

ZytoDot[®] 2C SPEC EML4 Break Apart Probe



Background

The ZytoDot[®] 2C SPEC EML4 Break Apart Probe is designed to detect rearrangements involving the chromosomal region 2p21 harboring the EML4 (echinoderm microtubule-associated protein-like 4, a.k.a. ROPPI20) gene.

Inversions in 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. A few reports also identified these fusion transcripts in breast, gastric, and colorectal cancers. EML4 belongs to the family of echinoderm microtubule-associated protein-like proteins. The EML4-ALK fusion transcripts comprise variably truncated N-terminal portions of the EML4 gene and the intracellular signaling domain of the receptor tyrosine kinase ALK (anaplastic lymphoma receptor tyrosine kinase, a.k.a. CD246). It was found that EML4 mediates ligand-independent dimerization of ALK, resulting in constitutive kinase activity. EML4-ALK was demonstrated to possess transforming activity *in vitro* and *in vivo*.

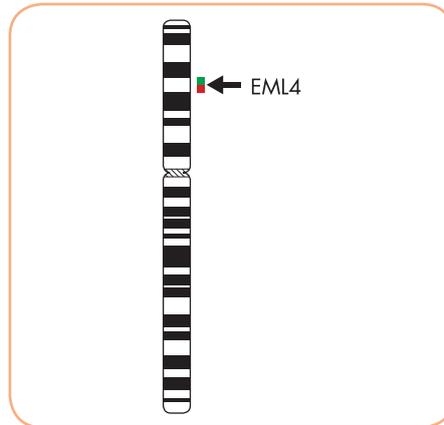
The EML4-ALK fusion transcript is found in about 5% of NSCLC, predominantly adenocarcinomas, and is considered to be mutually exclusive to EGFR or KRAS mutations. The detection of the inversion by *in situ* Hybridization might represent a valuable tool to identify a subpopulation of NSCLC likely to respond to ALK kinase targeting therapies.

References

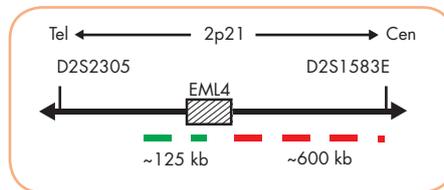
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Probe Description

The ZytoDot[®] 2C SPEC EML4 Break Apart Probe is a mixture of a Digoxigenin-labeled and a Dinitrophenyl-labeled probe hybridizing to the 2p21 band. The DNP-labeled probe hybridizes proximal to the EML4 gene breakpoint region at 2p21, the DIG-labeled probe hybridizes distal to the EML4 gene breakpoint region.



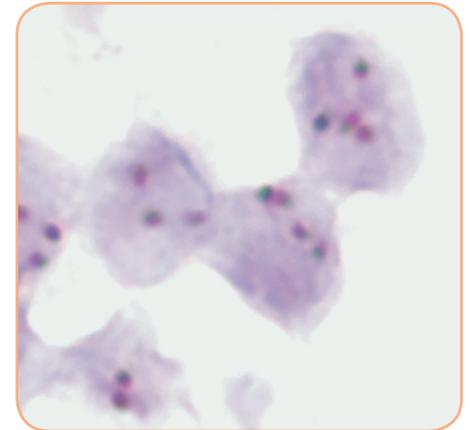
Ideogram of chromosome 2 indicating the hybridization locations.



SPEC EML4 Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 2p21 band, using the ZytoDot[®] 2C CISH Implementation Kit, two red/green fusion signals are expected representing two normal (non-rearranged) 2p21 loci. A signal pattern consisting of one red/green fusion signal, one red signal, and a separate green signal indicates one normal 2p21 locus and one 2p21 locus affected by a translocation or inversion.



Lung cancer tissue section with polysomy of chromosome 2 as indicated by multiple red/green fusion signals.

Prod. No.	Product	Label	Tests* (Volume)
C-3059-400	ZytoDot 2C SPEC EML4 Break Apart Probe CE IVD	Digoxigenin/DNP	40 (400 µl)

Related Products

C-3044-40	ZytoDot 2C CISH Implementation Kit CE IVD		40
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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

* 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.