

SYSTEMS MEDICINE, DIGITAL TWINS & AI

Metabolic Inflammation and Carcinogenesis of the liver



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AI-based Spatial Mapping of Metabolic Inflammation in Liver Disease

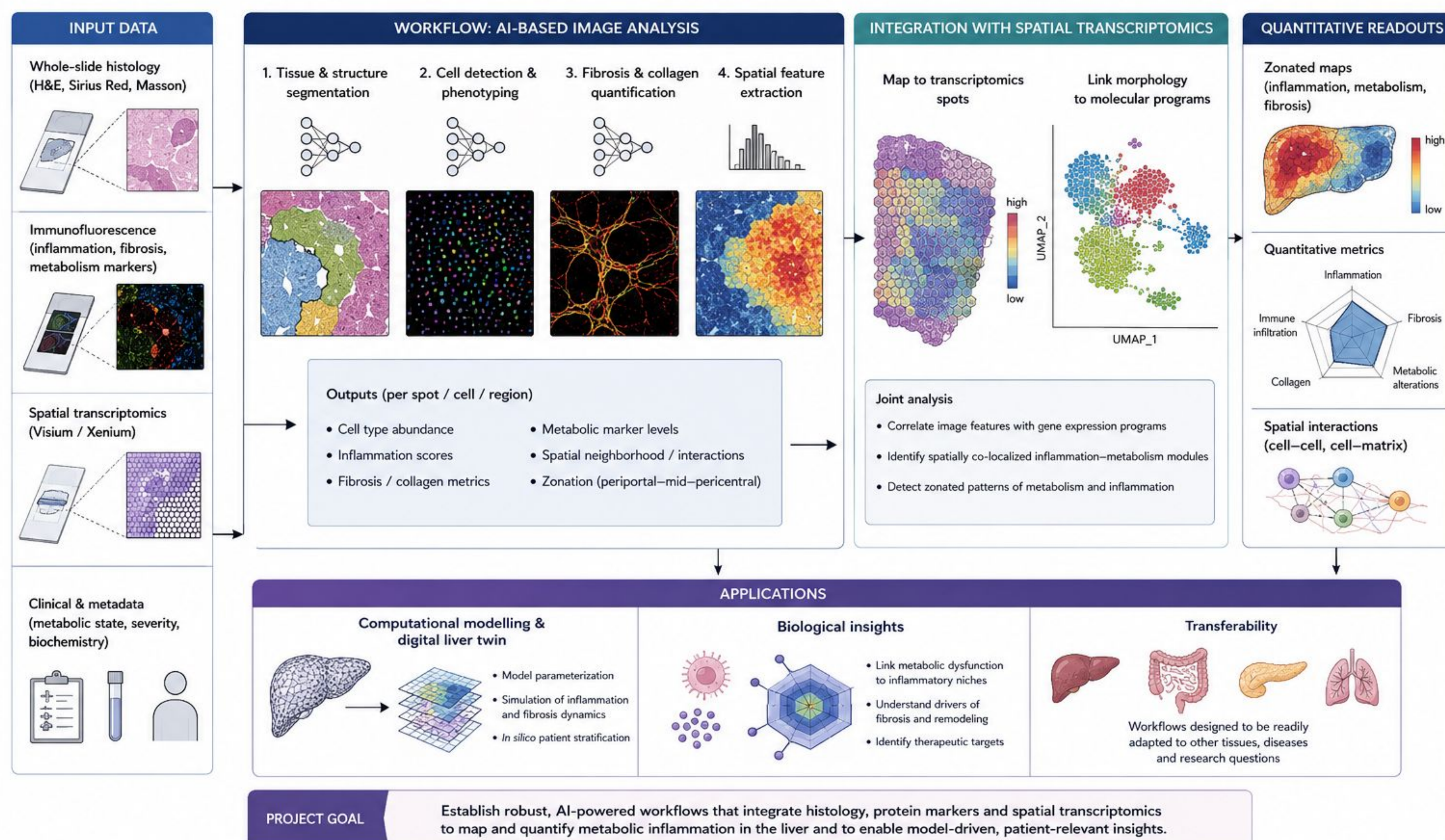
1. OUR TOPICS



2. YOUR PROJECT

AI-based spatial mapping of metabolic inflammation in liver disease

Integrating histology, immunofluorescence and spatial transcriptomics to quantify inflammation, metabolic alterations and fibrosis for modelling



You will develop AI-driven, multimodal workflows to map how metabolism, inflammation, fibrosis, and liver architecture interact in space – and translate these patterns into quantitative digital liver models.

- **Spatial mapping:** Quantify immune infiltration, fibrosis, collagen remodeling, vessels, lobules, and metabolic zonation in whole-slide images.
- **Multimodal integration:** Combine histology, immunofluorescence, and spatial transcriptomics to link tissue morphology with molecular programs.
- **AI & reproducibility:** Develop FAIR, open, and reproducible workflows for segmentation, feature extraction, and spatial analysis.
- **Digital liver twins:** Convert image-derived spatial features into model-ready descriptors for computational disease models and patient-relevant digital twins.

3. OUR LAB

We build open, FAIR **digital twins** of human physiology – AI-powered models that predict disease and therapy, patient by patient.



What if every medical model served you, not the average – and belonged to everyone?



Gefördert durch:



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