

Implementation and Project Management Workflow of the GeoMx Digital Spatial Profiling Platform in the SCOPE Imaging Core Facility

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The Sanderson Center for Optical Experimentation (SCOPE) core at the University of Massachusetts Chan Medical School facilitates Nanostring's High-Plex Digital Spatial Profiling (DSP) platform using the GeoMx DSP. This service provides academic and industry users with the necessary sample preparation, imaging, and data processing tools and software to produce and analyze protein or RNA spatial profiling within various tissue samples that are either formalin-fixed paraffin embedded (FFPE) or fresh frozen. Proteome and transcriptome assays are experimentally designed with the assistance of Nanostring and are created with the instrument's ability to define Regions of Interest (ROI) selected by the user and selectively probe cell populations of interest identified by immunofluorescence stains. Cleaved probes from each user defined population are then sequenced by Next Gen Sequencing (NGS) or nCounter Analysis System techniques. Successful implementation of a GeoMx DSP service in a core facility requires user support, project management infrastructure, and data management resources beyond the instrument itself. The SCOPE facility staff have developed an optimized workflow that facilitates project design, sample tracking, protocol testing, and data access and transfer enabling the successful completion of multiple projects utilizing all GeoMx DSP assay types.