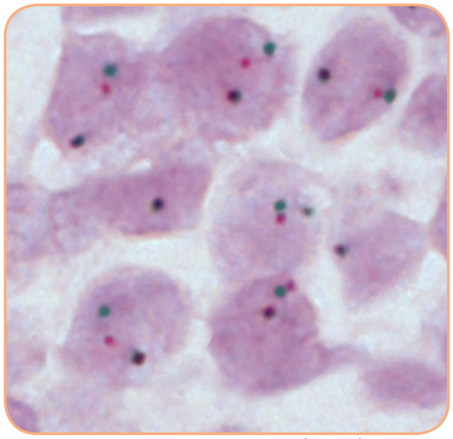
Ideogram of chromosome 2 indicating the hybridization locations.



SPEC ALK Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 2p23.2 band, using the ZytoDot ® 2C CISH Implementation Kit, two red/green fusion signals are expected representing two normal (non-rearranged) 2p23.2 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 2p23.2 locus and one 2p23.2 locus affected by a translocation or inversion. EML4-ALK inversion with deletion of 5'-ALK sequences is indicated by one or multiple isolated red signals.



Lung carcinoma tissue section with translocation affecting the 2p23.2 locus as indicated by one red/green fusion (non-rearranged) signal, one red signal, and one separate green signal.

References
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von Laffert M, et al. (2014) J Thorac Oncol 9: 1464-9.
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Prod. No.	Product	Label	Tests* (Volume)
C-3055-100	ZytoDot 2C SPEC ALK Break Apart Probe CE IVD	Digoxigenin/DNP	10 (100 µl)
C-3055-400	ZytoDot 2C SPEC ALK Break Apart Probe CE IVD	Digoxigenin/DNP	40 (400 µl)
Related Products			
C-3044-10	ZytoDot 2C CISH Implementation Kit CE IVD Incl. Heat Pretreatment Solution EDTA, 150 ml; Pepsin Solution, 1ml; 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		10
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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