

# RET (10q11.21) Break Apart Orange/Green

FISH Probe  
902-7039-102517

**BIOCARE**  
M E D I C A L

**Catalog Number:** PFR7039A

**Description:** RET (10q11.21) Break Apart FISH Probe  
Orange/Green

**Dilution:** Ready-to-use

**Volume:** 100 µL

## Intended Use:

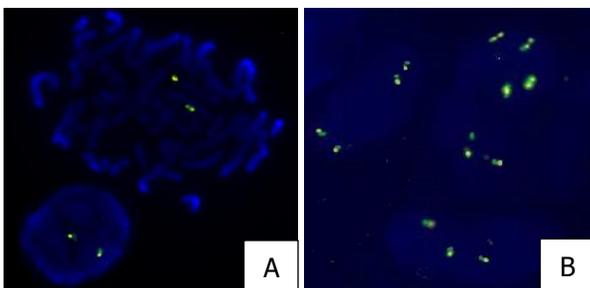
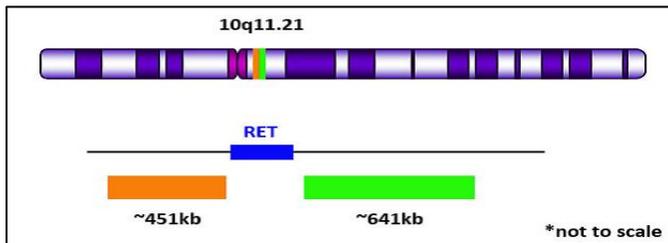
For Research Use Only. Not for use in diagnostic procedures.

## Summary and Explanation:

The RET (10q11.21) Break Apart FISH probe is a dual color probe, designed to detect chromosomal rearrangements involving the RET proto-oncogene (10q11.21). The RET proto-oncogene encodes a tyrosine kinase receptor and under normal conditions, it functions as a signaling molecule involved in cellular growth and differentiation. Chromosomal rearrangements involving RET were initially identified in papillary thyroid carcinoma<sup>1</sup>. However, RET gene rearrangements have been identified in Non-Small-Cell Lung Cancer (NSCLC) patients<sup>2</sup>. RET gene rearrangements in NSCLC result in a novel gene fusion event involving RET and KIF5B gene<sup>3</sup>. This genetic aberration is believed to play a role in oncogenesis in NSCLC<sup>3</sup>. RET gene rearrangements can be identified using Fluorescence in situ Hybridization (FISH).

## Principle of Procedure:

The ~451kb probe labeled in orange flanks the centromeric end of the RET gene and the ~641kb probe labeled in green flanks the telomeric end of the RET gene. When the probe is hybridized to a normal cell it will show two orange/green (yellow) fusion signal patterns. A cell containing a rearrangement of the RET gene may show one orange and one green signal and orange/green (yellow) fusion signal.



(A) RET (10q11.21) Break Apart (Orange/Green) FISH probe hybridized on normal blood sample. Interphase and metaphase cellular states are shown. (B) RET (10q11.21) Break Apart (Orange/Green) FISH probe hybridized on prostate FFPE sample.

**Species Reactivity:** Human

## Known Application:

Fluorescence In-situ Hybridization (FISH) on formalin-fixed paraffin-embedded (FFPE) tissues.

**Supplied As:** Probe in hybridization buffer.

## Storage and Stability:

Store probe at -20°C and away from light. The product is stable to the expiration date printed on the label, when stored under these conditions. Do not use after expiration date.

## Technical Note:

Biocare Medical Break Apart FISH probes are optimized to provide the best signal performance using optical filters that can accommodate the excitation/emission wavelengths specified below. Using filters outside these spectral specifications may produce sub-optimal results.

Fluorophore	Excitation (nm)	Emission (nm)
GREEN	498	522
ORANGE	537	556

## Limitations:

This product is provided for Research Use Only (RUO) and is not for use in diagnostic procedures. Suitability for specific applications may vary and it is the responsibility of the end user to determine the appropriate application for its use.

## Precautions:

1. This product contains formamide and fluorescent dyes that may be hazardous to your health. The SDS is available upon request and is located at <http://biocare.net>.
2. Specimens, before and after fixation, and all materials exposed to them should be handled as if capable of transmitting infection and disposed of with proper precautions. Never pipette reagents by mouth and avoid contacting the skin and mucous membranes with reagents and specimens. If reagents or specimens come in contact with sensitive areas, wash with copious amounts of water<sup>4</sup>.

## Technical Support:

Contact Biocare's Technical Support at 1-800-542-2002 for questions regarding this product.

## References:

1. Tsuta, K., T. Kohno, A. Yoshida, Y. Shimada, H. Asamura, K. Furuta, and R. Kushima. "RET-rearranged Non-small-cell Lung Carcinoma: A Clinicopathological and Molecular Analysis." *British Journal of Cancer* 110 (2014): 1571-578.
2. Bos, Marc, Masyar Gardizi, Hans- Ulrich Schildhaus, Reinhard Buettner, and Juergen Wolf. "Activate RET and ROS: Two New Driver Mutations in Lung Adenocarcinoma." *Translational Lung Cancer Research* 2.2 (2013): 112-21.
3. Ju, Y. S., W.-C. Lee, J.-Y. Shin, S. Lee, T. Bleazard, J.-K. Won, Y. T. Kim, J.-I. Kim, J.-H. Kang, and J.-S. Seo. "A Transforming KIF5B and RET Gene Fusion in Lung Adenocarcinoma Revealed from Whole-genome and Transcriptome Sequencing." *Genome Research* (2012): 436-45.
4. Clinical and Laboratory Standards Institute (CLSI). *Protection of Laboratory workers from occupationally Acquired Infections; Approved Guideline-Fourth Edition* CLSI document M29-A4 Wayne, PA 2014.

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