Renal Cell Carcinoma (RCC) Classification - **ccRCC pRCC**, and chRCC using New miRNA Biomarker Panel

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

Rising kidney cancer incidence has been reported in the US and global population. Over 90% of all kidney tumors are associated with renal cell carcinoma (RCC) that occurs in adults of both sexes. Targeted therapeutics for treating kidney cancer is becoming essential for the improvement of diagnostic methods that will be used to characterize kidney cancer subtypes. Utilizing microRNA (miRNA) *in situ* hybridization may provide a solution to understanding the complex nature of kidney cancer. Due to their small size and resistance to RNase activity, miRNAs act as valuable biomarkers. Unique miRNA expression profiles are used to assess the cancer type or condition in undifferentiated or poorly differentiated tumors, cancer of unknown primary (CUP), tumor grading and classification.

Application:

Researchers used BioGenex miRNA ISH Kidney Panel Probes to classify the three subtypes of renal cell carcinoma: clear cell RCC (ccRCC), papillary RCC (pRCC), and chromophobe RCC (chRCC). The study classified the subtypes with a two-step differential screening to assess the expression levels of four miRNAs. The BioGenex miRNA ISH product line and automated Xmatrx® Systems have improved staining, clinical diagnosis time and reliability for these important assays.

Read more about the study in the corresponding application note: 937-4099.0

BioGenex miRNA ISH Kidney Cancer Probe Panel

Target miRNA	miR-126	miR-222	miR-200b	miR-221
Catalog No (25 test)	HM126-100	HM222-100	HM200B-100	HM221-3P-100
Control slides (5 slides)	FB-HM126	FB-HM222	FB-HM200B	FB-HM221

BioGenex miRNA Detection kit 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.

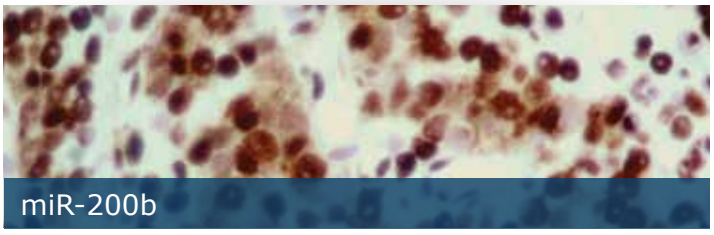
Kidney ISH Probe Panel:

miR-126 Probe

miR-126 is expressed predominately by endothelial cells and controls angiogenesis.

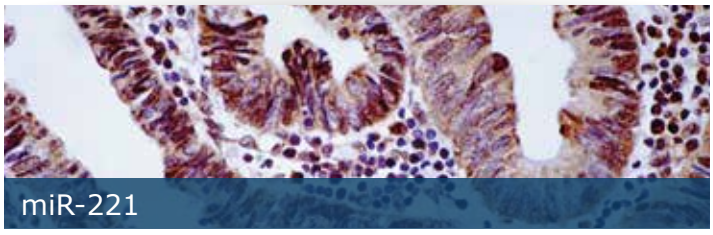
miR-222 Probe

miR-222, together with miR-221, is encoded in tandem from a gene cluster located on chromosome X and is shown to directly target p27kip1, Bmf, PTEN, Mdm2, PUMA, and TRPS1.



miR-200b

miR-200b targets v-ets erythroblastosis virus E26 oncogene homolog 1 (Ets-1) and is downregulated by hypoxia to induce angiogenic response of endothelial cells.



miR-221

miR-221, together with miR-222, is encoded in tandem from a gene cluster located on chromosome X and is shown to directly target p27kip1, Bmf, PTEN, Mdm2, PUMA, and TRPS1.

BioGenex Platforms for miRNA ISH Workflow:

Xmatrx® ELITE

Fully Automated System
for high throughput labs

NanoVIP® 300

Fully Automated System
for medium throughput labs

NanoVIP®

Fully Automated System
for medium throughput labs

BioGenex

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