**TMPRSS2/ ERG del-TECT Four Color FISH Probe**

**Control Number:** 902-7049-080615

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**Catalog Number:** PFR7049A
**Description:** TMPRSS2/ ERG del-TECT Four Color FISH Probe
**Dilution:** Ready-to-use
**Volume:** 100 µL

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**Intended Use:**
For Research Use Only. Not for use in diagnostic procedures.

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**Summary and Explanation:**
TMPRSS2-ERG rearrangement occurs in approximately 50% of prostate cancers and is associated with an aggressive phenotype. Both the TMPRSS2 and ERG genes reside on chromosome 21, and gene rearrangements involving the TMPRSS2 and ERG genes lead to the formation of a TMPRSS2-ERG gene fusion product. ERG is the most commonly overexpressed proto-oncogene in prostate cancer. TMPRSS2 is an androgen regulated gene, whose androgen response elements are believed to regulate ERG gene overexpression in TMPRSS2-ERG fusion positive samples. It has been well documented that TMPRSS2-ERG gene fusion is the result of the 5’ untranslated region of the TMPRSS2 gene (21q22) fusing with the 3’ coding region of the ERG gene (21q22). Conventional cytogenetic testing utilizing fluorescence in situ hybridization (FISH) is considered the gold standard in detecting gene fusion rearrangements. The TMPRSS2/ERG del-TECT (4 Color) FISH probe detects the gene fusion between the TMPRSS2 and ERG genes. Moreover, the novel multi-probe design allows for the detection of microdeletions that occur between the TMPRSS2 and ERG genes, which are associated with gene fusion events on chromosome 21.

**Principle of Procedure:**
To identify gene rearrangements on chromosome 21 involving the TMPRSS2 and ERG gene the following 4 color FISH probe set can be used. The red probe spans the 3’ region of the ERG gene. The orange probe spans the 5’ region of the ERG gene and encompasses the HMGN1 gene. The TMPRSS2 gene is labeled with the green probe, and resides telomERICally to aqua which spans the DSCAM gene. The following signal patterns can be expected when evaluating TMPRSS2/ERG rearrangements. (1) In a normal cell representing, two red/orange (co-localized) signals, with two blue/green signals in close proximity to one another will be observed. (2) TMPRSS2-ERG rearrangement is indicated by, one red/green (co-localized) signal, with a single orange/blue signal (in close proximity to one another). Two separate signal patterns can be expected following variable size deletions occurring within the 5’ region of the ERG gene resulting in TMPRSS2-ERG gene fusion. (3) Deletions spanning the 5’ region of the ERG gene results in a TMPRSS2-ERG fusion showing, one red/green (co-localized) signal, with one separate blue signal and the loss of one orange signal. A cell containing a TMPRSS2-ERG fusion, as result of a large deletion spanning the 5’ region of the ERG gene, is indicated by (4) one red/green (co-localized) signal, and the loss of both orange and blue signals.

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

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

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**Storage and Stability:**
Store probe at -20ºC 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.

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**Technical Note:**
Biocare Medical Four 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.

<table>
<thead>
<tr>
<th>Fluorophore</th>
<th>Excitation (nm)</th>
<th>Emission (nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQUA</td>
<td>434</td>
<td>481</td>
</tr>
<tr>
<td>GREEN</td>
<td>498</td>
<td>522</td>
</tr>
<tr>
<td>ORANGE</td>
<td>537</td>
<td>556</td>
</tr>
<tr>
<td>RED</td>
<td>592</td>
<td>628</td>
</tr>
</tbody>
</table>

**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.

**Precaution:**
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.

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

**References:**