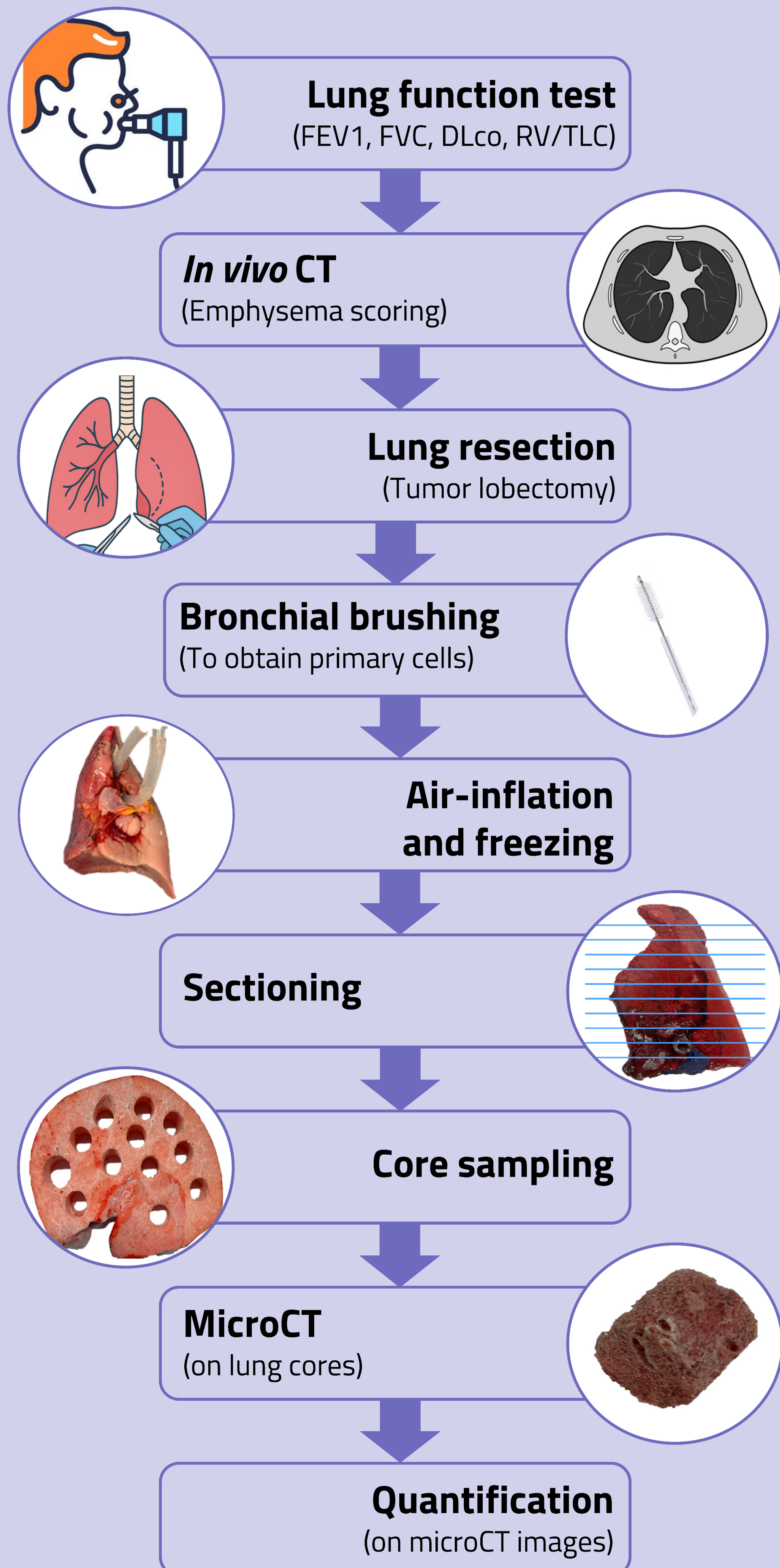
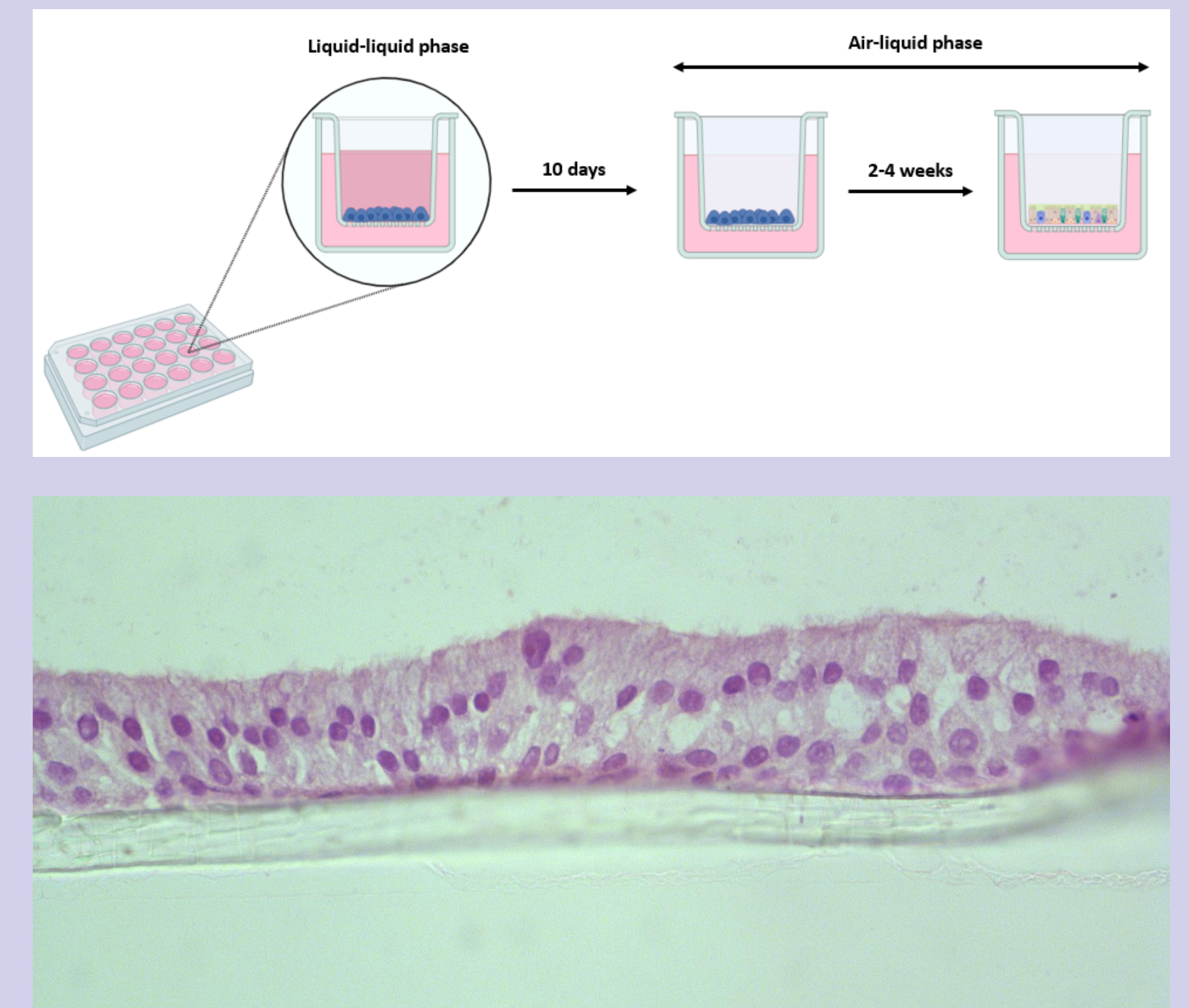


STUDY OF THE AIRWAYS IN CHRONIC LUNG DISEASES



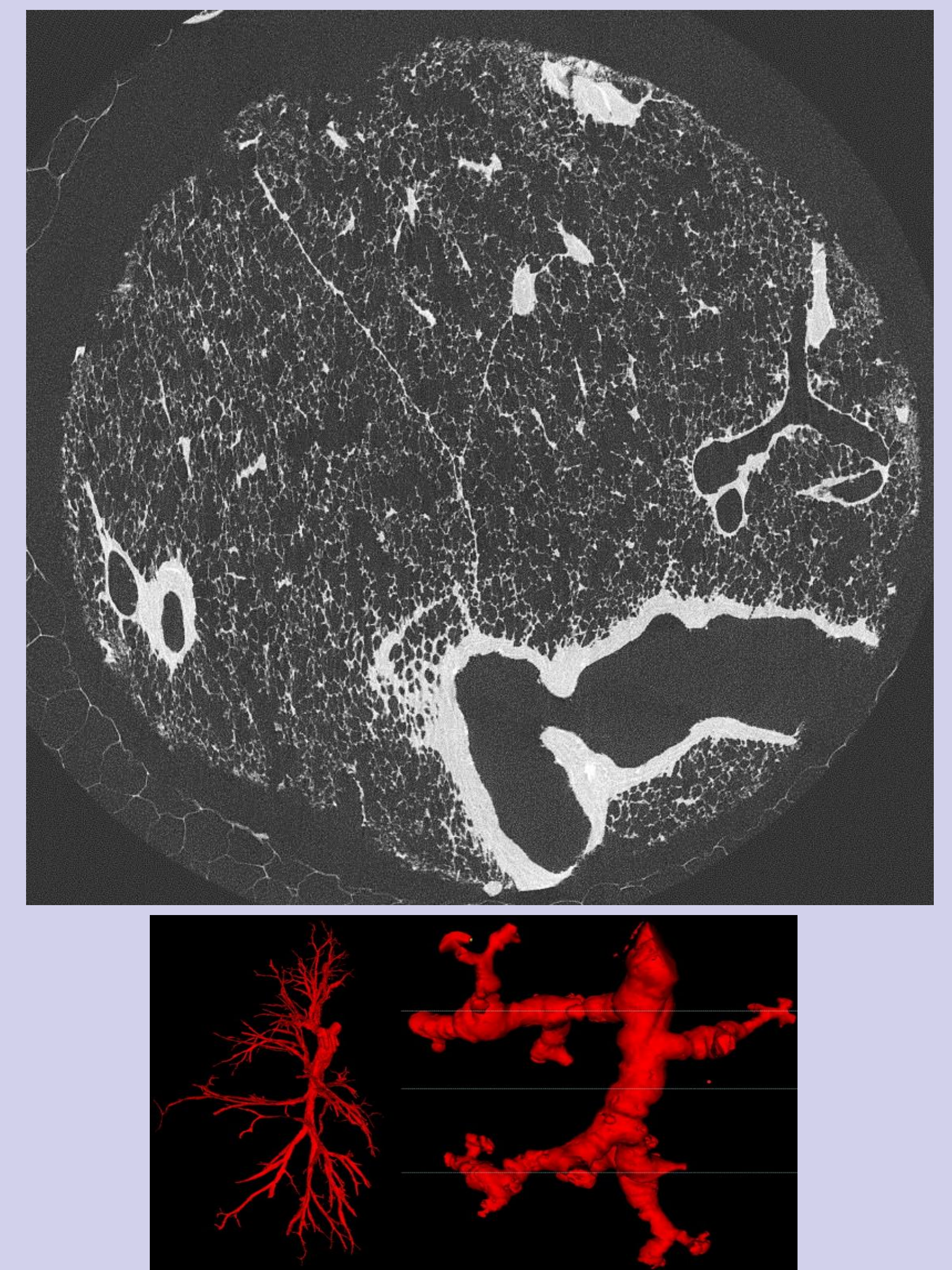
PROJECT 1 (mentor Hanne Voet) : *Investigate the (pre-)COPD bronchial epithelium in vitro*

- Development of a **human cell model**: 3D air-liquid interface cell culture model using primary airway epithelial cells
- Assessment of **mucin & cytokine** expression and abundance in response to triggers
- **Cell culture, biochemical and molecular techniques**: qPCR/sequencing, ELISA, immunofluorescent stainings, etc



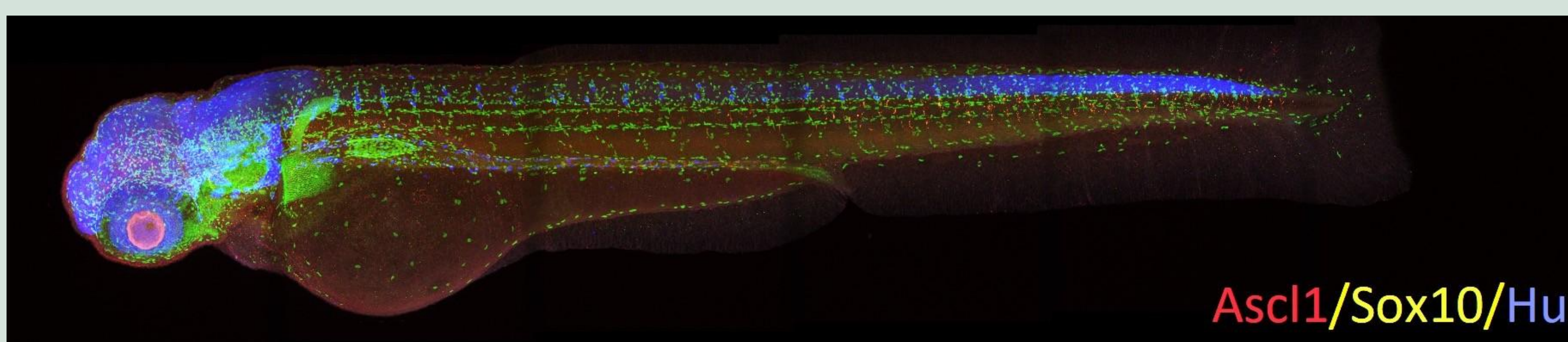
PROJECT 2 (mentor Thibo Verheyen) : *Visualize airways and vasculature in chronically diseased lungs*

- **Human lung tissue** processing
- Detailed **clinical characterization** through questionnaires, lung function tests and CT
- **(Micro)CT** → computer-guided semi-automatic segmentations
- **Synchrotron** image processing
- **Histology & immunohistochemistry**
- **Linking clinical data with high-resolution lung imaging** for better understanding of COPD disease stages



Objective: To unravel the morphological changes and pathobiological mechanisms of lung diseases such as pulmonary fibrosis and chronic obstructive pulmonary disease (COPD)

DIFFERENTIATION OF ENTERIC NEURONS IN ZEBRAFISH

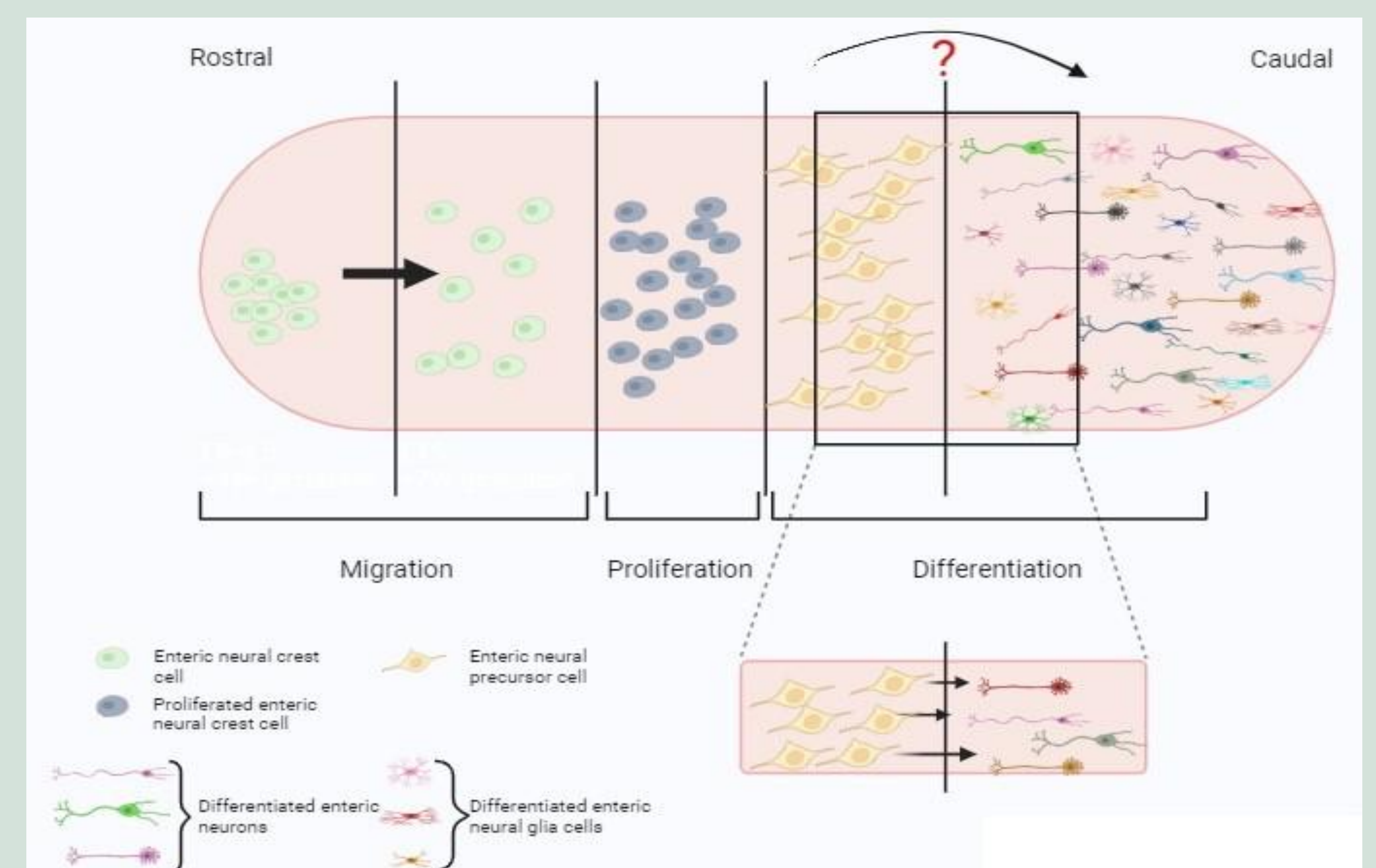


① Visualize neuronal subtypes

- Identification neuronal subtypes
- Spatiotemporal expression profiles of target genes
- Correlation between targets and enteric precursors/neurons
- Neuron quantification
- Immunofluorescence, RNAscope

② Study gene functions in ENS development

- Identification involved genes in ENS development
- Knock-out & knock-down zebrafish models
- Morpholino-injections
- Housing WT, mutated, MO-injected zebrafish lines
- Breeding and maintenance



Objective: To unravel the key elements involved in enteric neuronal differentiation – thereby aiding therapy development for enteric neuropathies