ITALIA

Empowering Personalized Cancer Treatment

ALK/NPM1 DNA-FISH Probe

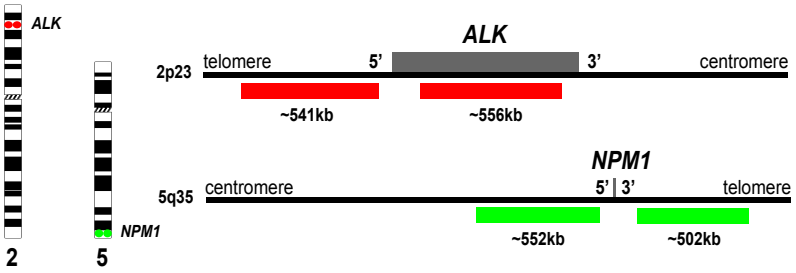
Two Color, Two Fusion Translocation Probe CE

Ref: 21-001

ALK/NPM1

Intended Use

The *ALK/NPM1* DNA-FISH Probe is designed to detect the translocation between the *ALK* gene located at 2p23 and the *NPM1* gene located at 5q35, using fluorescence *in situ* hybridization (FISH); the translocation between the *ALK* and *NPM1* gene is designated as t(2;5)(p23;q35). By conventional cytogenetics, the translocation occurs in up to 50% of anaplastic large cell lymphoma (ALCL) cases.[1] As assessed by immunohistochemistry, expression of the fusion protein *ALK/NPM1* that is generated by t(2;5), occurs more frequently in childhood ALCL with an occurance rate of 83% versus adult ALCL which has an occurance rate of 31%.[1,2] The presence of t(2;5)(p23;q35) carries a better overall prognosis for ALCL patients.[1]



Schematic representation of the *ALK/NPM1* DNA-FISH Probe:

Horizontal red and green bars indicate the regions covered by the probes (approximate to scale, GRCh37/Hg19/2009). The directly labeled *ALK* (red) & *NPM1* (green) probe flanks the respective genes.

Signal Interpretation

In normal diploid metaphase and interphase nucleus, two red and two green signals would be observed corresponding to the two normal homologous chromosomes 2 and 5, respectively (Figures 1 and 2). Upon translocation, the most commonly observed pattern is a single red and green signal, representing the normal chromosomes 2 and 5, and two fusion signals (red/green or yellow), which represent the translocated chromosomes (Figure 3). It is recommended to confirm variant pattern or atypical signal patterns by metaphase analysis whenever possible.

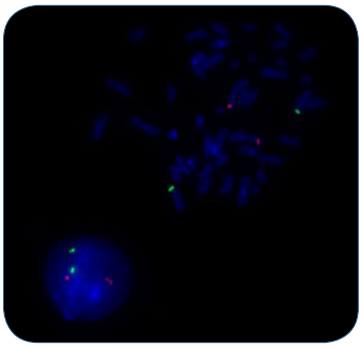


Figure 1: Normal diploid metaphase and interphase nucleus (from normal peripheral blood specimen) with 2 red (*ALK*) and 2 green (*NPM1*) signals.

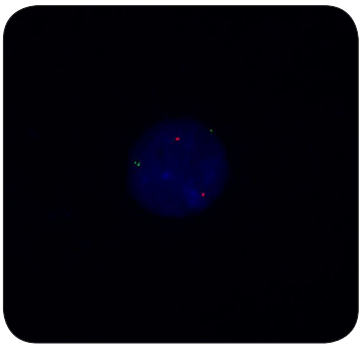


Figure 2: Normal diploid interphase nucleus (from bone marrow specimen) with 2 red (*ALK*) and 2 green (*NPM1*) signals.

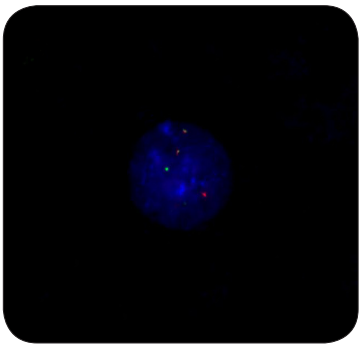


Figure 3: Interphase nucleus with 1 red (*ALK*), 1 green (*NPM1*), and 2 fusion (red/green or yellow) signals.

References

1. Drexler, H.G., et al. Leukemia, 2000. 14(9):p.1533-59.
2. Weitzman, S., et al. Curr Oncol Rep, 2002. 4(2):p.107-13.

Fluorescence Microscopy Filter Requirements

Fluorophore	Excitation $_{max}$	Emission $_{max}$
Green	496 nm	520 nm
Red	580 nm	603 nm
DAPI	360 nm	460 nm

Instructions for use are available at www.cancergeneticsitalia.com

Cancer Genetics Italia S.r.l.
Viale Luigi Majno, 17
20122 Milano – Italia

www.cancergeneticsitalia.com
support@cancergeneticsitalia.com

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