

# SCALE YOUR SPATIAL DISCOVERIES WITH MOLECULAR BARCODING

## Flex Your Plex – From 10s to 100s of Biomarkers and Straightforward Assay Design

### MOLECULAR BARCODING: A REVOLUTIONARY APPROACH

- Uncovering spatial insights requires a technology capable of examining tissue with hundreds of biomarkers, without impairing tissue integrity, all while utilizing a simple assay design.
- Molecular barcoding is a revolutionary technology with virtually unlimited indexing potential, providing scientists with the scalability needed for spatial discovery studies.
- Exceed the constraints of limited plexity, harsh antibody stripping, photobleaching, dye inactivation and complex assay design associated with other technologies.

## Why Choose Molecular Barcoding?



### BREAK FREE FROM PLEX LIMITATION

- **No Species Constraints:** The flexibility to choose antibodies across multiple host species.
- **Marker Viability Confidence:** No epitope stability or cross-reactivity issues.
- **Unlock Hundreds of Biomarkers Instantly:** By design, molecular barcoding enables millions of unique combinations for virtually limitless plex.

### OVERCOME TISSUE DEGRADATION

- **Preserve Epitope Sensitivity:** Spare gentle epitopes from harsh stripping methods like heat and acid.
- **Avoid Epitope Loss:** Our gentle chemistry only removes the oligo, not the antibody.
- **No Harsh Stripping Required:** Molecular barcoding safeguards tissue integrity with gentle, isothermal processes even as you scale to higher-plex assays.



### CHOOSE STRAIGHTFORWARD ASSAY DESIGN

- **Efficient Discovery:** Escape inefficient cycles and seamlessly scale in plex by simply adding the markers you need into your assay.
- **Single-step to Scalable Discoveries:** Employ single-step staining with molecular barcoding, making antibody order irrelevant.

# SEE MOLECULAR BARCODING IN ACTION on PhenoCycler®-Fusion 2.0



FFPE



Fresh-Frozen



Disease Type



Human

Lung	Skin	Kidney	Thymus	Colitis	Adenocarcinoma
39-plex	55-plex	41-plex	12-plex	41-plex	101-plex



Non-human

Embryo	Brain	Olfactory Bulb	Liver	Glioma	Uveitis
27-plex	48-plex	14-plex	31-plex	41-plex	23-plex

## READY TO DESIGN YOUR OWN PANELS?

Explore Akoya's extensive antibody database, a dynamic and ever-growing resource designed to build your own panels.



350+ Antibodies



Multiple Species



100+ Phenotypes



30+ Tissue Types

Visit [akoyabio.com/phenocycler-antibodies](https://akoyabio.com/phenocycler-antibodies)

**Image credits for human samples:** (1) Ma Ning, et al. The Potential Predictive Role of Spatial Phenotyping in Non-small Cell Lung Cancer (NSCLC). Poster presented at: American Association of Cancer Research (AACR); April 14-19, 2023; Orlando, Florida. (2) Phillips, Darci et al. "Immune cell topography predicts response to PD-1 blockade in cutaneous T cell lymphoma." Nature communications vol. 12, 16726. 18 Nov. 2021. (3) Sabo, A et al. "Indiana University adapted Akoya PhenoCycler-Fusion Tissue Staining and Imaging Protocol for Fresh Frozen Kidney Samples V1." Protocols.io: Indiana University School of Medicine. (4) Stankiewicz, Laura et al. "Sex biased human thymic architecture guides T cell development through spatially defined niches" Pre-Print. 16 April. 2023. (5) Mayer, Aaron T et al. "A tissue atlas of ulcerative colitis revealing evidence of sex-dependent differences in disease-driving inflammatory cell types and resistance to TNF inhibitor therapy." Science advances vol. 9, 3 (2023); eadd1166. (6) Jhaveri, Niyati et al. "Mapping the Spatial Proteome of Head and Neck Tumors: Key Immune Mediators and Metabolic Determinants in the Tumor Microenvironment." GEN Biotechnology vol. 2, 5 (2023); 418-434.

**Image credits for non-human samples:** (1) Tsz H. Tam, et al. Spatio-temporal Phenotyping of Murine Embryos with Ultrahigh-plex Antibody Panels for Characterization of Early Development. Abstract: American Association of Immunologists (AAI); May 3-7, 2024; Chicago, Illinois. (2) Klymyshyn Dmytro, et al. Comparative Spatial Analyses of the Tumor Immune Landscape in Different Mouse Models of Glioblastoma. Poster presented at: American Association of Cancer Research (AACR); April 5-10, 2024; San Diego, California. (3) Mouse Spleen Akoya Applications Laboratory. (4) Rajesh, Adarsh, et al. PhenoCycler (CODEX) Ultra-high Plex Single Cell Imaging of the Liver Immune Landscape to Understand the Effect of Aging and High Fat Diet on development of Hepatocellular Carcinoma. Poster presented at: American Association of Cancer Research (AACR); April 8-13, 2022; New Orleans, Louisiana. (5) Kiya W. Govek et al. Single-cell transcriptomic analysis of mIHC images via antigen mapping. Sci. Adv.7,eabc5464(2021). (6) Woolsey, Courtney. Presentation: Spatial Phenotyping: Rapid, Comprehensive Phenotyping for Immune Disorders. Association of Cancer Research (AACR); April 5-10, 2024; Washington, DC.

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