

# Multiplex, Spatially Resolved Protein Analysis

Using the GeoMx™ Digital Spatial Profiler, Enhanced by Abcam Recombinant Monoclonal Antibodies

## DSP Technology Introduction

The GeoMx Digital Spatial Profiler (DSP) provides high plex and high-throughput spatial profiling of RNA or protein from a single FFPE section, facilitating the discovery of novel biology by empowering researchers to dissect the complexity of cellular interactions at a local level. GeoMx DSP combines standard immunofluorescence techniques with digital optical barcoding technology to perform highly multiplexed, spatially resolved, profiling experiments on challenging samples such as FFPE. The ability to perform multiplex protein expression analysis in a robust and quantitative way is vital for effective spatial analysis.

Samples for analysis are incubated with up to three fluorescent morphology markers and a nuclear dye, in addition to a cocktail of antibody probes conjugated to photocleavable indexing oligonucleotides (FIGURE 1). Then GeoMx DSP performs whole slide imaging to capture tissue morphology and identify regions of interest (ROI) for protein profiling. Once ROIs have been selected, oligonucleotide tags are released from discrete regions of the tissue via UV exposure and are collected and quantitated in a standard nCounter® assay. The counts are mapped back to tissue location to create a spatially-resolved digital profile of analyte abundance.

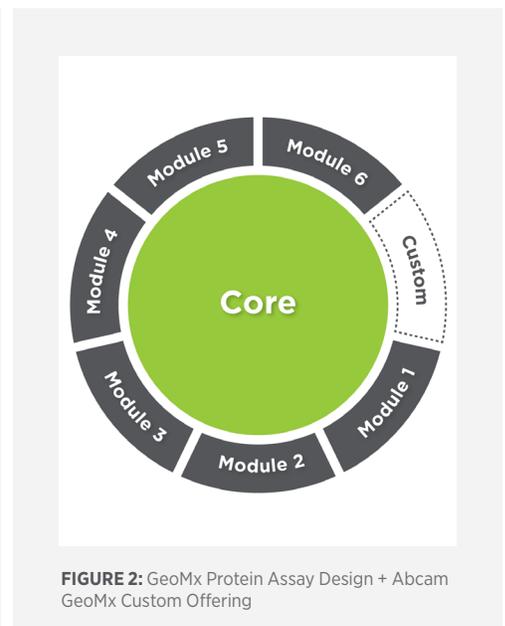
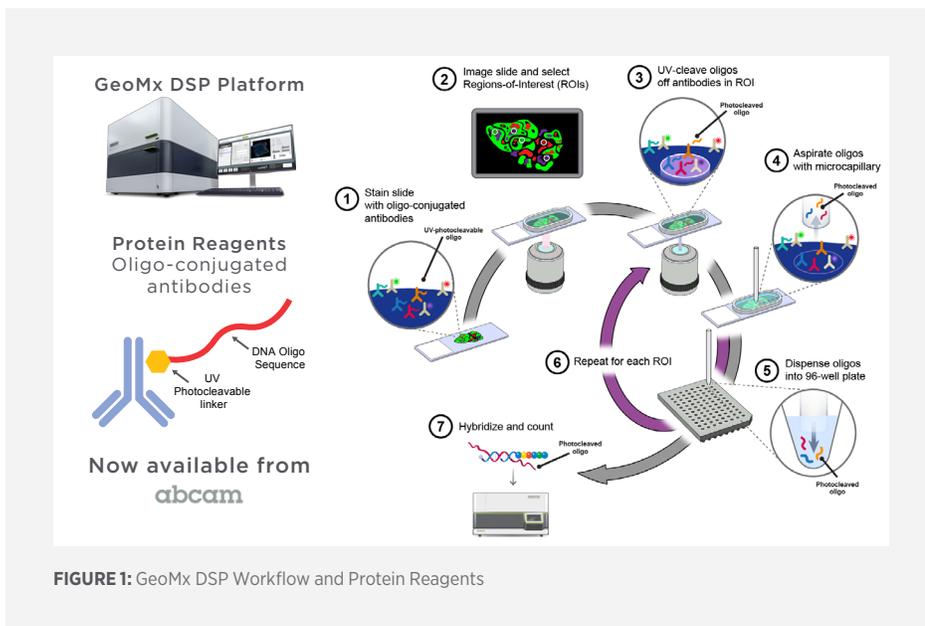
## GeoMx Protein Assay Design

GeoMx Protein Assays are modular and designed to have the flexibility to meet a range of research needs. Users can select one core (~20-plex) and up to 6 modules (~10-plex) to analyze specific protein targets of interest. In addition to the core panels and modules, users are able to select a la carte targets from Abcam’s extensive portfolio of IHC-validated recombinant RabMAb® antibodies to be conjugated for use in the GeoMx Protein Assays to enable panel customization (FIGURE 2).

## Custom Modules Powered by Abcam Recombinant RabMAb® Antibodies

All RabMAb antibodies are initially developed via Abcam’s patented hybridoma cell line technology and screened for functionality in immunohistochemistry. The term “recombinant” refers to an in vitro production method that utilizes synthetic genes rather than from a hybridoma cell line.

To make a recombinant version, the antibody producing B cell is sequenced to produce synthetic genes that allow in vitro recombinant production in mammalian cell lines. This methodology overcomes genetic drift, and subsequent batch variability, that is inherent to hybridoma production over time. Consequently, the recombinant system yields higher reproducibility and consistency from batch to batch.



Recombinant antibodies have advantages over those produced via hybridoma cell lines, as the latter experience “genetic drift” over time, meaning that an antibody made using the same cell line five years later might have slight variations from the original version of the antibody.

Combining proprietary RabMAb antibody discovery with recombinant production delivers crucial benefits including diverse epitope recognition, high specificity, and reproducibility.

Using proprietary oligo conjugation methods, customized antibody-oligo conjugates from Abcam can now be added to any GeoMx Protein Assay, enabling the analysis of 90+ targets on a single slide. Customized antibody-oligo conjugates can be spiked-in to any standard core and module combination to investigate a range of application areas, including immuno-oncology and neuroscience.

	Immuno-Oncology	Neuroscience
<b>Protein Cores</b>	<b>Immune Cell Profiling</b> 18-plex Human/Mouse	<b>Neural Cell Profiling</b> 20-plex Human
<b>Protein Modules</b>	<b>IO Drug Target</b> 6-10-plex Human/Mouse	<b>Alzheimer’s Pathology</b> 10-plex Human
	<b>Immune Activation Status</b> 8-plex Human Mouse*	<b>Parkinson’s Pathology</b> 10-plex Human
	<b>Immune Cell Typing</b> 7-plex Human Mouse*	<b>Alzheimer’s Pathology 2</b> ~10-plex*
	<b>Pan-Tumor</b> 9-plex Human Mouse*	<b>Autophagy</b> ~10-plex*
	<b>Cell Death</b> ~10-plex Human*	<b>Glial Cell Subtyping</b> ~10-plex*
	<b>PI3K/AKT Signaling</b> ~10-plex Human*	
	<b>MAPK Signaling</b> ~10-plex Human*	
<b>Custom Modules</b>	Available	Available
<b>RNA Cores</b>	<b>Immune Pathways</b> 84-plex Human	

\*Panel concepts and offerings subject to change prior to commercial launch.

**For more information, please contact [geomx@nanosttring.com](mailto:geomx@nanosttring.com) and visit [nanosttring.com](http://nanosttring.com) or [abcam.com](http://abcam.com)**

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