BioGenex
Accelerating the pace of precision medicine
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EC REP

DATA SHEET

eFISH CYMCdual color break apart probe

Catalog No.
FP064-10XE- 100µl-10 test
FP064-20XE- 200µl-20 test

Doc No: 932-FP064E Rev: E
Date of Release: 10-Jul-2024

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

Recommended detection system (Not supplied):
Either of the following detection system 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:
The BioGenex eFISH CYMC dual color break apart probeis designed to be used for the detection of translocations involving the CMYC gene at 8q24 in formalin-fixed, paraffin embedded tissue or cells by fluorescence in situ hybridization (FISH)

BioGenex eFISH CYMC dual color break apart probecomes in hybridization buffer. The probe contains green-labeled polynucleotides (Green: excitation at 503 nm and emission at 528 nm, similar to FITC), which target sequences mapping in 8q24 distal to the CMYC gene, and orangelabeled polynucleotides (Orange: excitation at 547 nm and emission at 572 nm, similar to rhodamine), which target sequences mapping in 8q24 proximal to the CMYC gene

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 CYMC dual color break apart 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.

These systems were also used for the confirmation ofappropriateness of the BioGenex eFISH CYMC dual color break apart probe.

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.

Troubleshooting

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

Expected Results

The BioGenex eFISH CYMC Dual Color break apart Probe is a mixture of two direct labeled probes hybridizing to the 8q24 band. The orange fluorochrome direct labeled probehybridizes proximal to the CMYC gene, the green fluorochrome direct labeled probe hybridizes distal to that gene.

In an interphase nucleus lacking a translocation involving the 8q24 band two orange/green fusion signals are expected representing two normal (non-rearranged) 8q24 loci. A signal pattern consisting of one orange/green fusion signal, one orange signal, and a separate green signal indicates one normal 8q24 locus and one 8q24 locus affected by an 8q24 translocation. Alternative break points particularly observed in variant CMYC translocations t(8; 22) and t(2; 8) might result in different signal patterns.

However, we recommend the use of a control sample in which the 8q24 status is known to judge the specificity of the signals with each hybridization reaction.

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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2°C 8°C	Temperature Limitation	IVD	In Vitro Diagnostic Medical Device
	Use By Date	LOT	Batch Code
NON STERILE	Non-Sterile		Consult Instructions for Use
EC REP	Representative in the European Community		Manufacturer