ZytoMation® IGH Dual Color Break Apart FISH Probe

CE IVD

Background

The ZytoMation® IGH Dual Color Break Apart FISH Probe is designed to detect translocations involving the chromosomal region 14q32.33 harboring the IGH locus. Rearrangements involving the IGH (immunoglobulin heavy locus, a.k.a. IGH@) gene locus are considered to be cytogenetic hallmarks for non-Hodgkin lymphoma (NHL). NHLs represent 50% of all hematological malignancies. IGH locus rearrangements have been identified in about 50% of NHLs and are associated with specific subtypes of NHLs. Translocation t(11;14)(q13.3;q32.3) can be found in about 95% of mantle cell lymphoma (MCL), t(14;18)(q32.3;q21.3) in 80% of follicular lymphoma (FL), t(3;14)(q27;q32.3) in diffuse large B-cell lymphoma (DLBCL), and t(8;14)(q24.21;q32.3) in Burkitt lymphoma. In all of these translocations an oncogene located near the breakpoint of the translocation partner is activated by juxtaposing to IGH regulatory sequences.

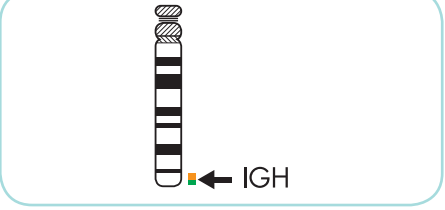
Rearrangements involving 14q32.33 have unique biological characteristics and correlate with clinical, morphological, and immunophenotypic features. Fluorescence *in situ* Hybridization is a helpful tool for the diagnosis, selecting treatment, and giving prognostic information.

References
Bernicot I, et al. (2007) Cytogenet Genome Res 118: 345-52.
Hehne S, et al. (2012) Pathol Res Pract 208: 510-7.
Lu S, et al. (2004) Cancer Genet and Cytogenet 152: 141-5.
Nishida K, et al. (1997) Blood 90: 526-34.
Quintero-Rivera F, et al. (2009) Cancer Genet and Cytogenet 190: 33-9.

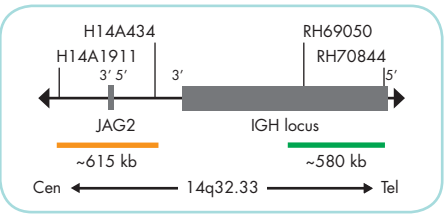
Probe Description

The ZytoMation® IGH Dual Color Break Apart FISH Probe is composed of:

- ZyGreen (excitation 503 nm/emission 528 nm) labeled polynucleotides (~6.0 ng/µl), which target sequences mapping in 14q32.33** (chr14:106,690,778-107,268,412) distal to the IGH breakpoint region.
- ZyOrange (excitation 547 nm/emission 572 nm) labeled polynucleotides (~4.0 ng/µl), which target sequences mapping in 14q32.33** (chr14:105,296,741-105,909,611) proximal to the IGH breakpoint region.
- Formamide based hybridization buffer



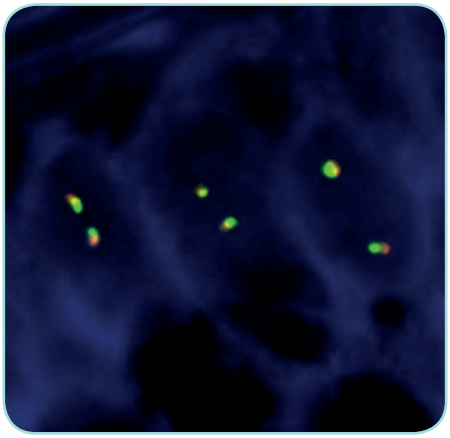
Ideogram of chromosome 14 indicating the hybridization locations.



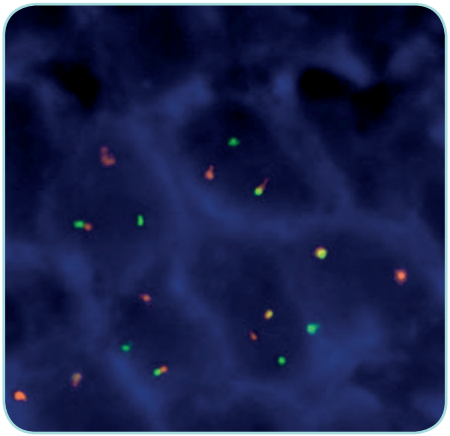
IGH Probe map (not to scale).

Results

In an interphase nucleus lacking a translocation involving the 14q32.33 band two orange/green fusion signals are expected representing two normal (non-rearranged) 14q32.33 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 14q32.33 locus and one 14q32.33 locus affected by a translocation.



IGH Dual Color Break Apart FISH Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Burkitt lymphoma tissue section with translocation of the IGH gene as indicated by one non-rearranged orange/green fusion signal, one orange and one separate green signal.

Prod. No.	Product	Label	Tests* (Volume)
Z-2317-5.1ML	ZytoMation IGH Dual Color Break Apart FISH Probe CE IVD	●/●	up to 20 (5.1 ml)

** Using 240 µl probe solution per test. IVD labeled products are only available in certain countries. All other countries research use only! Please contact your local dealer for more information.*

***According to Human Genome Assembly GRCh37/hg19*