

ALK/EML4 Tri-Color Red/Green/Aqua

FISH Probe
902-7000-102517

BIOCARE
M E D I C A L

Catalog Number: PFR7000A

Description: ALK/EML4 Tri-Color FISH Probe
Red/Green/Aqua

Dilution: Ready-to-use

Volume: 100 µL

Intended Use:

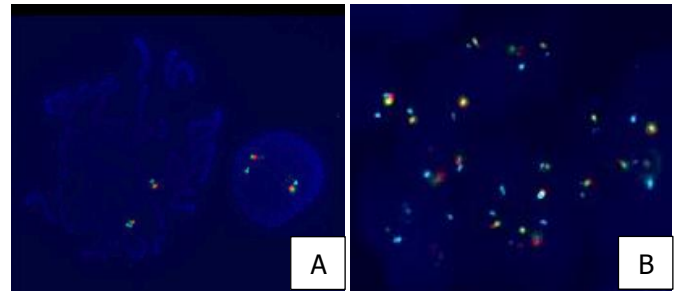
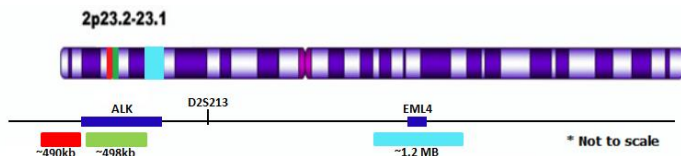
For Research Use Only. Not for use in diagnostic procedures.

Summary and Explanation:

Lung Cancer is one of the most frequently diagnosed cancers in men worldwide¹. Approximately 80% of lung cancers are classified as Non-Small Cell Lung Cancer (NSCLC)². NSCLC is characterized by recurrent gene fusion events involving the anaplastic lymphoma kinase (ALK) 2p23 and echinoderm microtubule associated protein like 4 (EML4) 2p21 genes³. The prevalence of ALK-EML4 rearrangement identified in NSCLC cases can range from 1.6 -11.7%⁴. The ALK gene resides on chromosome 2p23 and encodes a tyrosine kinase receptor. Chromosomal abnormalities involving the ALK gene have been associated with multiple cancer indications⁵. ALK gene rearrangements, involving the EML4 gene result in the formation of the ALK-EML4 gene fusion protein that possesses potent oncogenic activity⁵. The EML4 gene is part of a family of echinoderm microtubule associated protein like proteins and maps to the same chromosome as the ALK gene. ALK-EML4 gene rearrangement is one of the most common pathogenic features of lung cancer and is commonly identified in younger patients⁵. Fluorescence in Situ Hybridization (FISH) is one of the primary tools to detect ALK-EML4 gene rearrangements.

Principle of Procedure:

The ALK/EML4 Tri-Color FISH Probe is designed to detect ALK-EML4 gene rearrangements. The ALK- EML4 gene rearrangement is characterized by the chromosomal rearrangements between the 5' end of the EML4 gene (2p12) and 3' end of the ALK gene (2p23). The 3' ALK probe is labeled in red and spans ~490 kb in size while the 5' ALK probe is labeled in green and spans ~498 kb in size. The EML4 probe is labeled in aqua and spans ~1.2MB, capturing the entire EML4 gene.



(A) ALK/EML4 Tri-Color (Red/Green/Aqua) probe hybridized on normal blood sample. Interphase and metaphase cellular state are shown.

(B) ALK/EML4 Tri-Color (Red/Green/Aqua) hybridized on lung FFPE tissue.

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 Tri-Color 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)
AQUA	434	481
GREEN	498	522
RED	593	618

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, which may be toxic. Formamide may cause serious eye damage or reproductive toxicity. It may also cause irritation by inhalation or skin contact. Avoid any direct contact exposure to reagent. Take appropriate protective measures (use disposable gloves, protective glasses, and lab garments). 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 water⁶.

 Biocare Medical

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Rev. 062117

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Technical Support:

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

References:

1. "Cancer Among Men." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 2 Sept. 2014. Web. 30 Apr. 2015. <<http://www.cdc.gov/cancer/dcpc/data/men.htm>>.
2. Choi, Y. L., K. Takeuchi, M. Soda, K. Inamura, Y. Togashi, S. Hatano, M. Enomoto, T. Hamada, H. Haruta, H. Watanabe, K. Kurashina, H. Hatanaka, T. Ueno, S. Takada, Y. Yamashita, Y. Sugiyama, Y. Ishikawa, and H. Mano. "Identification of Novel Isoforms of the EML4-ALK Transforming Gene in Non-Small Cell Lung Cancer." *CANCER RESEARCH* (2008): 4971-976.
3. Sven, Perner, Patrick L. Wagner, Francesca Demichelis, Rohit Mehra, Christopher J. LaFargue, Benjamin J. Moss, Stefanie Arbogast, Alex Soltermann, Walter Weder, Thomas J. Giordano, David G. Beer, David S. Rickman, Arul M. Chinnaiyan, Holger Moch, and Mark A. Rubin. "EML4-ALK Fusion Lung Cancer: A Rare Acquired Event." *Neoplasia* (2009): 298-302.
4. Pekar-Zlotin, Marina, Fred R. Hirsch, Lior Soussann-Gutman, Maya Ilouze, Addie Dvir, Theresa Boyle, Murry Wynes, Vincent A. Miller, Doron Lipson, Gary A. Palmer, Siraj M. Ali, Shlomi Dekel, Ronen Brenner, and Paul A. Bunn, Jr. "Fluorescence In Situ Hybridization, Immunohistochemistry, and Next-Generation Sequencing for Detection of EML4-ALK Rearrangement in Lung Cancer." *The Oncologist* (2015): 316-22.
5. Shaw, A. T., and B. Solomon. "Targeting Anaplastic Lymphoma Kinase in Lung Cancer." *Clinical Cancer Research* (2011): 2081-086.
6. 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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