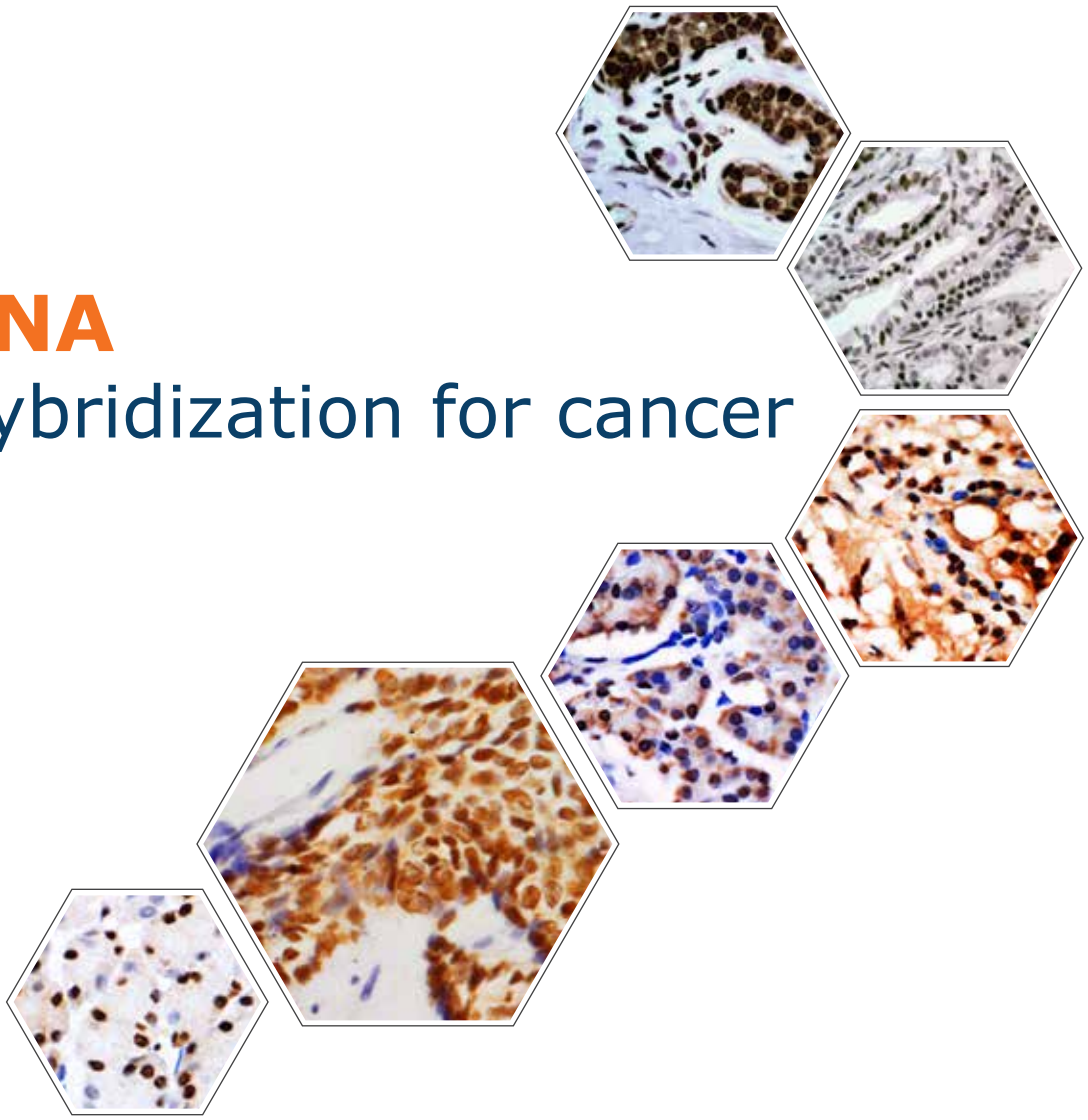
MicroRNA
in situ hybridization for cancer



Summary: MicroRNAs (miRNA) are approximately 19–24 nucleotides in length and base-pair to complementary sites within messenger RNA (mRNA). Aided by the "RISC" complex this binding functions to promote down-regulation of the mRNA's protein product. MicroRNAs are an important biomarker of cancer as a result of their involvement in multiple biological processes including development, differentiation, proliferation, metabolism, and apoptosis. Cancer is now diagnosed by two different but complementary modalities, liquid biopsy, and tumor tissue biopsy. Tumor tissue biopsy is still the "gold standard" for cancer diagnosis by pathologists. ISH is ideally suited for detecting miRNA in the "gold standard" of fresh, frozen or formalin-fixed paraffin-embedded (FFPE) biopsy samples due to its sensitivity, specificity and the spatial information on tumor heterogeneity it provides, available at relatively low cost. BioGenex ISH system has the ability to generate a robust chromogenic signal while preserving the spatial context of the tissue sample. This provides a powerful tool for precise tumor characterization and a breakthrough for clinical research and analysis of cancer of unknown primary (CUP), poorly differentiated or undifferentiated tumors, and cancer staging.

Conclusion: Only the ISH techniques give the full spatial picture of the tumor which is crucial to aid the pathologist in diagnosis and for initiating tumor treatment decisions.

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