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**NanoString GeoMX Digital Spatial Profiler**

-The GeoMX Digital Spatial Profiler is used to spatially resolve RNA (whole transcriptome) or proteins (up to 96) within multiple regions of interest (ROIs) on FFPE or FF tissue sections.

-ROIs can be defined by first staining the tissue sections with antibodies (morphology markers) that identify various tissue compartments or cell types of interest.

-This allows in-depth NGS-based analysis of transcriptomic profiles in specific cell populations with morphological and spatial context.

**Scheduling a Consultation**

-Researchers interested send email to the Core.

-A REDCap Service Request form is completed with details about your project.

-We review if the researcher is ready; discuss number and type of samples, targets of interest (RNA/protein), morphology markers, selection strategies for ROIs, workflow, timelines, and general overall costs. Please allow yourself enough time for planning before starting your project.

**UAB SPATIAL Core Workflow**

<https://redcap.link/uabspatialcore>

**A**

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graph TD
    A[User Completes REDCap Project Intake Form] --> B[SPATIAL Core Zoom Kickoff Call]
    B --> C{Proceed with Project?}
    C -- No --> D[User Purchases Reagents from NanoString]
    D --> E[Pathology Core Creates Slides in GeoMX Format]
    E --> F[SPATIAL Core Performs QC Run]
    F --> G[SPATIAL Core Collects ROI]
    G --> H[Genomics or NanoString Core Quantifies Analytes]
    H --> I[SPATIAL Core Maps Analyte Data to Original ROI]
    I --> J[User Receives Copy of Spatial Profiling Data]
    J --> K[Data Sciences Core or User Preference for Data Analysis]
    K --> L[SPATIAL Core Zoom Kickoff Call]
    L --> B
  
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**B**

1 Stain: Protein (Antibodies), RNA (Probes). 2 Select ROI: Define ROIs on tissue section. 3 UV-Cleave & Collect: Collect RNA/protein from ROIs. 4 Dispense: Add barcodes. 5 Barcode Count: Analyze on nCounter or Illumina.

**C**

Before segmentation: A tissue section with multiple ROIs outlined in white. One ROI is labeled '006'.

**D**

After segmentation: The same tissue section as C, but the ROI '006' has been segmented into smaller, distinct regions. Labels: Nuclei (blue), PanCK (green), Endothelium (red).

**A) UAB SPATIAL Core workflow. B) GeoMX DSP workflow. C, D) Images of ROIs before (C) and after (D) segmentation. Images by Michael Seifert MD, Miguel Melendez-Ferro PhD, Ahmad Mohammad BS.**

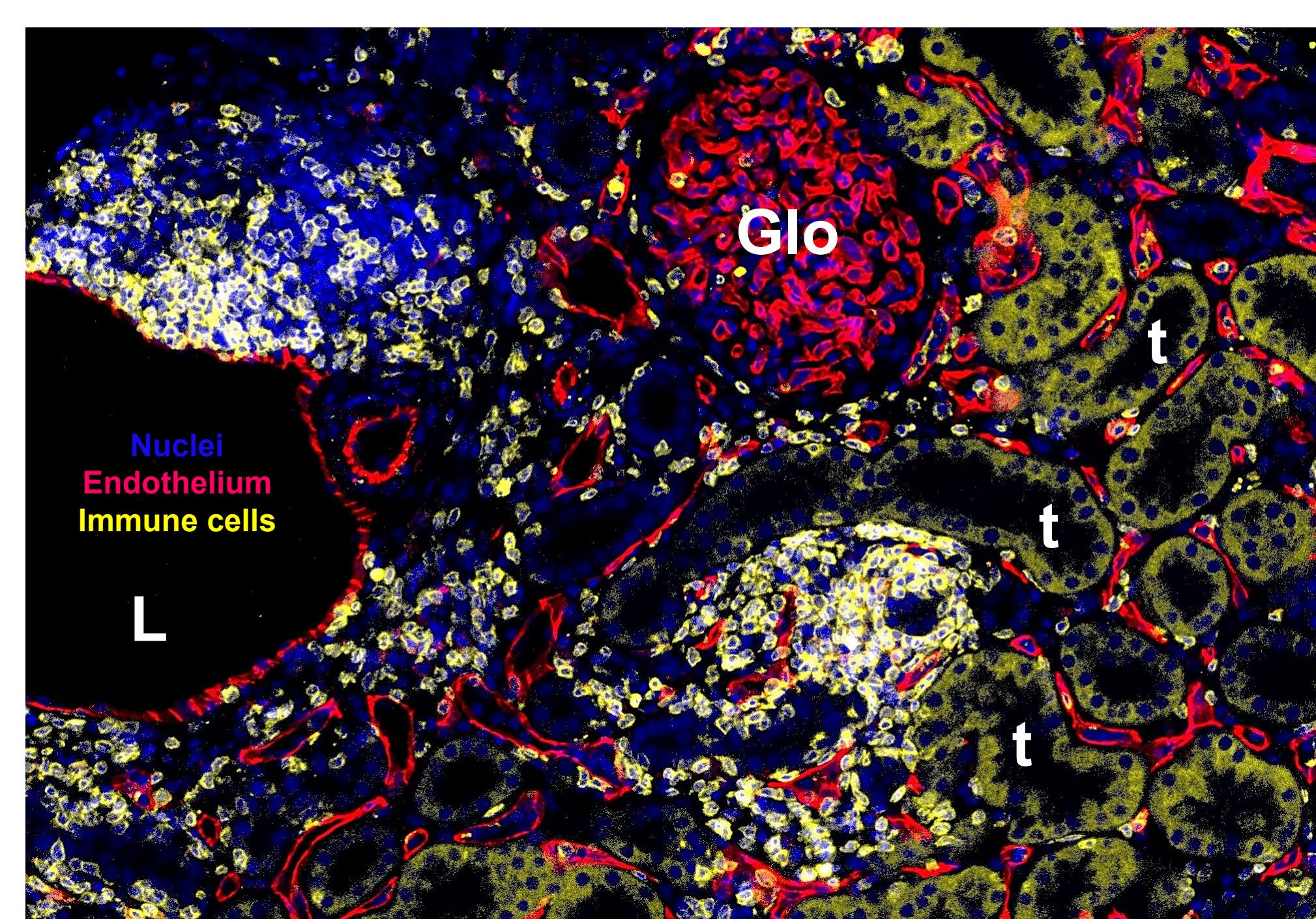


Image of a human renal biopsy.  
Image by Michael Seifert MD, Miguel Melendez-Ferro PhD.  
Glo: glomerulus; L: lumen; t: tubules

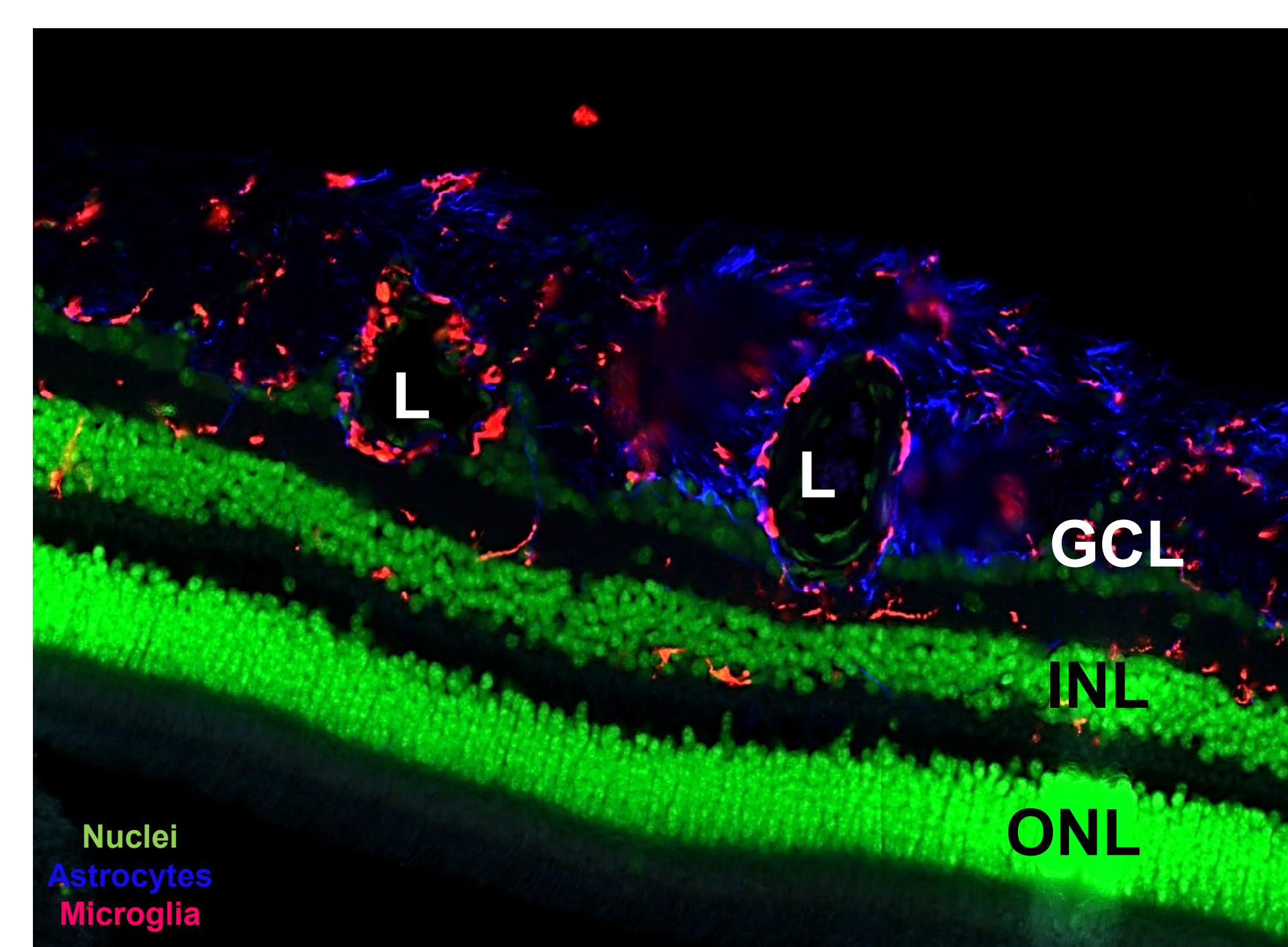
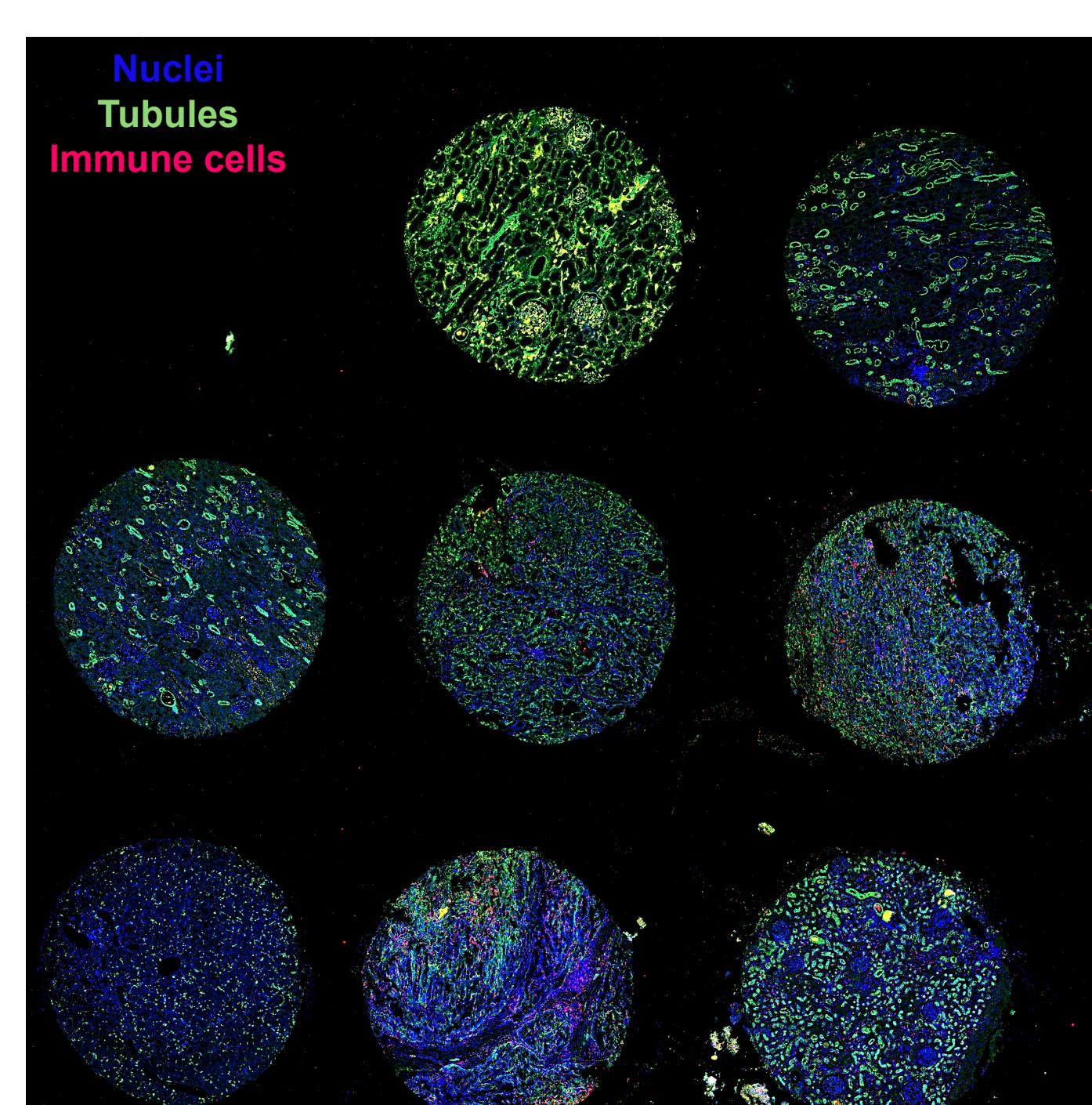
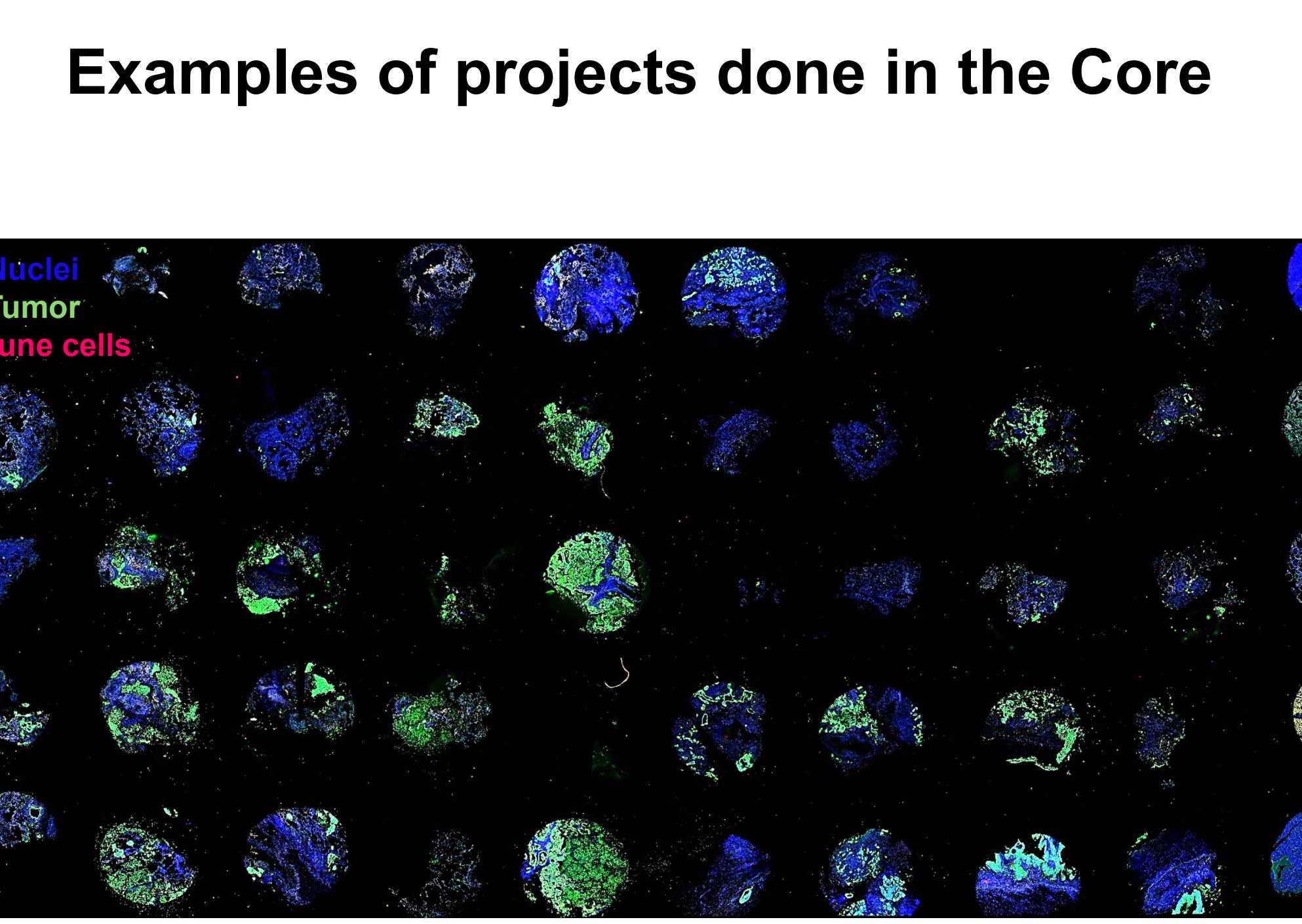


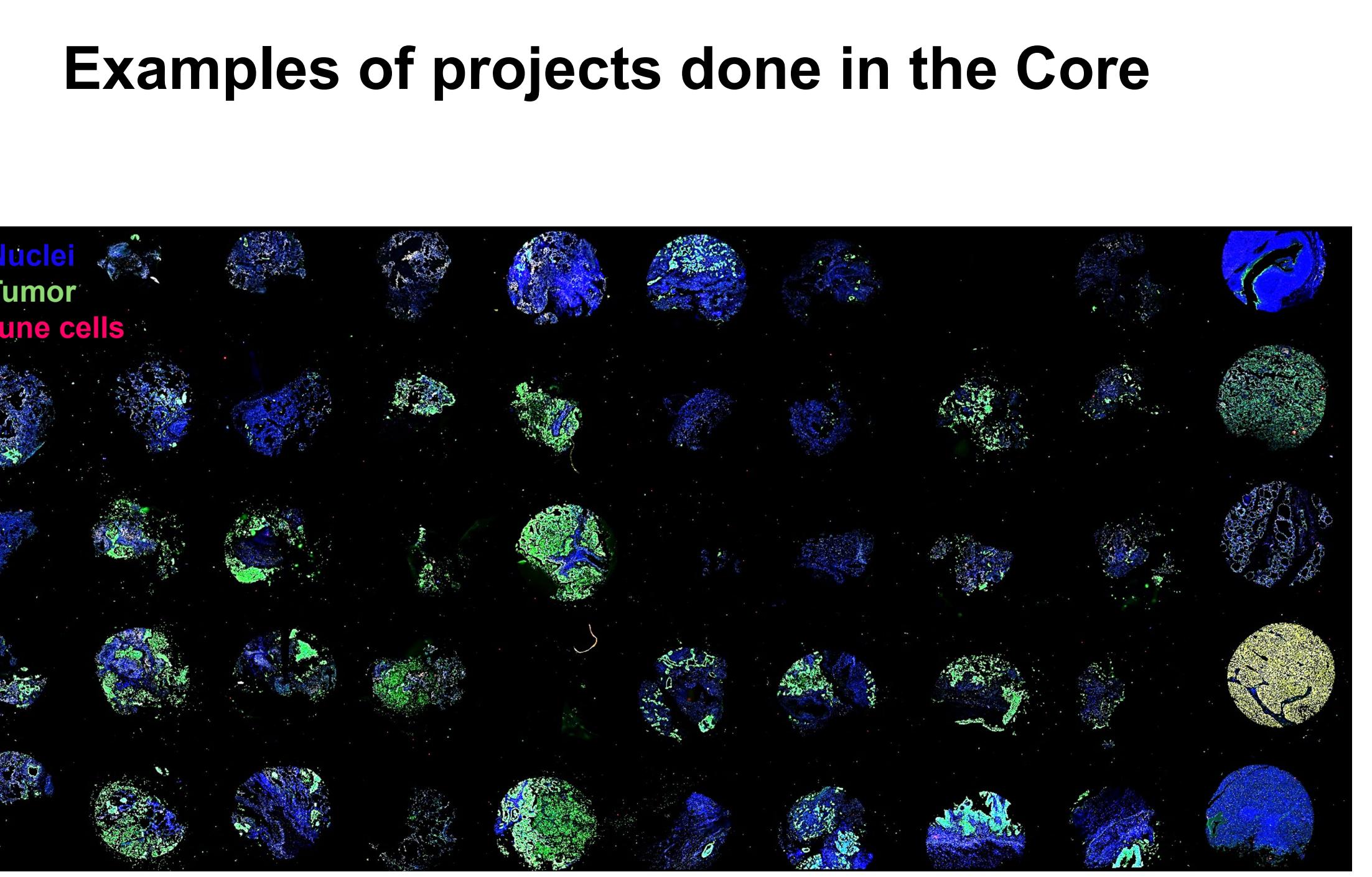
Image of the human retina.  
Image courtesy of Alecia Gross PhD, McKenna Somerville BS, Ryan Strickland BS.  
GCL: ganglion cell layer; INL: inner nuclear layer; L: lumen; ONL: outer nuclear layer



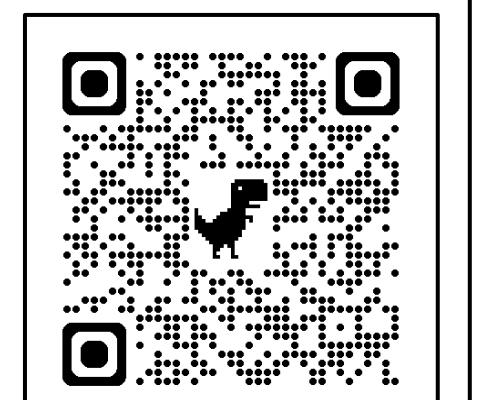
Tissue micro arrays showing different stages of human renal cancer.  
Image courtesy of Lyse Norian PhD, Francesca Dempsey BS



Tissue micro arrays showing different stages of human lung cancer.  
Image courtesy of Jessy Deshane PhD, Kayla Goliwas PhD



Scan QR code for more information



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