Digital Pathology Capabilities

WHOLE SLIDE IMAGING CAPABILITIES

- Scanner for Brightfield Imaging: Leica Aperio AT2
- Scanner for Fluorescent Imaging: Akoya PhenoImager HT 2.0
- Magnification: 20x (500nm/pixel) or 40x (250nm/pixel)
- Easy image viewing with online hosting via Proscia-Concentriq

DIGITAL IMAGE ANALYSIS

- Custom and Al-assisted algorithms enable flexible analysis of complex phenotypes and anatomical features
- Extensive experience with analysis of histological special stains and molecular stains in a wide range of tissues
- Brightfield and fluorescent image analysis capabilities
- Visiopharm[®] analysis software
- Pathologist oversight on all analyses
- Evaluation of whole slide images eliminates field of view (FOV) bias
- Annotation of regions of interest (ROI) allows targeting of specific anatomic features for analysis

DIGITAL IMAGE ANALYSIS: ESTABLISHING REGIONS OF INTEREST (ROIs)

We leverage the power of whole-slide imaging to analyze entire tissue sections, defining Regions of Interest (ROIs) with precision. Our approach combines advanced computer-assisted algorithms with expert manual tracing to ensure accurate and comprehensive analysis. This is exemplified in our liver analysis, where we identify distinct ROIs: the entire liver (green), areas near central veins (red), and regions near portal veins (blue). Additional examples include lung and kidney segmentation of distinct anatomic regions.

COMMON QUANTIFICATION PIPELINES

- Necrosis or Apoptosis
- Neovascularization
- Biodistribution / Expression
- Colocalization
- Dose responseAAV targeting
- Transgene expression
- Disease
 morphology

analyze. answer. advance.

- Immune cell response
- Fibrosis
- Lipid
- Cell activation
- Cell morphology
- Cell expression

REGIONS OF INTEREST

- Veterinary Anatomic Pathologist oversight
 on all hand drawn and AI-generated ROIs
- Examples of ROIs
 - Whole tissue (all tissue on slide)Separate ROIs for each section on slide
 - (i.e. 6 brain sections/slide = 6 ROIs/slide)
 - Anatomical subregions



Lung (IHC Image)

Airways / Vessels Pulmonary Parenchyma

Kidney (PSR Image)



Examples of quantitative endpoints

analyze. answer. advance

AREA-BASED EXAMPLES



Protein Accumulation Quantification Input Image



Image Analysis Output



DAPI 📕 Amyloid Beta Plaque 📕 Extravascular Fibrinogen 📕 Intravascular Fibrinogen

CELL-BASED EXAMPLE

Hippocampal Cell Classification Input Image



OBJECT-AND MORPHOLOGY-BASED ANALYSIS EXAMPLE

We can analyze and characterize structures within tissues, classifying them based on specific criteria and extracting key morphological features.



