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EBER Probe
PR205-100E

Doc. No 932-PR205-100E. Rev. D
Release Date: 20-Aug-2020 932-Format-IVD-0812

Recommended detection system:
One Step polymer HRP ISH Detection System

Intended Use
BioGenex EBER PROBE is currently available for in vitro diagnostic use. This probe is designed for the specific localization of EBV-encoded RNA in formalin-fixed, paraffin-embedded human tissues and/or frozen tissues by in situ hybridization.

Summary and Explanation
The EBER probe detects EBV-encoded RNA in formalin-fixed, paraffin-embedded human tissues by in situ hybridization. Epstein-Barr virus-encoded RNA, EBER, is present in cells latently infected with Epstein-Barr virus (EBV). The detection of EBER with BioGenex automated in situ hybridization technique will provide evidence of EBV latent infection in tissues. A mixture of non specific oligonucleotides that are of similar length to that of the EBER probe is provided as the negative control.

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 probe nucleic acid sequence to complementary target nucleic acid sequence. ISH techniques can be used to identify infectious agents in tissue sections, to localize gene expression within individual cells, or to detect specific DNA sequences in the genome of cells.
In ISH, fixed tissue sections are deproteinized to expose target DNA or mRNA sequences. A hapten (fluorescein or digoxigenin-labeled probe) is hybridized to the exposed target DNA or mRNA sequences in the cells. Subsequent washing steps remove any probe that is not bound or that is non-specifically bound to the tissue section. An immunohistochemical (IHC) procedure is then used to detect the probe-target hybrid. (Down stream detection of hybridized hapten labeled probe is done by using specific anti-hapten antibody). This procedure includes incubating the slide with a mouse anti- fluorescein or digoxigenin antibody, followed by detection of this antibody with a second antibody enzyme conjugate. After addition of an appropriate substrate for the enzyme (such as DAB,-diaminobenzidine-solution), a colored reaction product is precipitated at the location of the probe-target hybrid. Microscopic examination of the slide provides visual interpretation of the staining results.

Reagents Provided
1 x 0.650 ml of fluoresceinated oligonucleotide EBER probe in hybridization solution.

Materials Required But Not Provided
All the reagents and materials required for in situ hybridization are not provided. Pre-treatment reagents, super sensitive detection systems, control slides, control reagents and other ancillary reagents are available from BioGenex. Please refer to the product insert(s) of the BioGenex Super Sensitive One Step Polymer HRP ISH detection systems for detailed protocols and instructions.

Storage and Handling
Store the probe at 2-8° C. Warm to room temperature immediately prior to use (HPV probes may need water baths higher than 37° C to dissolve the precipitate in the probe).
This probe is suitable for use till expiry date when stored at 2-8°C. Do not use the product after expiration date printed on vial. If reagents are stored under any conditions other than those specified in the package insert, they must be verified by the user.
Positive and negative controls should be run simultaneously for every experiment. If unexpected staining is observed which cannot be explained by variations in laboratory procedures and a problem with the antibody is suspected, contact BioGenex Technical Support at **1-800-421-4149 or your local distributor**.

Specimen Collection and Preparation
Tissues fixed in 10% (v/v) formalin are suitable for use prior to paraffin embedding. Consult references (Kiernan, 1981; Sheehan & Hrapchak, 1980) for further details on specimen preparation. Over-fixation may require prolonged incubation with Proteinase K and result in weak staining of positive tissue. Tissue processing conditions should be standardized in order to obtain consistent, reliable results. Frozen sections do not need proteinase K digestion.

Treatment of Tissues Prior to Staining
All formalin-fixed, paraffin-embedded tissue sections require pretreatment with Nucleic Acid Retrieval solution (NAR) following the instruction product data sheet.

Precautions
When the target to be detected is RNA, it is important to avoid contamination of the slides and reagents by ribonucleases (RNases—enzymes that degrade RNA) prior to and during hybridization. Be sure to wear gloves up to the hybridization step. All the reagents to be used up to the hybridization step are provided as RNase-free. Reagents to be prepared prior to use by users should also be prepared under RNase-free conditions.


Rep 2;R61 = May cause harm to the unborn child.
S38 S39 S45 S53 S60 P11 = In case of insufficient ventilation, wear suitable respiratory equipment.Wear eye/face protection.In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).Avoid exposure - obtain special instructions before use.This material and its container must be disposed of as hazardous waste.
For more information, refer to the Material Safety Data Sheet.

Staining procedure
(a) The BioGenex EBER PROBE is used without further dilution.
(b) The probe solution is brought to room temperature just prior to use.
(c) Formalin-fixed, paraffin-embedded tissue sections need pretreatment with Nucleic Acid Retrieval solution (NAR).
(d) The testing parameters and testing protocols are listed in Table 1 below.
(e) The BioGenex Super Sensitive™ ONE STEP POLYMER HRP ISH Detection System (DF400-50KE) is recommended for staining
(f) After staining, the slides are dehydrated in 100% reagent alcohol and cleared in xylene.
(g) Permanent mounting medium is applied to the slides.
(h) The negative control probe is run in parallel with the EBER PROBE

Reagent	Time / Temperature
NAR	10 minutes at 92° C
Probe	10 minutes at 92° C followed by 60 minutes at 37° C
Wash Solution A	5 minutes at 45° C
Wash Solution B	5 minutes at 55° C
Polymer HRP	30 minutes at Room Temperature

- To prepare DAB -Add two drops or ~ 80ul of liquid DAB chromogen to 1 ml ready-to-use Substrate buffer before use

TESTING PARAMETERS
Dispensing pattern : 1/3 Dispensing volume: 25 µl

Quality Control
The recommended positive control tissue for this probe is Small Intestine. Refer to the appropriate detection system package insert for guidance on general quality control procedures.

Troubleshooting
Refer to the troubleshooting section in the package inserts of BioGenex Super Sensitive Detection Systems (or other equivalent detection systems) for remedial actions on detection system related issues, or contact BioGenex Technical Service Department at **1-800-421-4149 or your local distributor** to report unusual staining.

Expected Results
Proper use of this probe and Super Sensitive One Step Polymer ISH Detection Kit will result in an intense stain at the specific site of the hybridized fluorescein-labeled probe in positive test tissue and positive controls. If staining is absent from any positive control slides, or present in any negative control slides, the test should be considered invalid. If deviation from the expected results occurs, please consult the troubleshooting guide of detection systems for assistance.

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.

Performance Characteristics

BioGenex has conducted studies to evaluate the performance of the probe with BioGenex detection systems and accessories. The probes have been found to be sensitive and show specific binding to the antigen of interest with minimal to no binding to non-specific tissues or cells. BioGenex probes have shown reproducible and consistent results when used within a single run, between runs, between lots and wherever applicable between manual and automated runs. The products have been determined to be stable for the periods specified on the labels either by standard real time or accelerated methods. BioGenex ensures product quality through 100% quality control for all products released and through surveillance programs.

Bibliography

Center for Disease Control. Decontamination of Laboratory Sink Drains to Remove Azide Salts. Center for Disease Control Manual Guide--Safety Management,No. CDC-22, Atlanta, Georgia. April 30, 1976.

Kiernan JA. Histological and Histochemical Methods: Theory and Practice. New York: Pergamon Press 1981.

Nadji M, Morales AR. Immunoperoxidase, part 1: the techniques and its pitfall. Lab Med 1983; 14:767-770.

Omata M, Liew CT, Ashcavai M, Peters Rl. Nonimmunologic binding of horseradish peroxidase to hepatitis B surface antigen. A possible source of error in immunohistochemistry. Am J Clin Pathol. May, 1980;73(5):626-632.

U.S. Congress. Clinical Laboratory Improvement Amendments of 1988: Final Rule, 57 FR 7163, February 28, 1992.

National Institute for Occupational Safety and Health, (NIOSH), Rockville, MD. Explosive azide hazard, Publication No. 78-127, 1976.