

ZytoLight® SPEC ABL2 Dual Color Break Apart Probe

Background

The ZytoLight® SPEC ABL2 Dual Color Break Apart Probe is designed to detect rearrangements involving the chromosomal region 1q25.2 harboring the ABL2 (ABL proto-oncogene 2, non-receptor tyrosine kinase, a.k.a. ARG) gene. The ABL2 gene encodes for a non-receptor tyrosine kinase (TK) with high homology to ABL1. ABL1 and ABL2 proteins belong to the Abelson family and link diverse extracellular stimuli to signaling pathways controlling cell growth, survival, invasion, and migration. The translocation t(1;12)(q25.2;p13.2) involving ABL2 was shown to result in a chimeric protein consisting of the helix-loop-helix (HLH) domain of ETV6 and the TK domain of ABL2. The HLH domain of ETV6 is known to confer oncogenic activity to chimeric tyrosine kinase proteins by forming ligand-independent oligomers. The ETV6-ABL2 fusion gene has been detected in a patient with AML-M3 and in a T-cell ALL cell line.

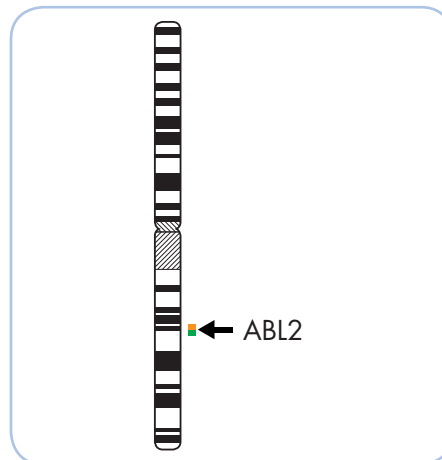
Further ABL2 fusion partners have been identified in patients with Philadelphia chromosome-like ALL, including PAG1, RCSD1, and ZC3HAV1. Cell lines expressing ABL2 fusions were shown to respond to tyrosine kinase inhibitors. Moreover, a patient with B-ALL positive for RCSD1-ABL2 fusion was reported to respond to treatment with the ABL1 inhibitor imatinib. Hence, detection of ABL2 rearrangements by FISH may help in selecting patients eligible for therapy with TK inhibitors.

References

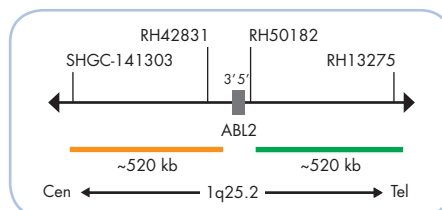
- Cazzaniga G, et al. (1999) Blood 94: 4370-3.
- De Braekeleer E, et al. (2012) Leuk Res 36: 945-61.
- Greuber EK, et al. (2013) Nat Rev Cancer 13: 559-71.
- Roberts KG, et al. (2014) N Engl J Med 371: 1005-15.

Probe Description

The SPEC ABL2 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 1q25.2 band. The orange fluorochrome direct labeled probe hybridizes proximal to the ABL2 gene at 1q25.2, the green fluorochrome direct labeled probe hybridizes distal to the ABL2 gene at 1q25.2.



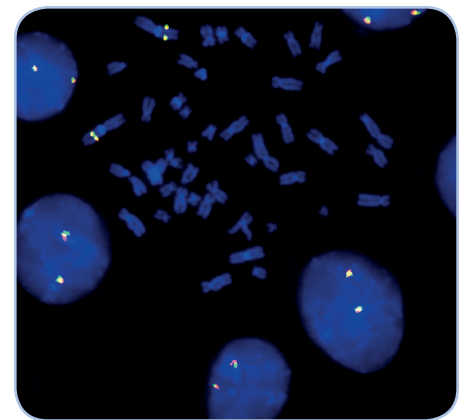
Ideogram of chromosome 1 indicating the hybridization locations.



SPEC ABL2 Probe map (not to scale).

Results

In an interphase nucleus of a normal cell lacking a translocation involving the 1q25.2 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 1q25.2 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 1q25.2 locus and one 1q25.2 locus affected by a translocation.



SPEC ABL2 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus and to metaphase chromosomes of a normal cell.

Prod. No.	Product	Label	Tests* (Volume)
Z-2200-200	ZytoLight SPEC ABL2 Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit CE IVD Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x MgCl ₂ , 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 ml; DAPI/DuraTect-Solution, 0.8 ml		20

* 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.