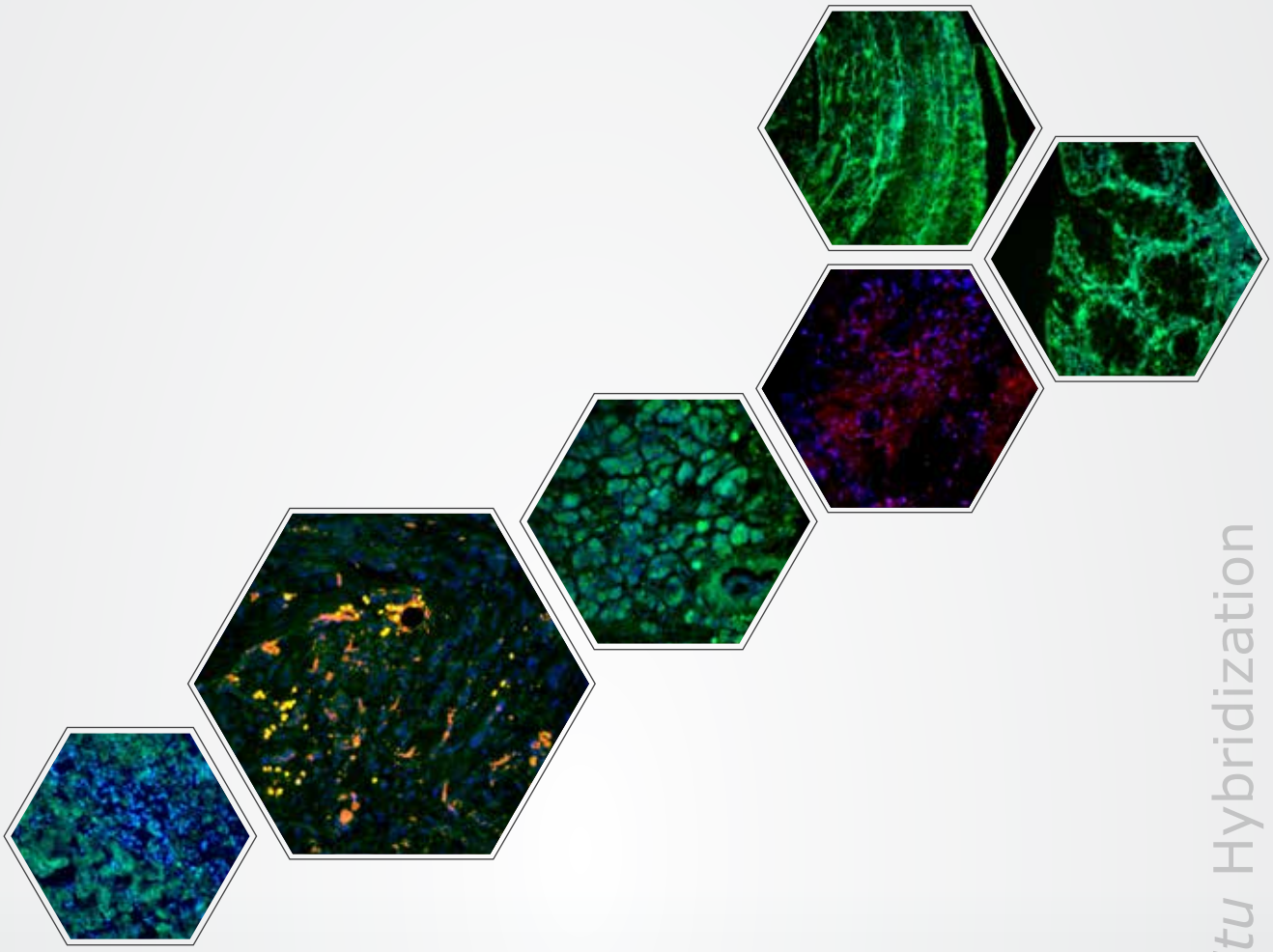
New



Fluorescent In Situ Hybridization

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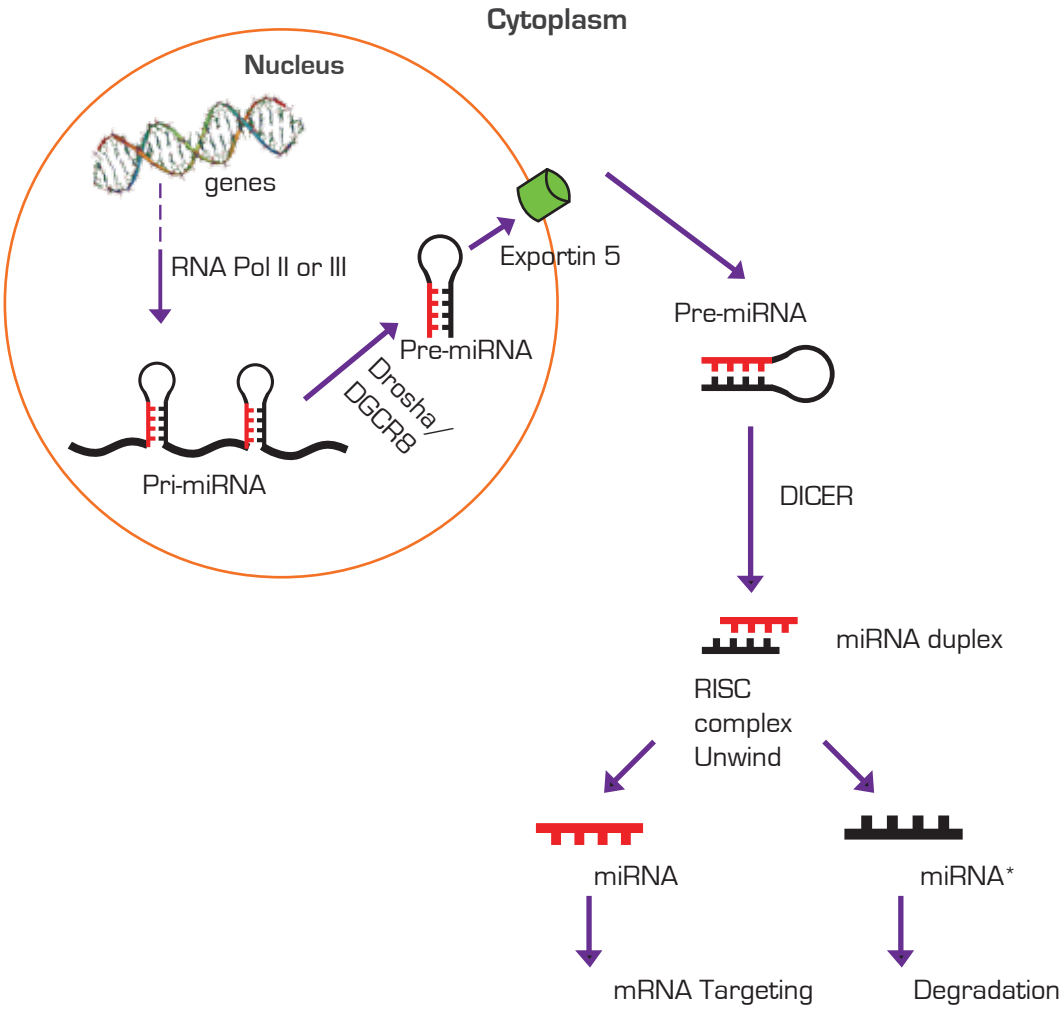
miRNA Processing

MicroRNAs (miRNAs) are endogenous, non-coding RNAs known to regulate gene expression by translational repression or RNA cleavage. The figure below shows the steps in which the miRNA genes are processed into the RNA induced silencing complex (RISC). Since miRNA has been observed to deregulate during progression of different cancer stages from normal to malignant and metastasis, the expression profile as a result of this deregulation can be exploited as a potential biomarker for cancer characterization.



miRNA Biogenesis

BioGenex miRNA Probes

Highly Specific and Sensitive Probes

- Proprietary technology for clean intense stains
- *in situ* context of tissue morphology

Manual Protocols

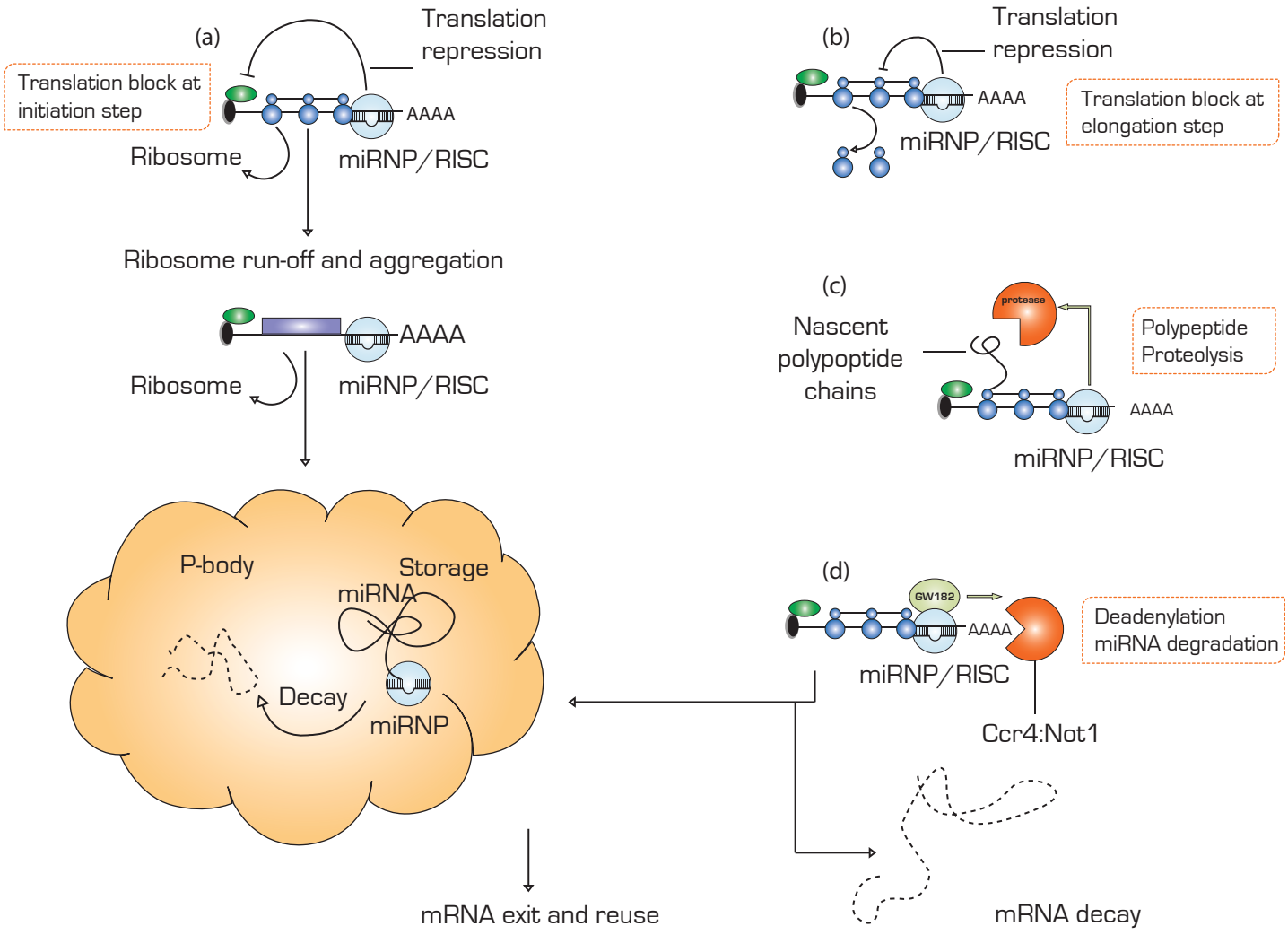
- Optimized for standardized manual ISH staining
- Ready-to-use reagents for FFPE tissues

Potential Clinical Applications of miRNA

Carcinoma of unknown primary (CUP) accounts for an estimated 3% to 5% of all metastatic cancers and one of the ten most frequent cancer diagnosed worldwide. Recent studies on tissue specific tumor markers indicated that miRNA expression is correlated with tumor signature and miRNA is frequently regulated in cancer. This fact indicated a differential expression pattern of miRNA in normal, neoplastic, pre-malignant and malignant tissues. Therefore, *in situ* detection of miRNA differential expression in different stages of cancer makes the expression profiling a potential tool not only for cancer characterization but also for accurate CUP characterization and disease management.

Role of miRNA in Gene Regulation

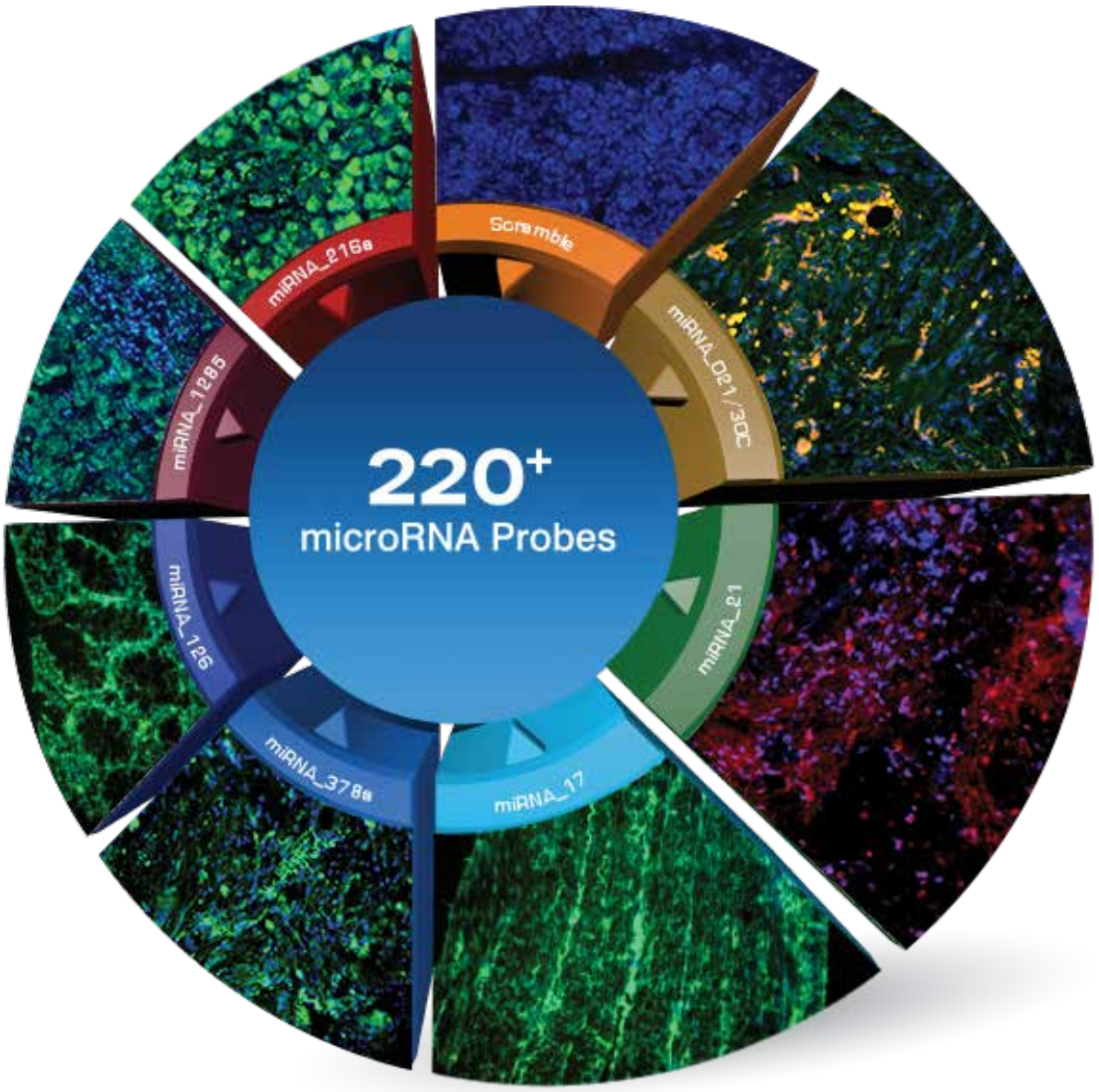
miRNA regulates gene expression either by blocking the translation or destabilizing the targeted mRNA transcripts. miRNA as part of RISC complex targets the mRNA to inhibit its translation thus brings about the necessary regulatory control. On the other hand miRNA-RISC complex binds to 3'-UTRs of mRNA to induce mRNA degradation or destabilization by decapping and de-adenylation of mRNA there by inhibiting translation. The targeted mRNA along with the miRNA-RISC complex is often sequestered to P-bodies for further regulation by degradation or subsequent use.



Translation regulated by miRNA

miRNA Probes

Fluorescent *in situ* staining in any slide based assay



Precision Biology *in situ* tissue signature markers

Potential tool for characterization of all type of cancer

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