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 and Abcam Custom Modules

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 (**FIGURE 2**).

In addition, Abcam's GeoMx Custom Antibody-Oligo conjugates can now be added to any GeoMx Protein Assay, allowing analysis of 90+ targets on a single slide. Users can select a la carte targets up to a 5-plex from Abcam's library of over 5,000 highly specific recombinant monoclonals to be oligo-conjugated for use in GeoMx Protein Assays. After conjugation, these custom modules can be spiked-in to any standard core and module combination to investigate a range of application areas, including immuno-oncology and neuroscience (**FIGURE 3**).

Combining off-the-shelf GeoMx Protein Assays with Abcam recombinant monoclonal antibodies ensures robust and quantitative spatial protein analysis of even the most challenging samples.

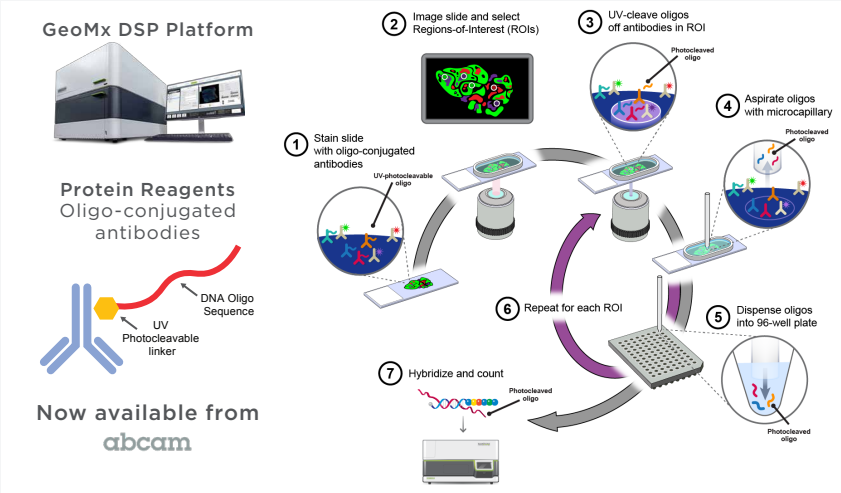

FIGURE 1: GeoMx DSP Workflow and Protein Reagents

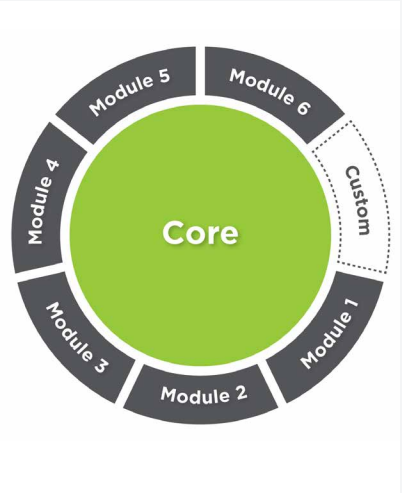

FIGURE 2: GeoMx Protein Assay Design + Abcam GeoMx Custom Offering

	IMMUNO-ONCOLOGY	NEUROSCIENCE
Protein Cores	**Immune Cell Profiling** ~20-plex Human/Mouse	**Neural Cell Profiling** ~20-plex Human
Protein Modules	**IO Drug Target** ~10-plex Human/Mouse	**Alzheimer's Pathology** ~10-plex Human
	Immune Activation Status ~10-plex Human	**Parkinson's Pathology** ~10-plex Hum
	Immune Cell Typing ~10-plex Human	
	Pan-Tumor ~10-plex Human	
Custom Modules	**Available**	**Available**

FIGURE 3. GeoMx Protein Assays, with custom modules now available from Abcam

For more information, please contact geomx@nanostring.com and visit nanostring.com or abcam.com

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