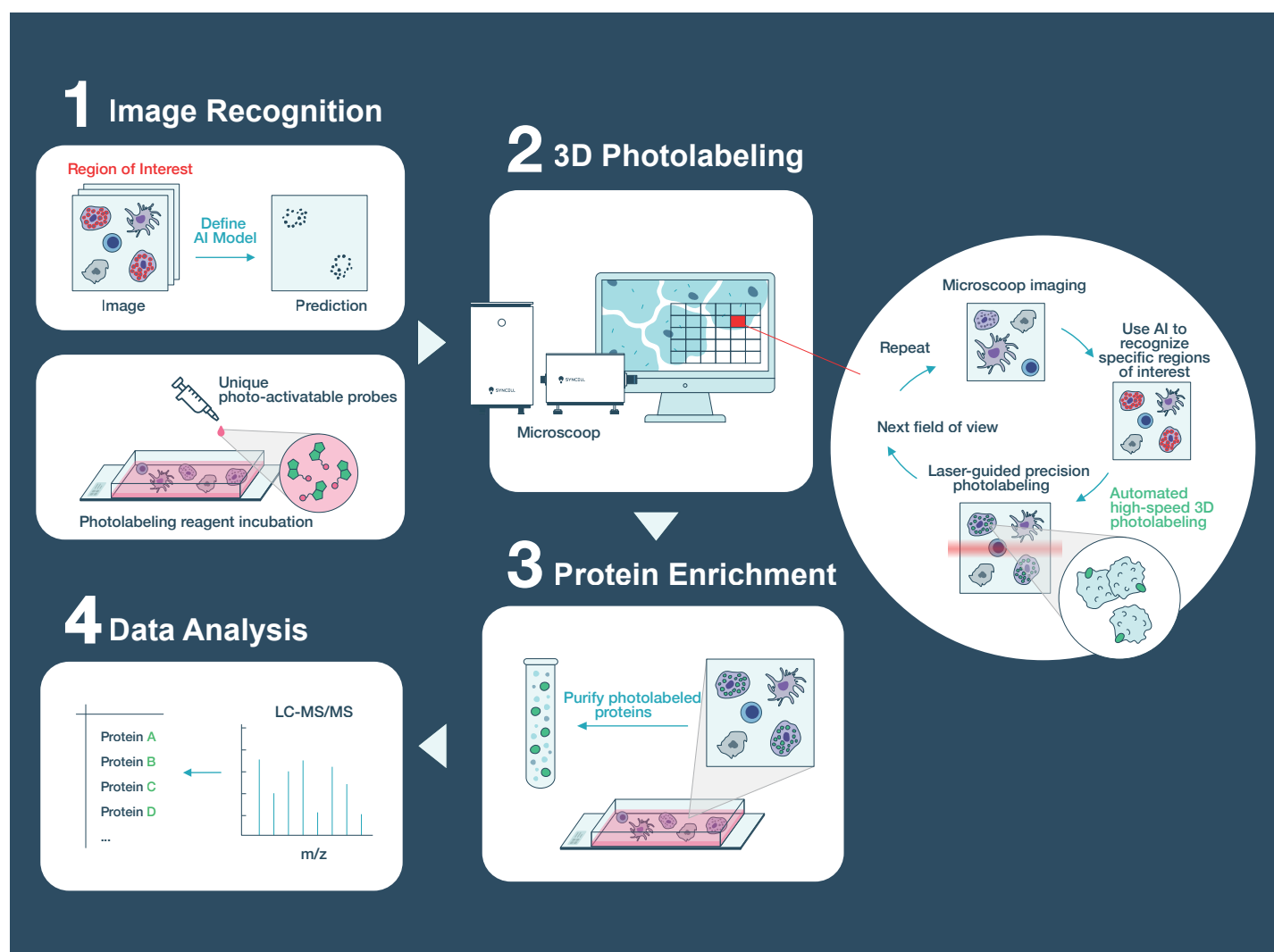


# Illuminating Spatial Proteomics

Use Microscope™ to reveal unknown subcellular and organelle proteomes from cell and tissue samples.

## Product Features

- Microscope is an integrated system that uses high precision photolabeling to “scoop” up specific subcellular regions and capture the desired proteome information.
- Microscope mechatronics controls the high speed pattern recognition and illumination to collect proteins from tens of thousands of individual cells within a few hours.
- AI-assisted model is capable of recognizing subcellular targets with higher accuracy than using conventional computer vision processing alone.
- With specific photoactivatable probes, Microscope can perform multi-omics analysis from the same specimen.



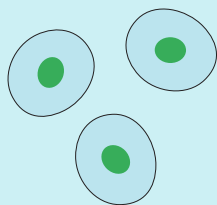
**Figure 1. Microscope Workflow for De Novo Spatial Proteomics.** Step 1: Cells or tissue sections are imaged first to generate a scanning pattern by AI. Step 2: Sample is immersed in a photoactivatable probe solution and two-photon pattern illumination triggers protein labeling in the target areas. Step 3: Labeled proteins are extracted from the samples. Step 4: Purified proteins are analyzed by LC-MS/MS to obtain the proteome data.



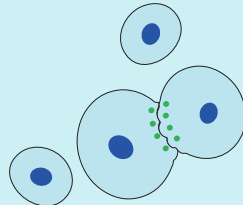
# SYNCELL

## AI-based Image Processing

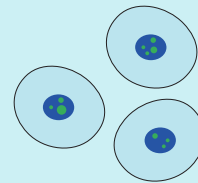
Applicable to subcellular and cell-type-specific recognition



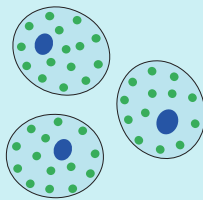
Organelle: Nuclei



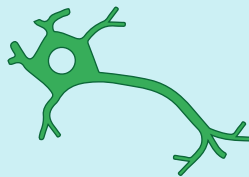
Organelle: immune synapses



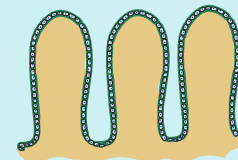
Organelle: Nucleoli



Organelle: Stress granules



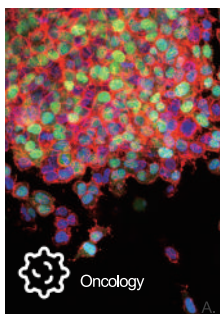
Tissue-specific cell types



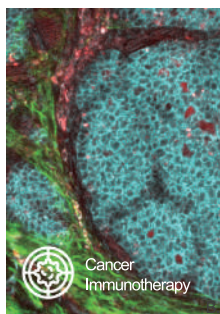
Tissue topology

**Figure 2. Use AI to Recognize Specific Regions of Interest.** The AI algorithm will direct pattern recognition of selected subcellular structures or celltypes and guide Microscoop to perform 3D photolabeling of location-specific patterns automatically. Examples of regions of interest illustrated here include nuclei, immune synapses, nucleoli, stress granules, neurons, and microvilli.

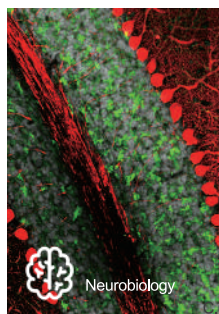
## Application Areas



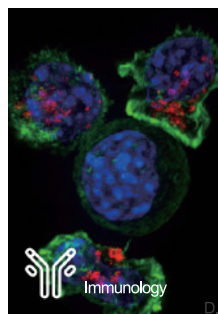
Oncology



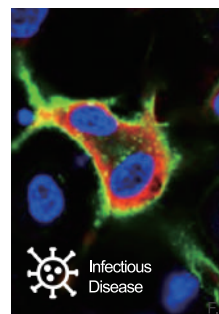
Cancer Immunotherapy



Neurobiology



Immunology



Infectious Disease



Developmental Biology

**Figure 3. Broad research and clinical applications.** Microscoop technology has immediate applications in oncology, cancer immunotherapy, neurobiology, immunology, infectious disease and developmental biology. Figure A, B, D, F image credit: National Cancer Institute. Figure E image credit: Zhou et al., 2020.

Website



Real-time  
Microscoop™  
experiment



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