

# ZytoLight® SPEC NTRK3 Dual Color Break Apart Probe



## Background

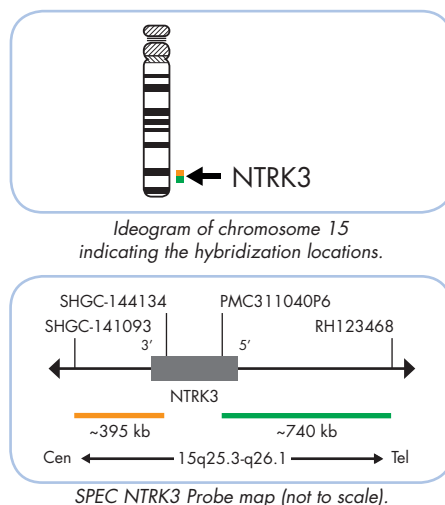
The ZytoLight® SPEC NTRK3 Dual Color Break Apart Probe is designed to detect translocations involving the chromosomal region 15q25.3 harboring the NTRK3 (neurotrophic receptor tyrosine kinase receptor type 3, a.k.a. TRKC) gene.

NTRK3 is a receptor tyrosine kinase (TK) for neurotrophin 3 (NT3) and plays a key role in central and peripheral nervous system development as well as in cell survival. Translocations affecting the NTRK3 gene have been reported in several cancer types, including glioblastomas, Philadelphia chromosome-like acute lymphoblastic leukemia, congenital fibrosarcomas, cellular mesoblastic nephromas, acute myeloid leukemia, radiation-associated thyroid cancer, secretory breast carcinoma, and mammary analog secretory carcinoma of the salivary gland. The most frequent rearrangement involving the NTRK3 gene is the t(12;15)(p13;q25) which results in a fusion between the 5' part of the ETV6 gene and the 3' part of the NTRK3 gene. This fusion gene encodes a hybrid protein comprising the TK domain of NTRK3 and the dimerization domain of ETV6 which leads to a ligand-independent TK activity.

Currently, there are several ongoing clinical trials involving drugs with known inhibitory activity of NTRK-related kinases. Entrectinib and LOXO-101 represent two of these TRK inhibitors which have shown promising activity and good tolerability in patients with advanced solid tumors and NSCLC harboring NTRK1, 2, and 3 rearrangements. Hence, detection of NTRK3 translocations by Fluorescence *in situ* Hybridization (FISH) may be of diagnostic and therapeutic relevance.

## Probe Description

The SPEC NTRK3 Dual Color Break Apart Probe is a mixture of two direct labeled probes hybridizing to the 15q25.3-q26.1 band. The orange fluorochrome direct labeled probe hybridizes proximal to the NTRK3 breakpoint region at 15q25.3, the green fluorochrome direct labeled probe hybridizes distal to the NTRK3 breakpoint region at 15q25.3-q26.1.

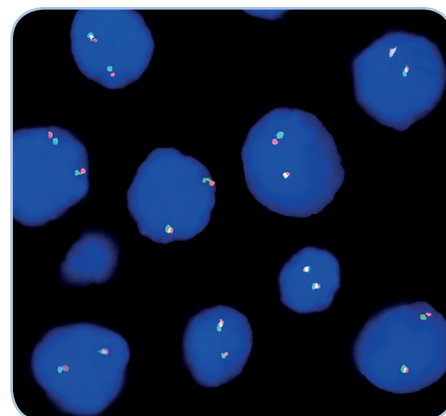


## References

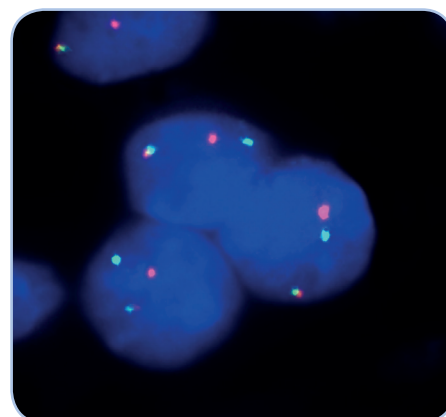
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## Results

In an interphase nucleus of a normal cell lacking a translocation involving the 15q25.3-q26.1 band, two orange/green fusion signals are expected representing two normal (non-rearranged) 15q25.3-q26.1 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 15q25.3-q26.1 locus and one 15q25.3-q26.1 locus affected by a translocation.



SPEC NTRK3 Dual Color Break Apart Probe hybridized to normal interphase cells as indicated by two orange/green fusion signals per nucleus.



Secretory breast carcinoma tissue section with translocation affecting the 15q25.3-q26.1 locus as indicated by one non-rearranged orange/green fusion signal, one orange signal, and one separate green signal indicating the translocation.

Prod. No.	Product	Label	Tests* (Volume)
Z-2206-200	ZytoLight SPEC NTRK3 Dual Color Break Apart Probe CE IVD	●/●	20 (200 µl)
<b>Related Products</b>			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD		20
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			

\* 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.