



CRO SERVICES

For Spatial Biology & Single-Cell Omics

Your Access to Innovation

CRO Services for Spatial Biology and Single-Cell Omics

Canopy Biosciences®, a Bruker company, is a full-service CRO specializing in Transcriptomic and Proteomic services for pharmaceutical, biotech and academic communities by adopting cutting-edge multi-omics platforms. While maintaining the core functionality of a standard histological laboratory, our full range of services support projects with any objective.

We are the trusted partner for biopharmaceutical research, custom assay development, clinical sample testing, and quality data acquisition and reporting. We partner with key industry leaders, providing access to critical platforms in multi-omic research, including our own ChipCytometry™ platform. Our team will help you face complex problems and transform scientific discovery into new treatments, disease indications and biomarker development with efficient assay optimization and problem-solving for successful assay results.

Partner with us to accelerate your research, knowing we have the flexibility and expertise to perform your experiment.



Centers of Excellence

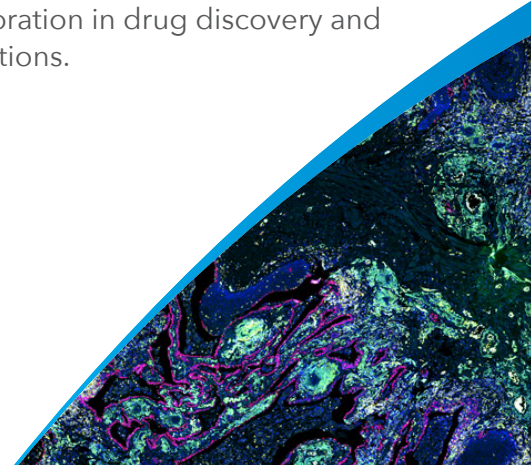
Your Partner in Multi-omic Research

Pre-clinical and clinical research has the potential to help guide future medical advances and improve human health. As such, it is important to consider a partner with an excellent record for scientific discovery.

Canopy has multiple laboratories with key areas of expertise:

- Histology and spatial biology for biomarker discovery
- Genomics and transcriptomic analysis
- Spatial proteomics for oncology, immunology and immuno-oncology specialties

Our scientific staff are experts in the platforms they manage including assay optimization, and work with our clients to understand study goals for successful experimental outcomes, leading to new areas of exploration in drug discovery and preclinical applications.



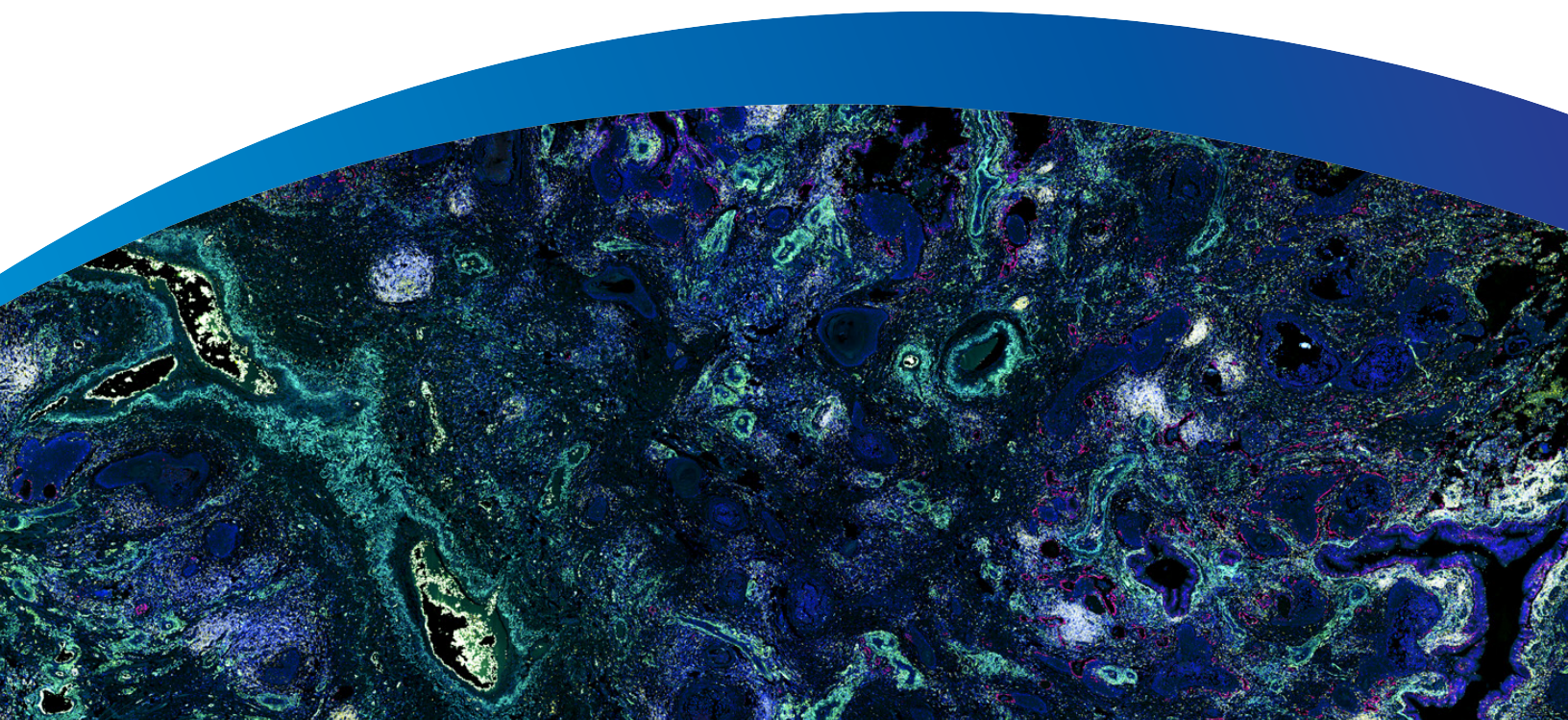


End-to-End Solutions

Find the right service to suit the needs of your experiment.

Canopy offers a broad portfolio of CRO services focused on spatial biology and single-cell omics. Our full suite of services is used to detect and analyze proteins and nucleic acids, leading to a better understanding of cellular diversity and interaction.

Service	Analyte		Measurement		
	RNA	Protein	Spatial	Single-Cell	Bulk
ChipCytometry		✓	✓	✓	
NanoString® CosMx® SMI	✓	✓	✓	✓	
NanoString GeoMx® DSP	✓	✓	✓		✓
IHC / FISH	✓	✓	✓		
10x scRNA-Seq	✓			✓	
NanoString nCounter®	✓				✓
Illumina® RNA Seq	✓				✓

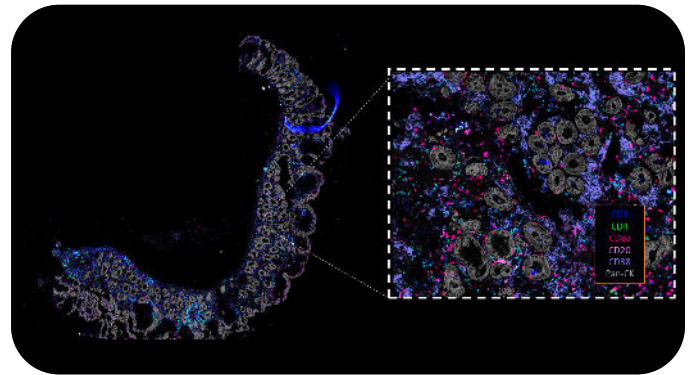


ChipCytometry Spatial Multiplexing

As the inventors of the ChipCytometry platform, we utilize years of experience in developing multiplexed spatial cytometry technologies to bring the power of spatial biology to your research.

The ChipCytometry platform allows for single-cell, high resolution protein expression analysis of any sample, tissue, or cell suspension, without the loss of spatial information. This provides protein expression data in the context of tissue architecture, tissue microenvironments, and cell-cell interactions. With pre-validated panels and assay kits available in a wide-range of biomarkers, we have off-the-shelf capabilities for in-depth analysis of your tissue or cell samples.

For custom solutions, we leverage the open-sourced nature of ChipCytometry to be as customizable and flexible as needed to develop and scale your assay. Canopy has helped researchers across academia and biopharma incorporate spatial biology through ChipCytometry, from the early phases of discovery to supporting their clinical trials, and can help your lab bring your protein expression data into full context.



Whole tissue scan of human FF active celiac disease intestine stained with a 21-plex antibody panel to profile the tissue microenvironment. Regions of interest can be investigated in greater detail, phenotyping every single cell in the sample within its spatial context.

GeoMx Digital Spatial Profiler (DSP)

From NanoString

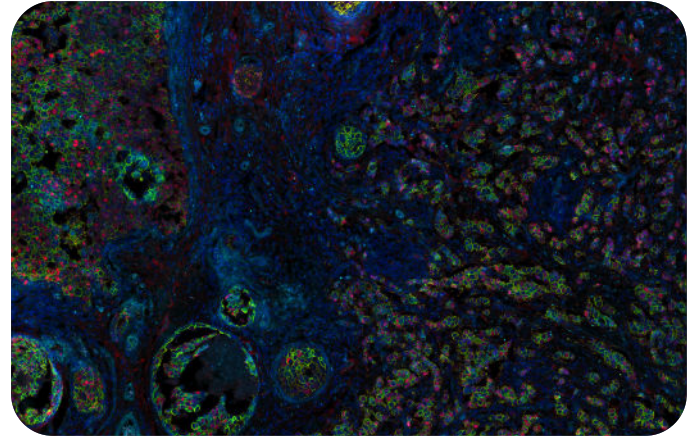
As NanoString's premier partner CRO, Canopy was one of the earliest adopters of the GeoMx technology, giving us deep knowledge of this assay. With a portfolio of transcriptomic and protein panels, GeoMx DSP enables spatial analysis paired with molecular profiling for a better understanding of the biological differences between tumor and tumor microenvironment.

Morphologically guided ROI selection with markers to highlight the tumor and immune cells is followed by molecular profiling of proteins or RNA transcripts.



As a service provider, we assist in ROI selection and provide training on the analysis suite for GeoMx so our clients can overlay spatial analysis with the gene expression data for a holistic understanding of tumor biology.

The morphology markers from NanoString broadly identify tumor and immune compartments, but our clients have expressed cell- and disease-specific markers for better tissue stratification leading to more relevant gene expression analysis. Canopy has developed a catalog of markers for use in the GeoMx assay as well as the validation workflow for customer-specific markers. GeoMx is an essential tool for spatial biology research, and Canopy is a premier provider.



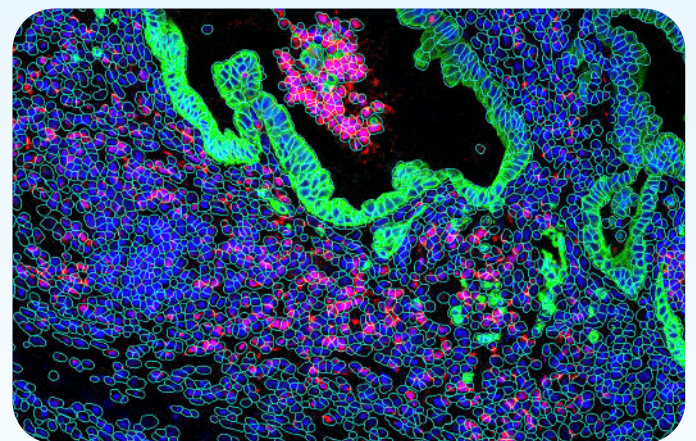
Zoomed in image of triple positive breast cancer sample scanned on the GeoMx with markers for Nucleic acid (blue), HER2 (green), Progesterone receptor (red), and Estrogen receptor (cyan).

COMING SOON

CosMx Spatial Molecular Imager (SMI) From NanoString

The CosMx SMI is the newest platform launched by NanoString for spatial biology analysis. This instrument allows researchers to understand different cell types, how they behave with one another, and how to interpret the biology of these interactions.

The CosMx allows you to comprehensively map single cells in their native environment and extract deeper biological insights with high plex panels. The single cell resolution enables cell typing, pathway analysis for cell state analysis, cell function and interactions. Canopy is the first CRO in North America with a CosMx so send your samples to us and we'll provide your lab with an end-to-end solution for single-cell spatial profiling projects.



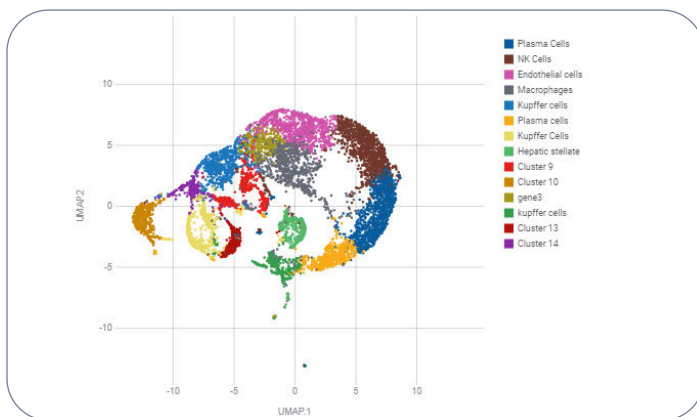
Cell segmentation using CosMx SMI.

Single-Cell RNA-Sequencing Using 10x Genomics® Chromium® X Series



The 10x Genomics Chromium X platform allows for single-cell transcriptome analysis profiling of up to tens of thousands of cells. Single-cell RNA-Seq provides comprehensive gene expression profiling of heterogeneous cells, including tumor and immune cells. This level of throughput for transcriptional analysis enables researchers to understand the characteristics of individual cells within a heterogeneous population.

Canopy's end-to-end single-cell RNA-Seq service offers unbiased single-cell transcriptome gene expression profiling and sequencing solutions. Through our partnership with Rosalind Bio, data analysis via ROSALIND allows for deeper insight from the data collected, including gene set enrichment, gene clustering, pathway interpretation, and publication-quality figures.



ROSALIND transforms the analysis of Single-Cell RNA-Seq with an end-to-end web-based experience for analysis, interpretation and collaboration. Interactive analyses of single cell clusters reveal biology of cells. UMAP plot provided by Rosalind Bio.

nCounter Gene Expression Profiling From NanoString



NanoString's nCounter platform is a powerful tool for differential gene expression analysis. With a full catalog of panels for immunology, oncology, neuroscience and other applications, researchers can analyze 800+ genes per sample with this simple hybridization and digital counting technology. Ideal for FFPE due to the probe design and amplification-free workflow, it is highly reproducible and has been extensively used for pre-clinical and clinical research.

Providing nCounter services for nearly a decade, our extensive expertise in this assay has allowed us to optimize starting material quantity and quality so we can run what limited or degraded material our clients have of their precious samples. With an analysis option using ROSALIND, we boast quick turnaround times, with sample-to-data in 2 weeks!



ROSALIND is our preferred platform for differential gene expression analysis for nCounter and RNA Seq assays. In each comparison, clients can access gene lists, gene details and pathway analysis. With dynamic visualization, clients can see gene-specific data across multiple outputs.



RNA Sequencing Using Illumina NovaSeq™ 6000



The workhorse of transcriptomic research, Canopy offers services for standard mRNA Seq, total RNA Seq and FFPE RNA Seq. We bring a collaborative approach, offering consultative discussion on sample type, library prep methodology and sequencing depth.

RNA Seq is a powerful tool to study the cells' transcriptomic profile, facilitating discovery of transcripts and differentially expressed genes that can be missed by microarray assays. Using ROSALIND for analysis, we can link changes in transcript abundance and biological impacts with pathway analysis. RNA Seq provides both transcript discovery and quantitation using the high throughput NGS method, allowing a better understanding of the mechanisms related with specific diseases and the drug response.



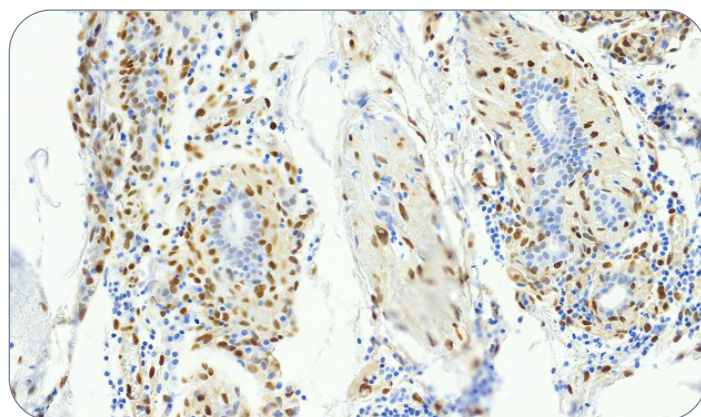
Each comparison has several key pieces of data and analysis available to assess differential gene expression all in a single view. Access pathway analysis from this screen to assess biological impacts of experimental changes.

Histopathology and Immunohistochemistry (IHC)



Canopy operates a CLIA-certified laboratory specializing in immunohistochemistry (IHC), histopathology and molecular analysis. Histopathology services include tissue processing, slide preparation, IHC staining, immunofluorescent (IF) staining, whole slide scanning, and slide review and tumor scoring by board-certified pathologists.

Our expert scientists process high-quality histology slides to evaluate antibodies-of-interest for specific and non-specific tissue reactivity. We can provide high quality results to support your projects, to accelerate your team's development work and to bridge the gap between preclinical and clinical applications.



Nuclear staining of phospho-STAT3 (Tyr 705) of a breast cancer sample, as phosphorylated STAT3 is the activated form of this transcription factor, which may play a role in malignancy of breast cancer and other tumors.



To learn more, visit CanopyBiosciences.com
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