

# Squamous Cell Carcinoma (SCC) and Adenocarcinoma (AD) Differentiation in Non-Small Cell Lung Cancer (NSCLC) using New miRNA Biomarker Panel

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

Non-small cell lung cancer is the most common form of lung cancer comprising of two histological subtypes- adenocarcinoma (AD) and squamous cell carcinoma (SCC). SCC comprises 25–30% of all lung cancer cases and is a slow growing tumor with most patients diagnosed in the advanced stage. Unlike AD, therapeutic progress in SCC has been relatively slow due to the lack of molecular markers and genetic characterization. MicroRNAs (miRNAs) are important modulators in cellular pathways and play a key role in carcinogenesis. Utilizing Super Sensitive Nucleic Acid microRNA *in situ* hybridization (SSNA miRNA ISH) probes can help in deciding proper treatment strategies, improving the quality of life, and to determine poorly differentiated and undifferentiated cancers.

## Application:

BioGenex end-to-end miRNA solution including Xmatrix® automated systems and miRNA ISH Lung Panel Probes were used to classify AD and SCC, and analyze differential expression patterns of three miRNAs in SCC. Formalin-fixed paraffin-embedded tissues were used for analysis and were successfully classified for grading tumors.

**Read more about the study in the corresponding application note: [937-4100.0](#)**

## BioGenex SSN miRNA ISH Lung Cancer Probe Panel

Target miRNA	miR-205	miR-196a	miR-375
Catalog no (25 test)	HM205-100E	HM196A-100E	HM375-100E
Control slides (5 slides)	FB-HM205	FB-HM196A	FB-HM375

## 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)

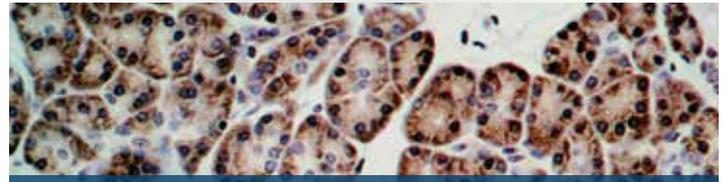
BioGenex proprietary **Super Sensitive Nucleic Acid (SSNA)** miRNA probes are specially designed for *in situ* hybridization of tissue samples. BioGenex miRNA probes have high melting temperatures ( $T_m$ ) and are dual-end labeled. Together with BioGenex Super Sensitive Detection kits result in a clean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

## Lung ISH probes:



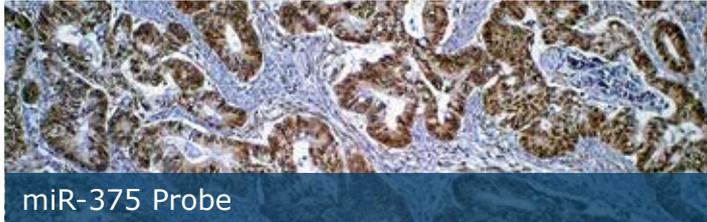
miR-205 Probe

miR-205 suppresses epithelial to mesenchymal transition by targeting the transcriptional factors ZEB1 and SIP1. miR-205 also regulate E-Cadherin and possibly target PTEN.



miR-196a Probe

miR-196a suppresses the expression of specific homeobox genes that are of high relevance for the development of human embryos.



miR-375 Probe

Overexpression of miR-375 downregulates while knockdown of miR-375 upregulates CLDN1 mRNA and protein, respectively.

## BioGenex Platforms for miRNA ISH Workflow:



### **Xmatrix<sup>®</sup>ELITE**

Fully Automated System  
for high throughput labs



### **NanoVIP<sup>®</sup>300**

Fully Automated System  
for medium throughput labs



### **NanoVIP<sup>®</sup>**

Fully Automated System  
for medium throughput labs

**BioGenex**  
Accelerating the pace of precision Oncology

In the U.S., call +1 (800) 421-4149

Outside the U.S., call +91-40-27185500



For Research Use Only (RUO). Not for use in diagnostics procedure

Doc. No. 937-4108.0 Rev B

© 2024 BioGenex Laboratories, Inc. All Rights Reserved

www.biogenex.com