

DATA SHEET

eFISHD13S319/13q34/CEN 12 Triple Color Probe

Catalog No.

FP078-10XE-100µl- 10 test

FP078-20XE -200µl- 20 test

Doc No: 932-FP078E Rev: E

Date of Release: 11-Jul-2024

Material Provided: One vial of eFISH probe in hybridization buffer (RTU).

Recommended detection system (Not supplied):

Either of the following detection systems is recommended depending on the automation/manual platform used:

eFISH Kit	Cat #	Description
eFISH Histo	DF-500-20XE	Automation
eFISH Cyto	DF-510-20XE	Automation

Intended Use:

eFISHD13S319/13q34/CEN 12 Triple Color Probe is designed to be used for the detection of the human D13S319 region as well as human 13q34 specific sequences and chromosome 12 alpha-satellites in formalin-fixed, paraffin-embedded tissue or cells by fluorescence *in situ* hybridization (FISH).

eFISHD13S319/13q34/CEN 12 Triple Color Probe is provided in hybridization buffer. The probe contains orange-labeled polynucleotides (Orange: excitation at 547 nm and emission at 572 nm, similar to rhodamine), which target the D13S319 region, blue-labeled polynucleotides (Blue: excitation at 418 nm and emission at 467 nm, similar to DEAC), which target chromosome 13q34 specific sequences, and green-labeled polynucleotides (Green: excitation at 503 nm and emission at 528 nm, similar to FITC), which target alpha-satellite sequences of the centromere of chromosome 12.

Summary and Explanation

Fluorescence *in situ* hybridization (FISH) is a robust technique of cytogenetic used for the detection of chromosomal aberrations, presence or absence of specific DNA sequence in native context. In this technique fluorescent probes bind to the target sequence of DNA in chromosome. High specificity and sensitivity coupled rapid and an accurate result has proven role of FISH in both research and diagnosis of solid tumor and hematological

malignancies. As technique of cancer cytogenetics, FISH, can be used to identify genetic aberrations viz., deletions, amplification and translocation in tissue sections or within individual cells. FISH is also used for use in genetic counseling, medicine, and species identification. FISH can also be used to detect and localize specific RNA targets in cells, circulating tumor cells, and tissue samples^{1,2,3,4,5}.

In FISH procedure, fixed tissue sections are pretreated to expose target DNA or mRNA sequences. An appropriately labeled probe is hybridized to the exposed target DNA or mRNA sequences in the cells. Subsequent stringent washing steps remove any probe that is non-specifically bound to the tissue section. Subsequently slides are mounted using DAPI/antifade and can be visualized under fluorescence microscope using appropriate filter set.

Principles of the Procedure

In Situ hybridization (ISH) allows the detection and localization of definitive nucleic acid sequences directly within a cell or tissue. High specificity is ensured through the action of annealing of fluorescence probe nucleic acid sequence to complementary target nucleic acid sequence. ISH techniques can be used to identify genetic aberrations like deletions, amplification, and translocation in tissue sections or within individual cells.

Storage and Handling

The BioGenex eFISH D13S319/13q34/CEN 12 Triple Color Probe must be stored at 2-8°C protected from light and is stable through the expiry date printed on the label.

Specimen Collection and Slide Preparation

Tissues fixed in 10% (v/v) formalin are suitable for use prior to paraffin embedding and sectioning.

FISH Staining procedure

- (a) The BioGenex eFISH probes are supplied in hybridization buffer and used without further dilution.
- (b) Protocol:

Please refer to the eFISH probe specific instruction/protocol for automated or semi-automated FISH processing platform (Xmatrx®-Infinity, Xmatrx®-Nano and Xmatrx®-mini).

Further processing, such as washing and counter-staining, can be completed according to the user's needs. For a particularly user-friendly performance, we recommend the use of a BioGenex eFISH kit.

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Disclaimer: The above information is provided for reference only. Each end-user is responsible for developing and validating optimal testing conditions for use with this product.

Troubleshooting

Contact BioGenex Technical Service Department at **1-800-421-4149** or your local distributor to report unusual staining.

Expected Results

The BioGenex eFISH D13S319/13q34/CEN 12 Triple Color Probe is a mixture of an orange fluorochrome direct labeled eFISH D13S319 probe specific for the D13S319 locus at 13q14.2, a blue fluorochrome direct labeled eFISH 13q34 probe specific for the chromosomal region 13q34 and a green fluorochrome direct labeled CEN 12 probe specific for the alpha satellite centromeric region of chromosome 12 (D12Z3). The BioGenex eFISH 13q34 probe is specific for the LAMP1 (lysosome-associated membrane protein 1) gene region in 13q34. Due to cross-hybridizations of chromosome 13 alpha satellites to other centromeric regions, probes specific for 13q34 are frequently used for chromosome 13 copy number detection.

Using the BioGenex eFISH D13S319/13q34/CEN 12 Triple Color Probe in a normal interphase nucleus, two orange, two green, and two blue signals are expected. In a cell with deletions affecting the D13S319 locus, a reduced number of orange signals will be observed. Deletions affecting only parts of the D13S319 locus might result in a normal signal pattern with orange signals of reduced size. In a cell with trisomy or polysomy 12, three or more copies of the green signal will be observed, respectively.

Care should be taken not to evaluate overlapping cells, in order to avoid false results, e.g. an amplification of genes. Due to decondensed chromatin, single FISH signals can appear as small signal clusters. Thus, two or three signals of the same size, separated by a distance equal to or less than the diameter of one signal, should be counted as one signal.

Limitations of the Procedure

Correct treatment of tissues prior to and during fixation, embedding, and sectioning is important for obtaining optimal results. Inconsistent results may be due to variations in tissue processing, as well as inherent variations in tissue. The results from *in situ* hybridization must be correlated with other laboratory findings.

Bibliography

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	Temperature Limitation	IVD	In Vitro Diagnostic Medical Device
	Use By Date	LOT	Batch Code
	Non-Sterile		Consult Instructions for Use
EC REP	Representative in the European Community		Manufacturer