Glioma Prognostic Subtyping - **Astrocytoma Oligodendroglioma, Meningioma**, and **Glioblastoma** using New miRNA Biomarker Panel

Ready-to-Use fully optimized **SSNA** miRNA *in situ* hybridization (ISH) Kit

Brain tumors account for 2.4% of all cancer–related deaths, with a five-year survival rate of 33.4%. Among brain tumor types, gliomas are the most aggressive and make up approximately 80% of malignant species. The subtypes of gliomas include high-grade astrocytomas, oligodendrocytes, and ependymomas. Of the several molecular techniques used to distinguish the subtypes, microRNA *in situ* hybridization (miRNA ISH) is promising. Detection and localization of altered miRNA expression levels provide invaluable insights into cancer pathogenesis, including subtyping of cancer tissues and tumor grading.

Application:

BioGenex Xmatrx® automated systems and miRNA ISH Brain panel probes were used to successfully classify and grade complex gliomas subtypes. This novel assay used a sample cohort of 35 FFPE tissues and 30 gliomas of varying grades and types. Using the BioGenex end-to-end miRNA solution the tissues were classified and graded.

Read more about the study in the corresponding application note: 937-4097.0

BioGenex miRNA ISH Brain Cancer Probe Panel

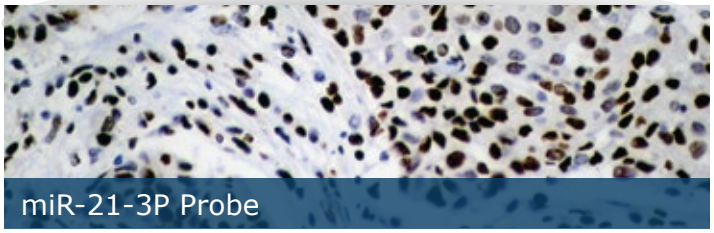
Target miRNA	miR-21	miR-10b	miR-96	miR-146b
Catalog No (25 test)	HM021-3P-100	HM010B-100	HM096-100	HM146B-100
Control slides (5 slides)	FB-HM021-3P	FB-HM010B	FB-HM096	FB-HM146B

BioGenex miRNA Detection Kits and Ancillary Reagents

Catalog	Product name
DF400-YADE	XISH™ One-Step Polymer-HRP ISH Detection Kit (Automation)
DF400-25KE/50KE	Super Sensitive One-Step Polymer-HRP ISH Detection Kit (Manual)
HK873-5K	Nucleic Acid Retrieval Solution 1 (NAR-1)

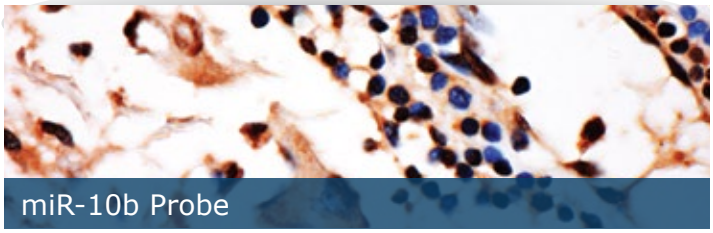
BioGenex proprietary **Super Sensitive Nucleic Acid (SSNA)** miRNA probes are specially designed for *in situ* hybridization of tissue samples. BioGenex miRNA probes have high melting temperatures (T_m) and are dual-end labeled. Together with BioGenex Super Sensitive Detection kits result in a clean and intense stain for localized visualization of key miRNA signal biomarkers.

Brain ISH Probes:



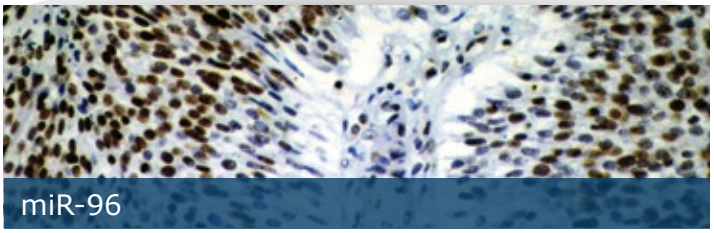
miR-21-3P Probe

miR-21-3p has been shown to directly reduce the expression of two methionine adenosyltransferase genes by targeting their 3′-UTRs. The overexpression of miR-21-3p increases intracellular S-adenosylmethionine.



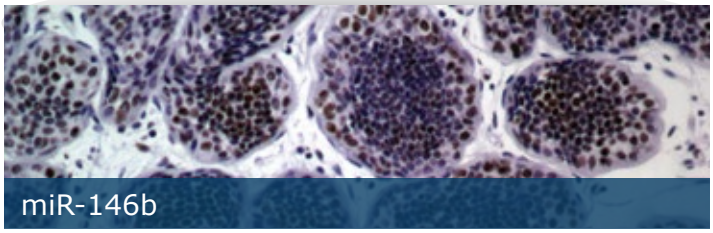
miR-10b Probe

miR-10b has been identified as a target gene of transforming growth factor-β (TGF-β1), which is a multifunctional cytokine that induces EMT in multiple cell types.



miR-96

miR-96 expression decreases the transcript and protein levels of FOXO1 by binding to one of two predicted binding sites in the FOXO1 3'-UTR sequence.



miR-146b

The expression of miR-146b-5p is known to be dysregulated in solid tumors and acts either as a tumor suppressor or promoter.

BioGenex Platforms for miRNA ISH Workflow:

Xmatrx® Ultra
Fully Automated System
for high throughput labs

Xmatrx® NANO VIP
Fully Automated System
for medium throughput labs

Xmatrx® MINI
Manual System for medium
and small throughput labs

BioGenex
Accelerating the pace of precision medicine

In the U.S., call +1 (800) 421-4149
Outside the U.S., call +91-40-27185500

www.biogenex.com

Doc. No. 937-4101.0 Rev A