BioGenex
Accelerating the pace of precision medicine
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DATA SHEET
eFISH CEN X/Yq12 Dual Color Probe

Catalog No.
FP102-10X-100µl- 10 test
FP102-20X -200µl- 20 test

Doc No: 932-FP102 Rev: C
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 systemsis recommended depending on the automation/manual platform used:

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

Intended Use:
The BioGenex eFISH CEN X/Yq12 Dual Color Probe is currently available for Research use only. eFISH eFISH CEN X/Yq12 Dual Color Probeis designed to be used for the detectionhuman chromosome X alpha-satellites as well aschromosome Yq12 specificsequences informalin-fixed, paraffin-embedded tissue or cellsby fluorescence in situ hybridization (FISH).

eFISH BioGenexCEN X/Yq12 Dual Color Probeinhybridization buffer. The probe contains orangelabeledpolynucleotides (Orange: excitation at547 nm and emission at 572 nm, similar torhodamine), which target alpha-satellitesequences(DXZ1) in thechromosomal regionXp11.1-q11.1, and green-labeled polynucleotides(Green:excitation at 503 nm and emissionat 528 nm, similar to FITC), which targetsequences of the satellite III region (DYZ1) ofchromosome Y in the chromosomal region Yq12.

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 florescent 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 translocationin tissue sections or within individual cells.

Storage and Handling
The BioGenex eFISH CEN X/Yq12 Dual Color Probemust 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 becompleted according to the user's needs. For a particularly user-friendlyperformance, we recommend the use of a BioGenexeFISH kit.

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

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Troubleshooting

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

Expected Results

For BioGenex eFISH CEN X/Yq12 Dual Color Probe,the hybridization signals of thelabeled alpha-satellite-sequences of the centromere of chromosome Xappear orange; the hybridization signals of the labeled chromosomeYq12 specific sequences appear green.

In interphases of normal malecells or male cells without aberrations of chromosome X and Y, onechromosome X and one chromosome Y signal appears. In interphases ofnormal female cells or female cells without aberrations of chromosome X,twochromosome X signals appear. In cells with an aneuploidy ofchromosome X or Y, a different signal pattern is visible in interphases

Care should be taken not to evaluate overlapping cells, in order to avoidfalse results, e.g. an amplification of genes. Due to decondensedchromatin, single FISH signals can appear as small signal clusters. Thus,two or three signals of the same size, separated by a distance equal to orless 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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3. Hougaard, D. M., Hansen, H. and Larsson, L. I. *(*1997*). Histochem. Cell Biol*. 108,335 -*344.*
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