

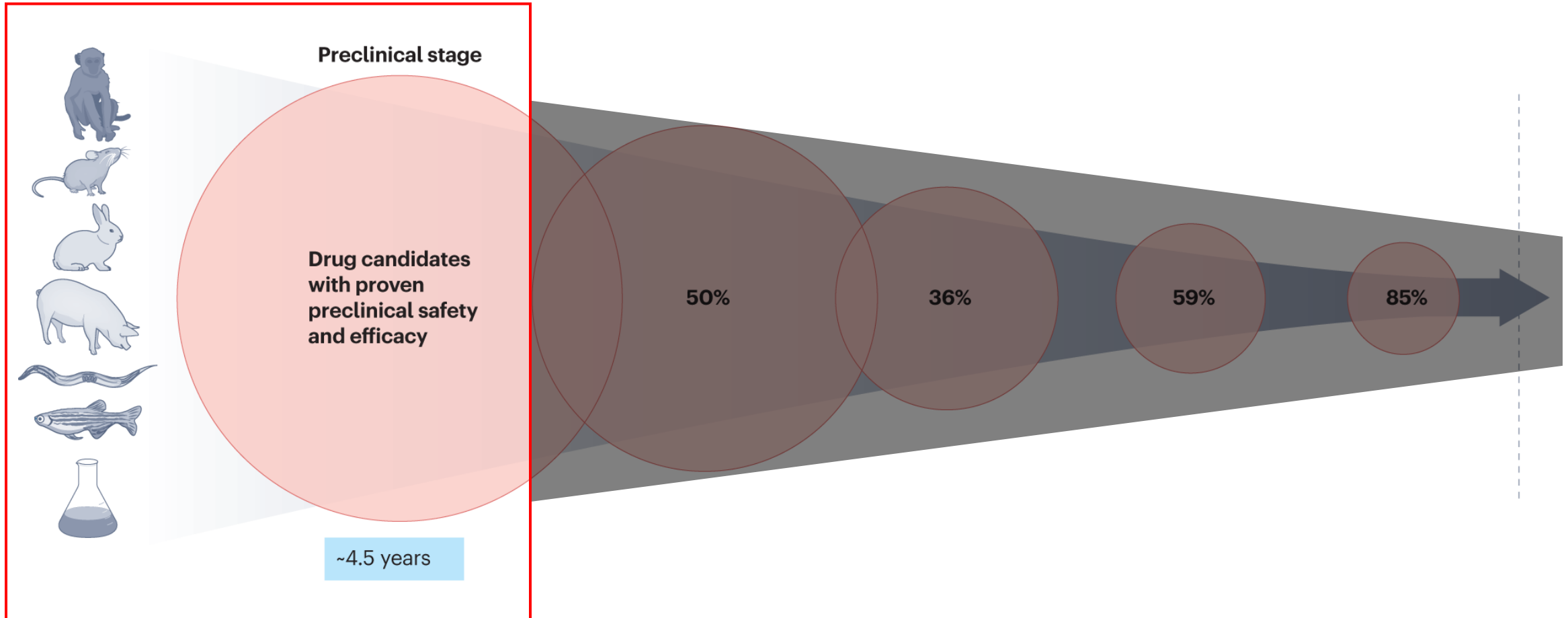
# Optimized 3D Explants for Ex Vivo Precision-Cut Tissue Slices: A Novel Platform for Drug Discovery and Personalized Medicine

Hermon Girmatsion

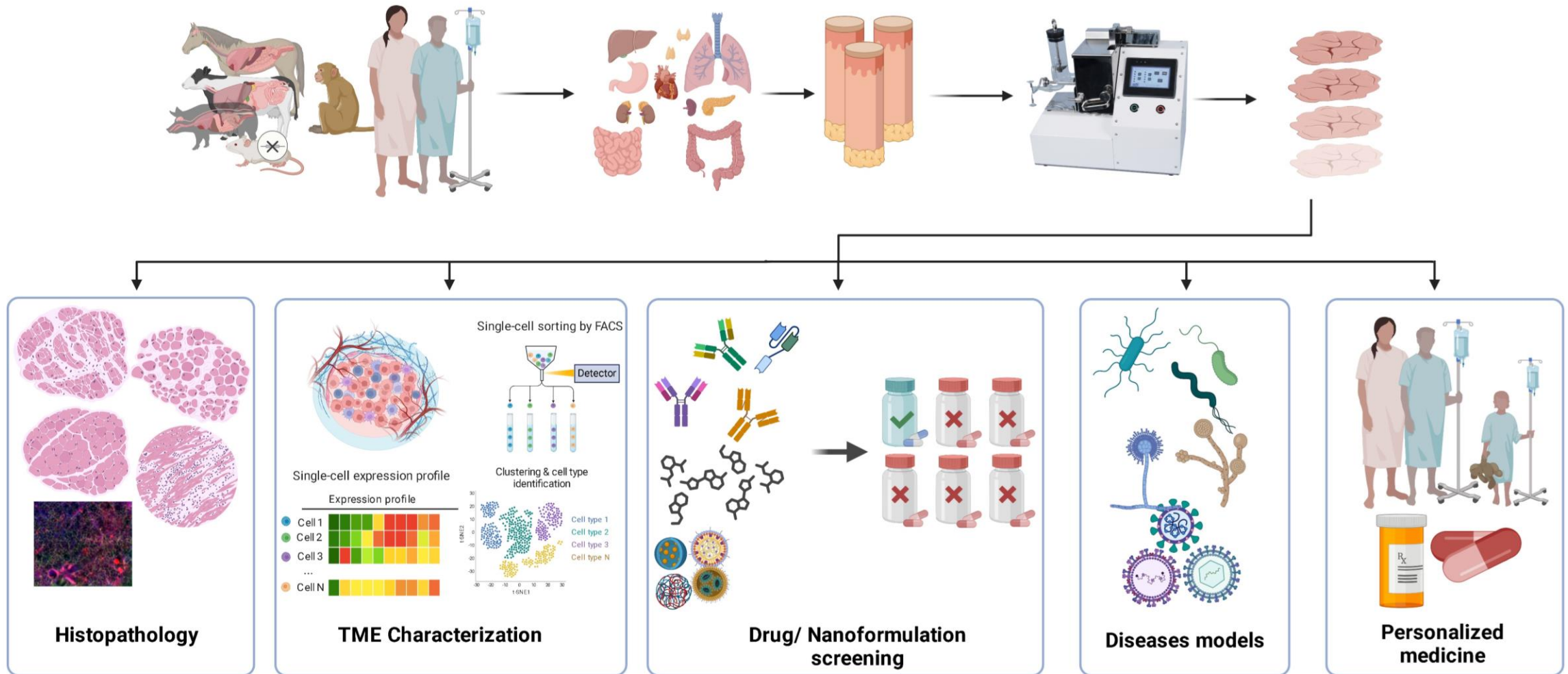
**KU LEUVEN**



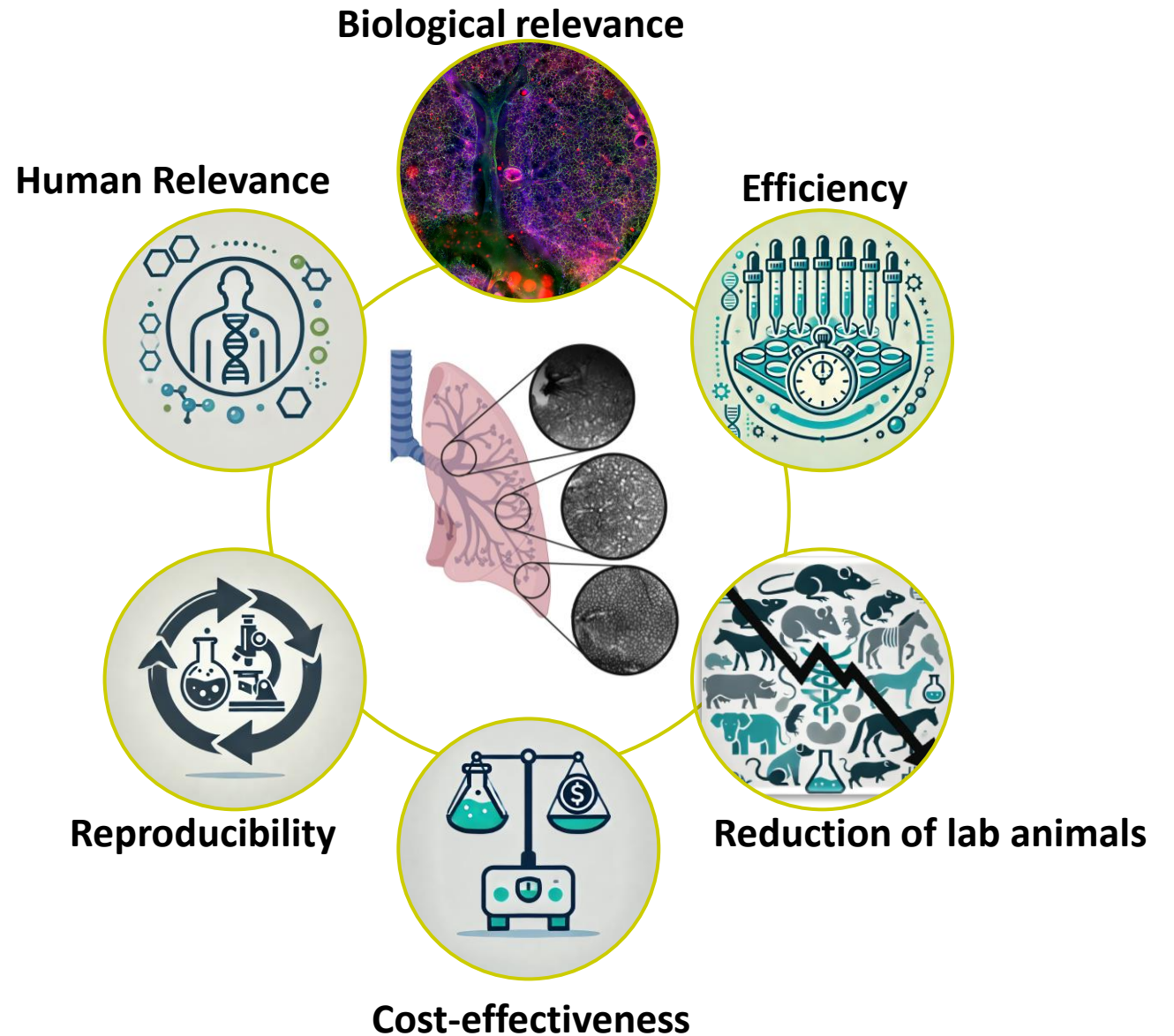
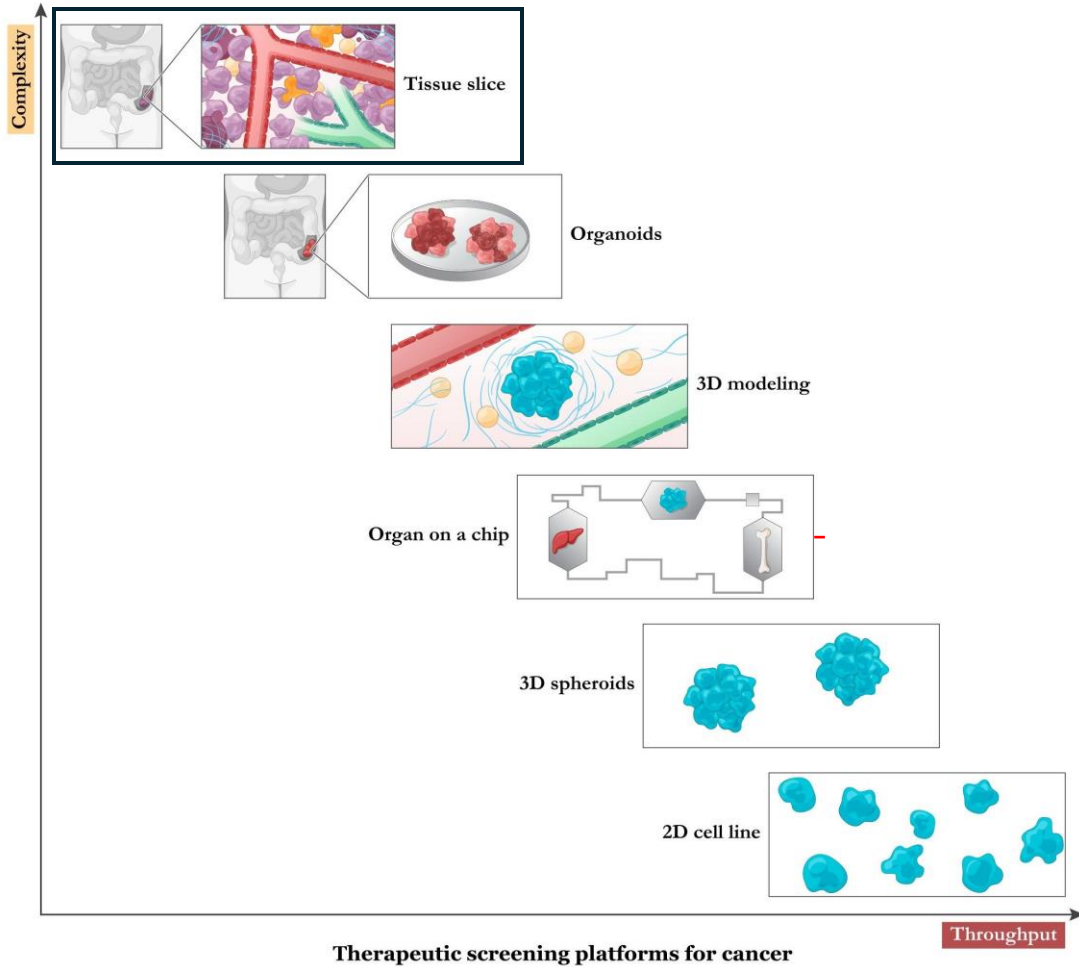
# Drug Development Pipeline: Success Rates and costs



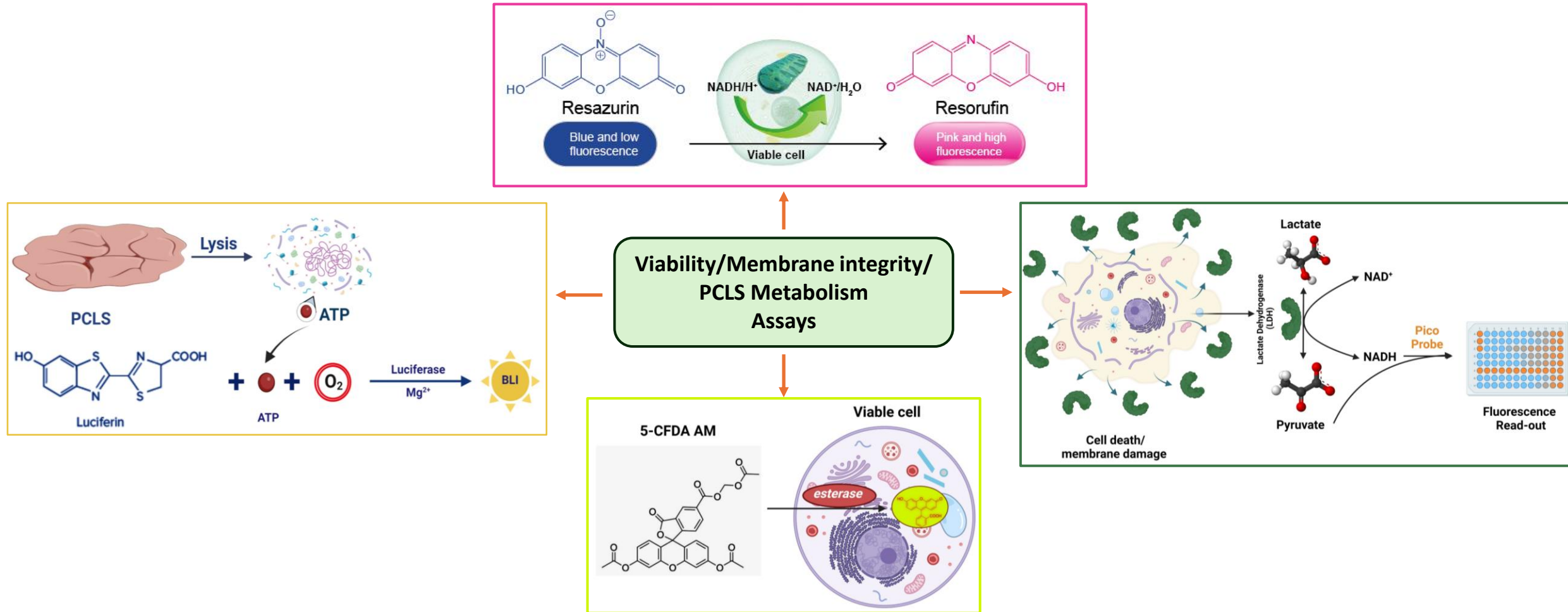
# PCTSs promising *ex-vivo* 3D models



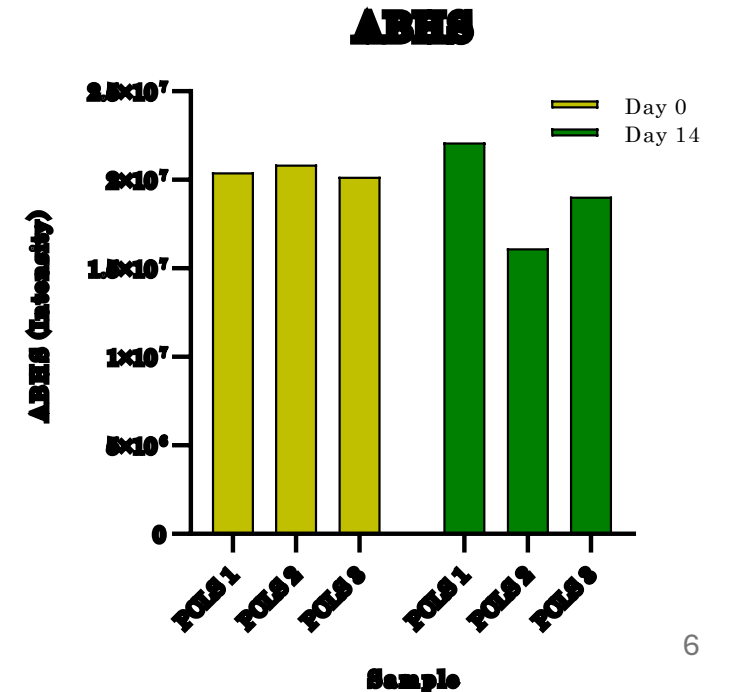
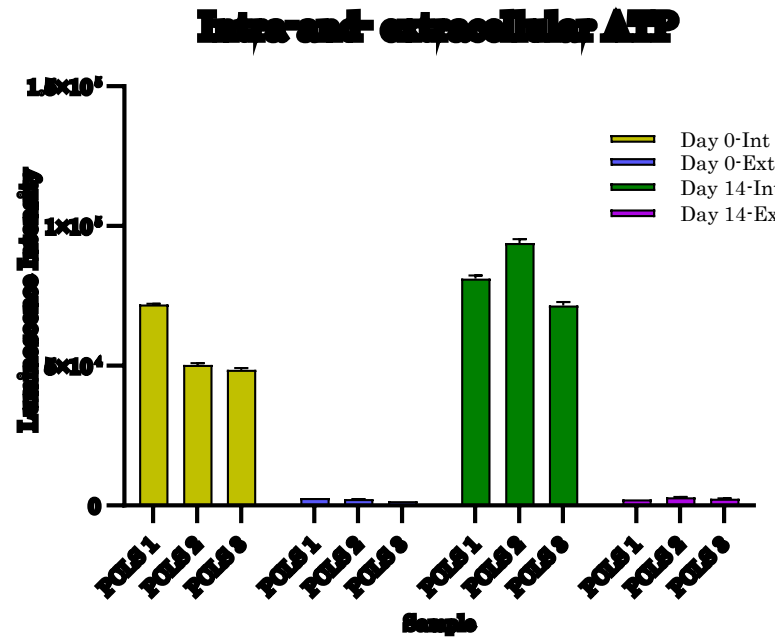
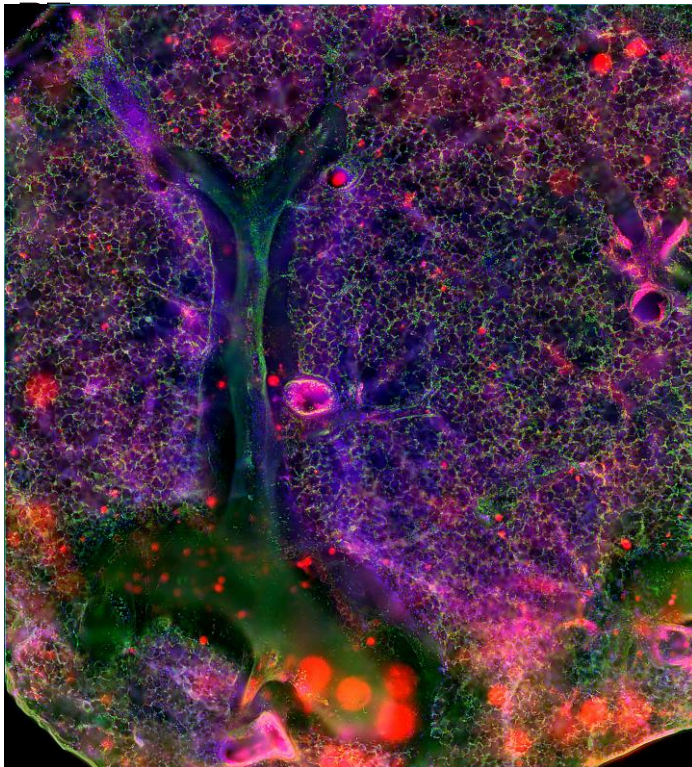
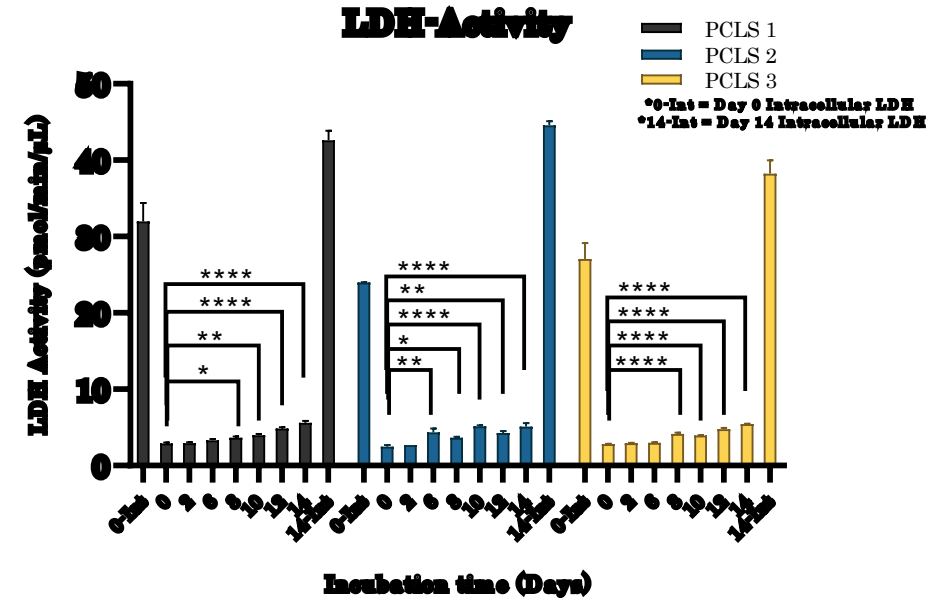
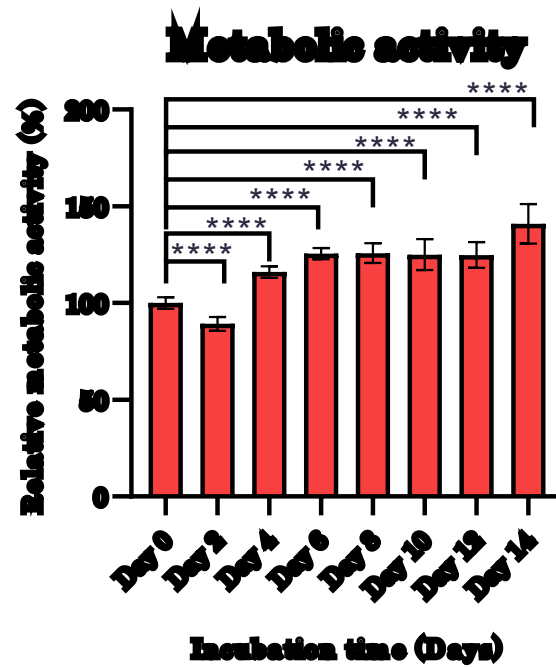
# Key Features of PCTS



# Validation of the long-term viability of PCLS

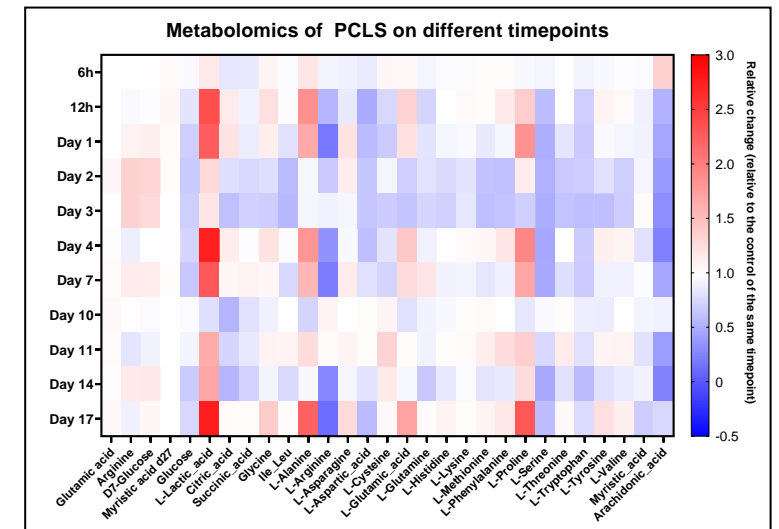
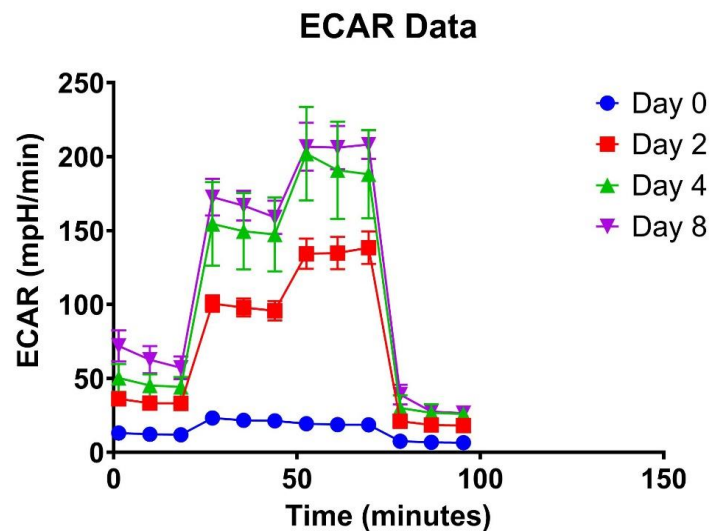
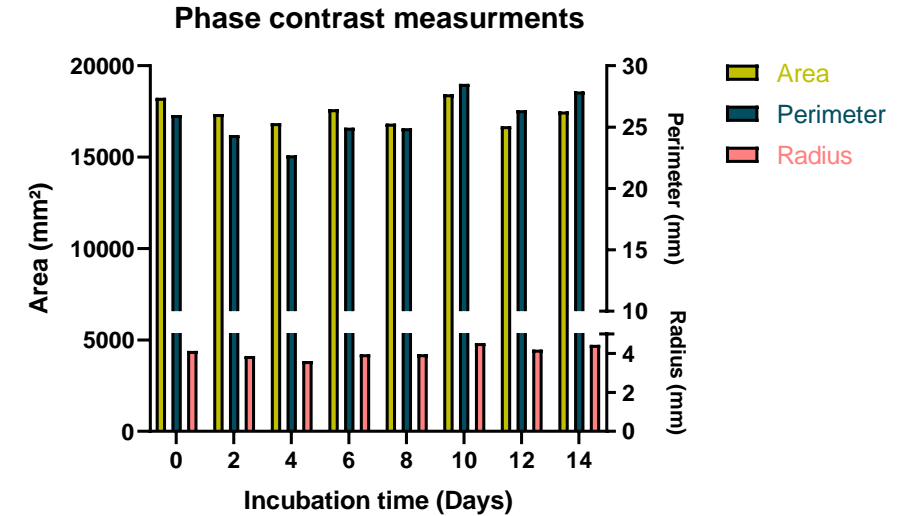
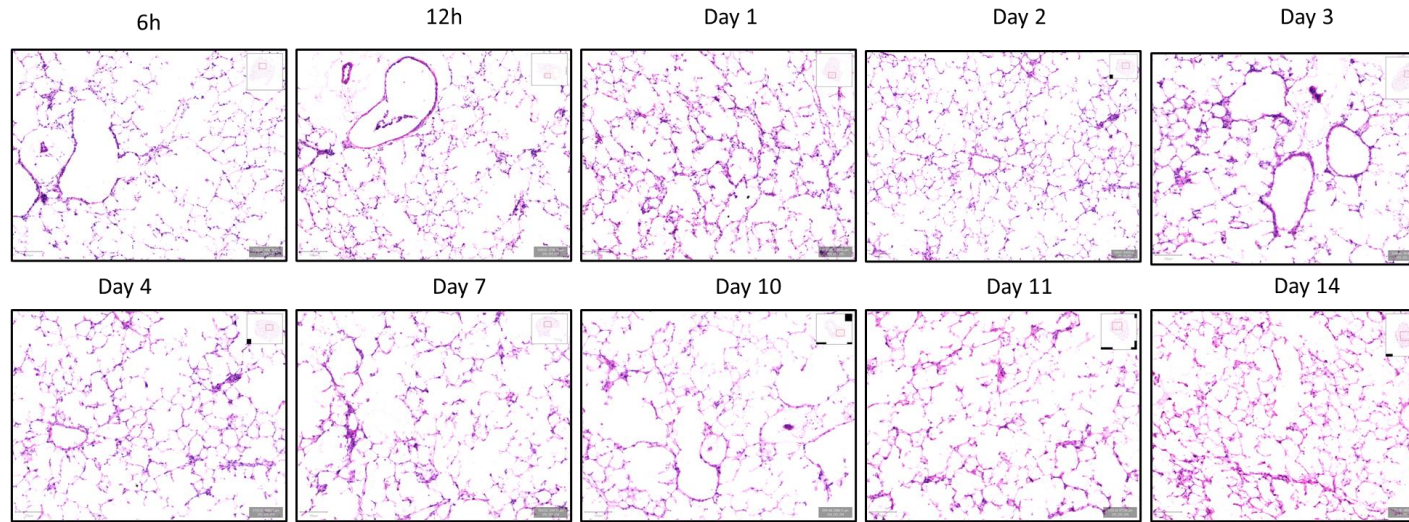


# Validation of the long term viability of PCLS



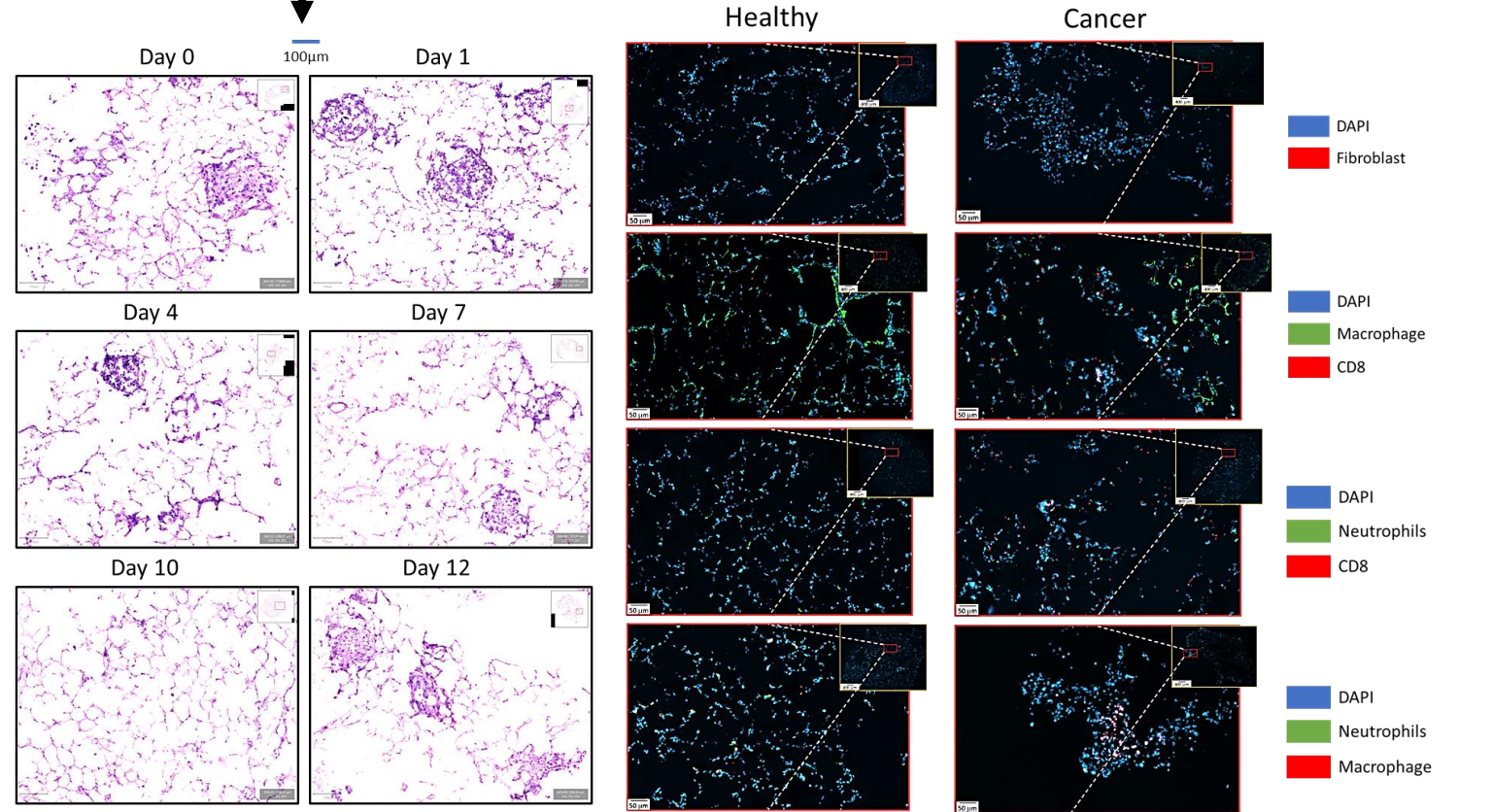
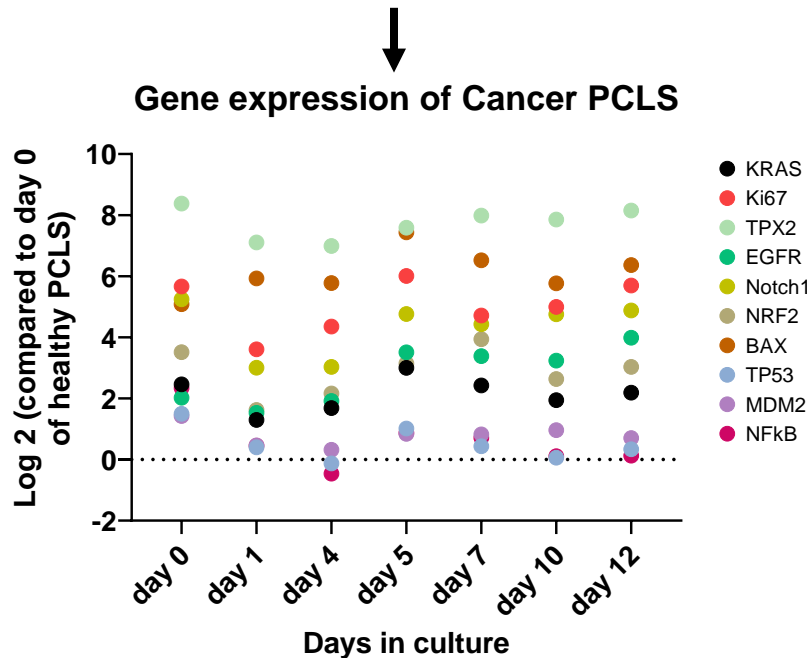
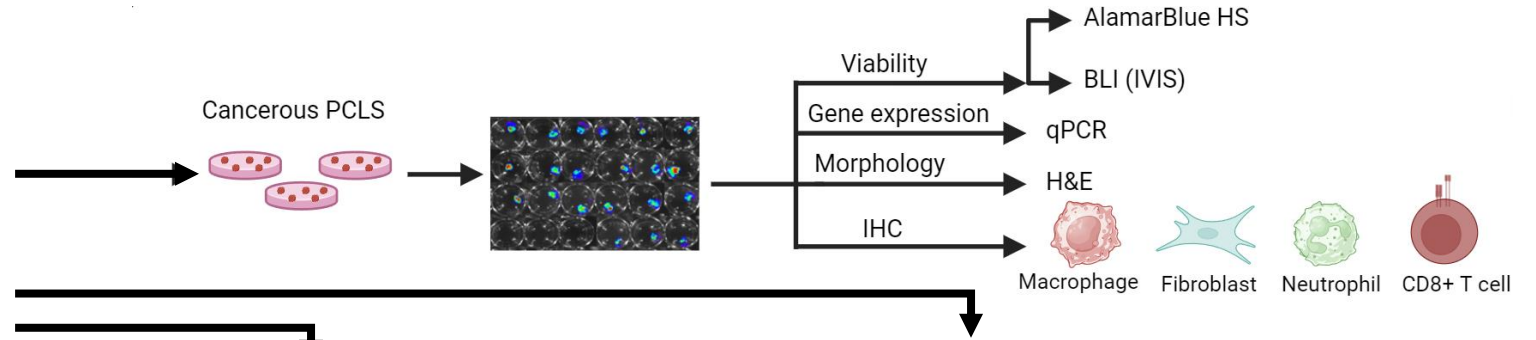
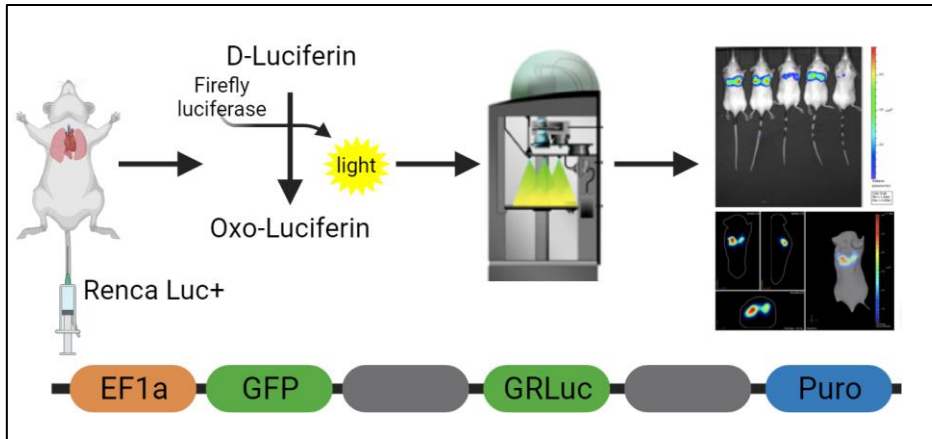


# Morphological, metabolic and gene expression profile of PCLS





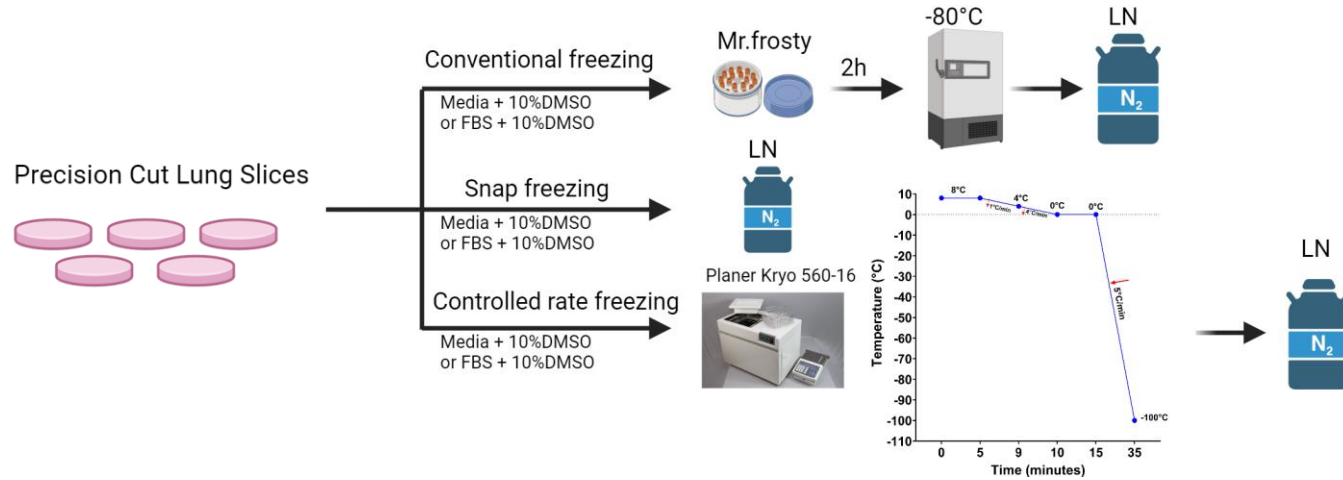
# Orthotopic Lung Cancer Model



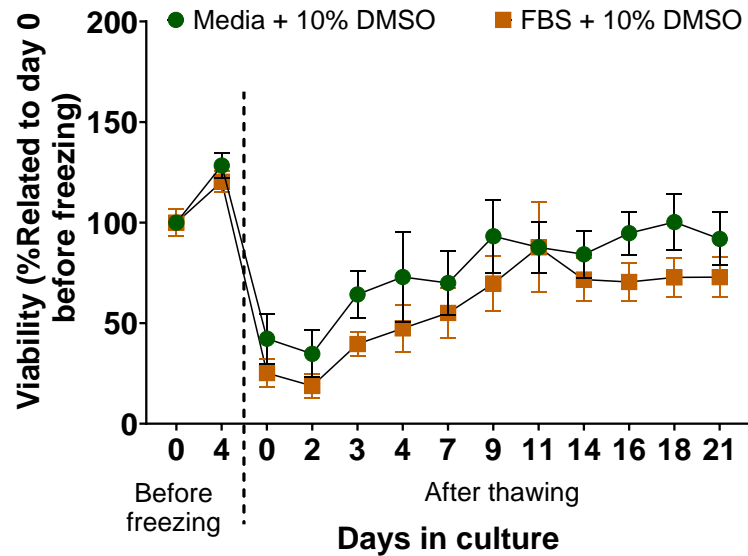




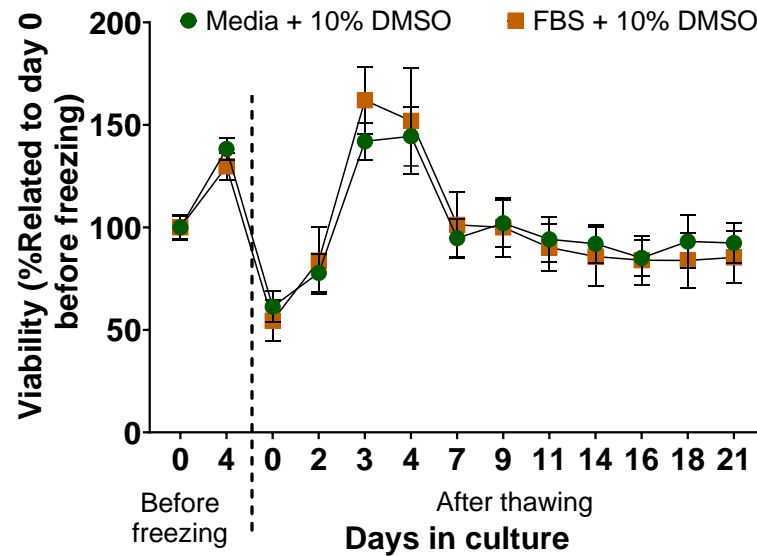
# Cryo-Preservation of PCLS



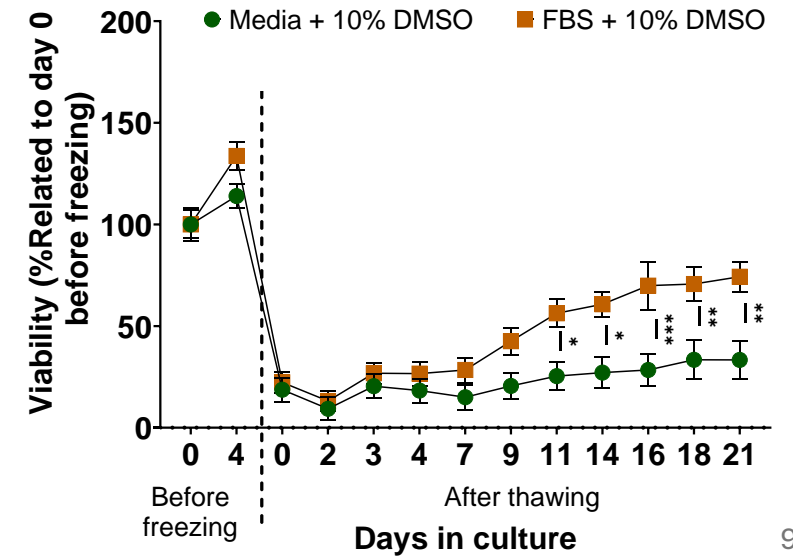
### Controlled rate freezing



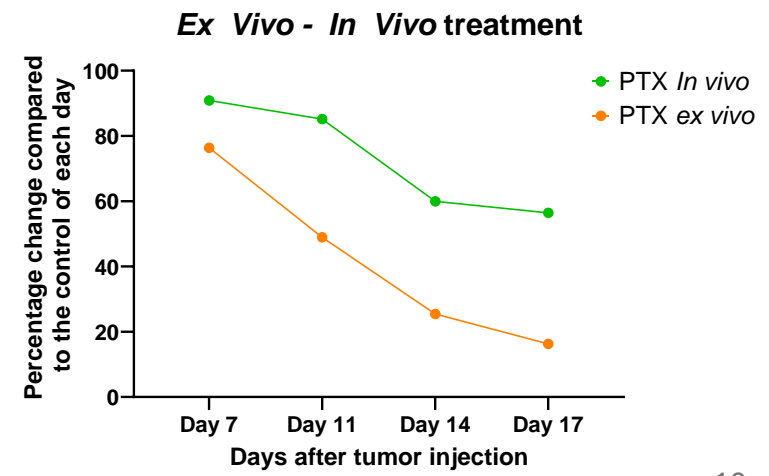
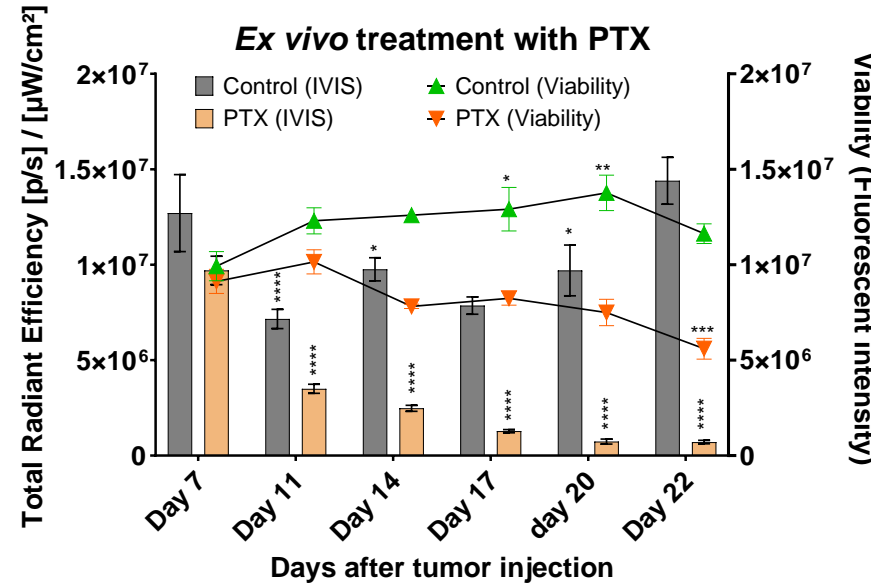
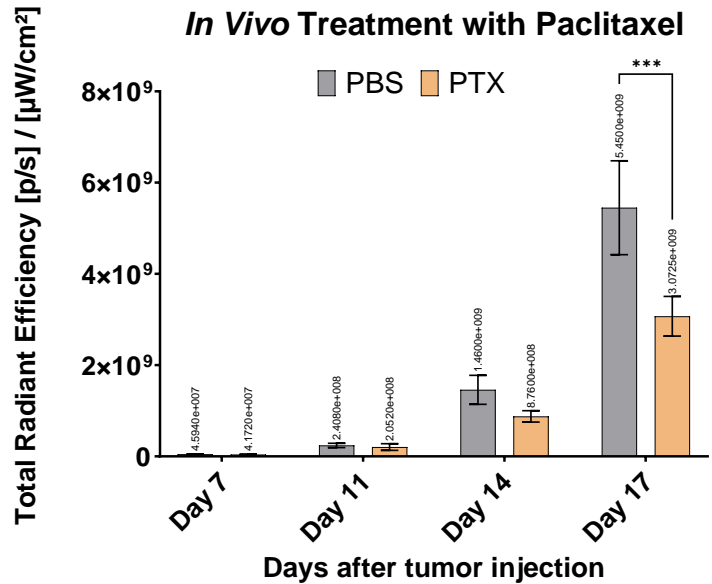
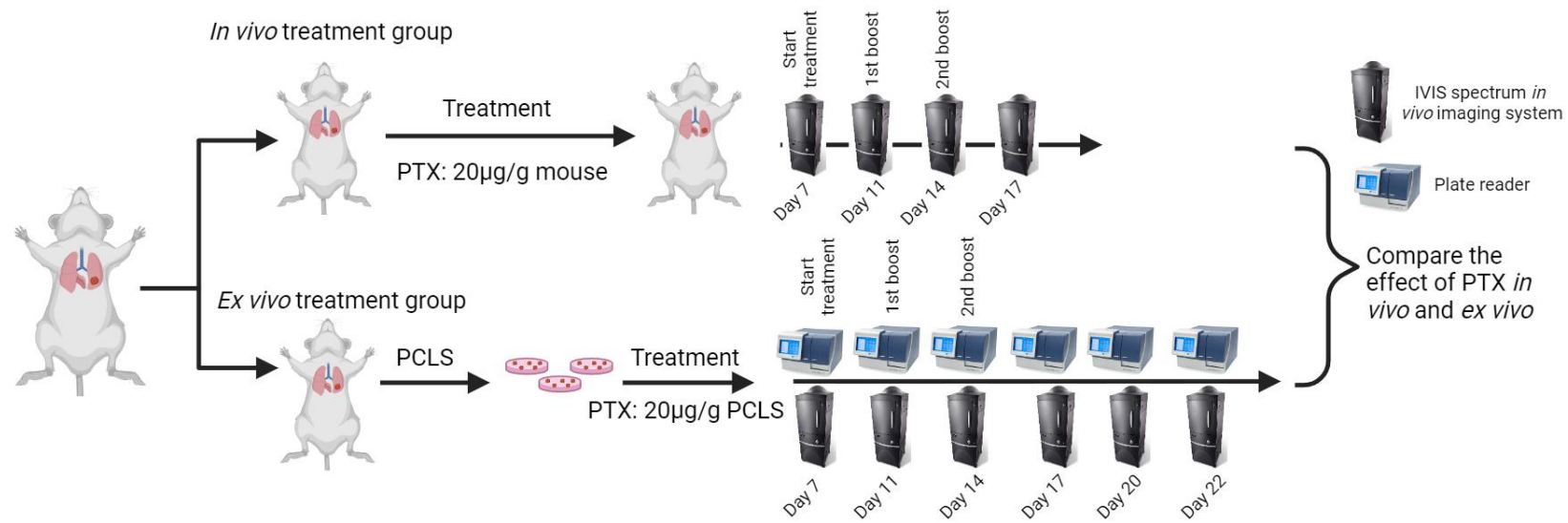
### Conventional freezing



### Snap freezing



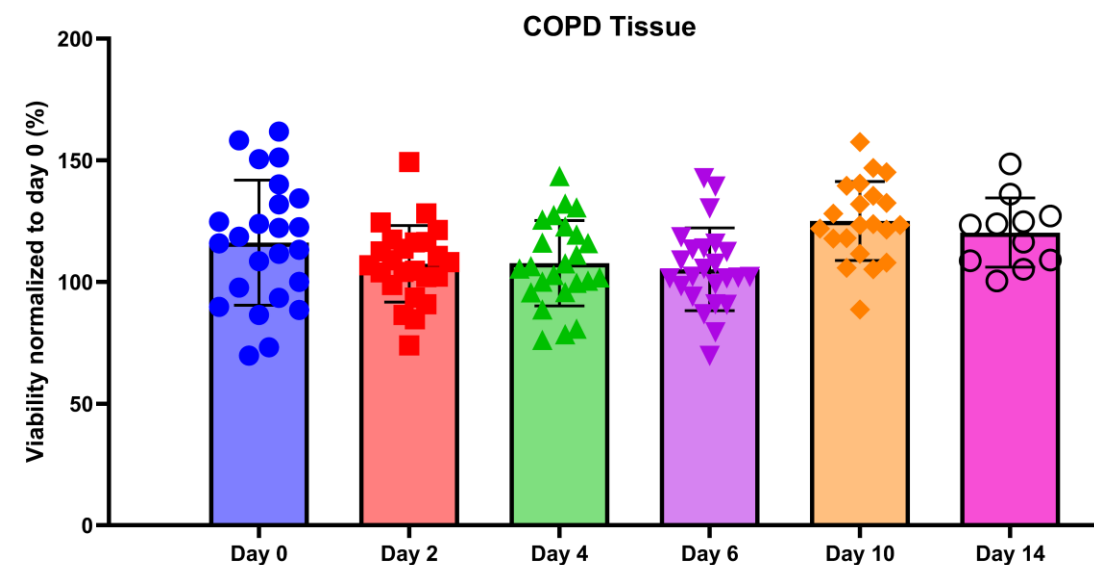
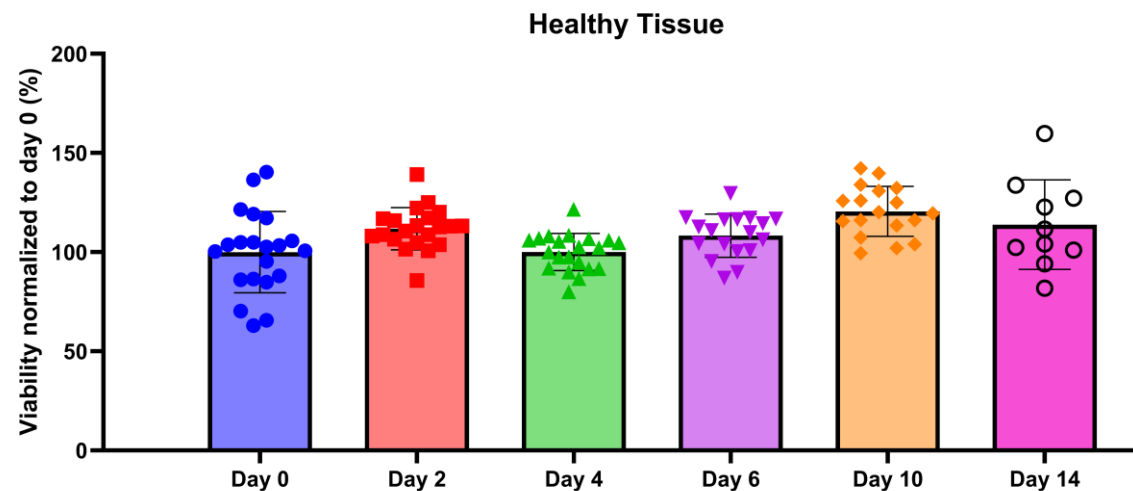
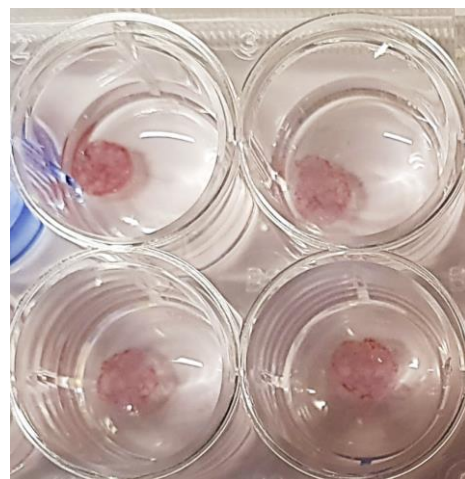
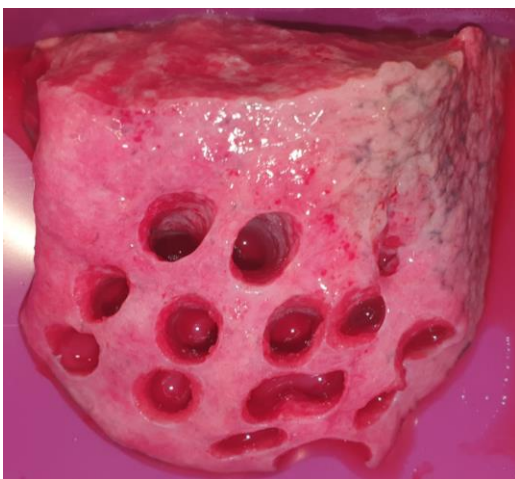
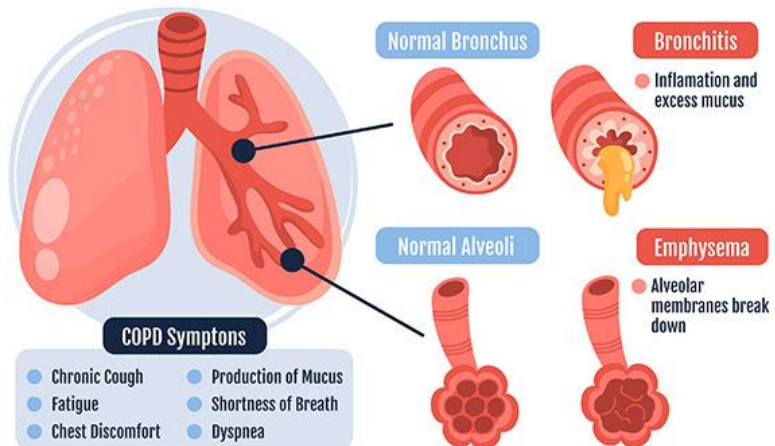
# Comparative analysis of *in vivo* vs *ex vivo* PCLS





# Human relevance of PCLS

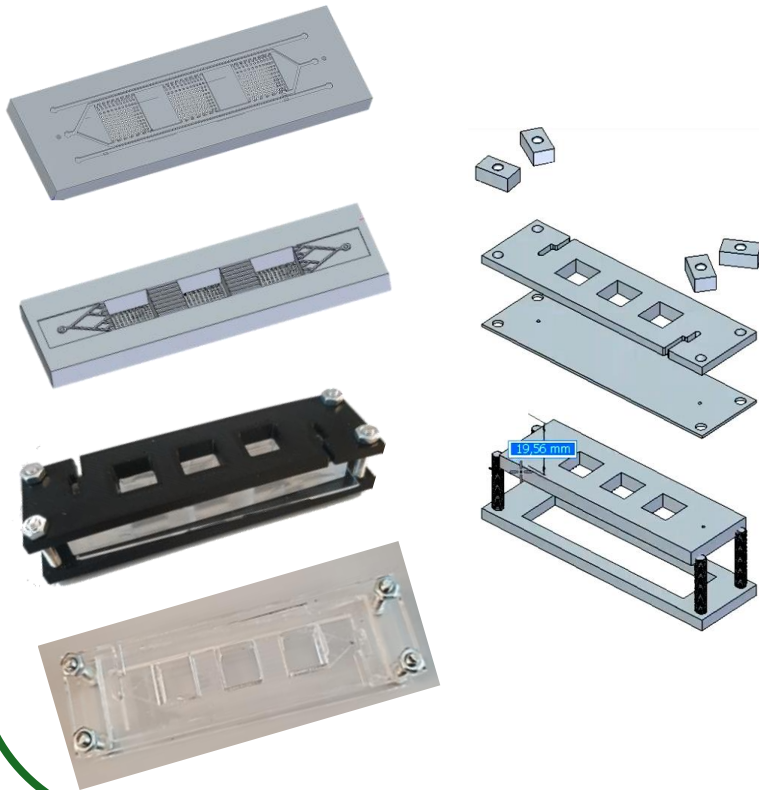
## COPD (Chronic Obstructive Pulmonary Disease)



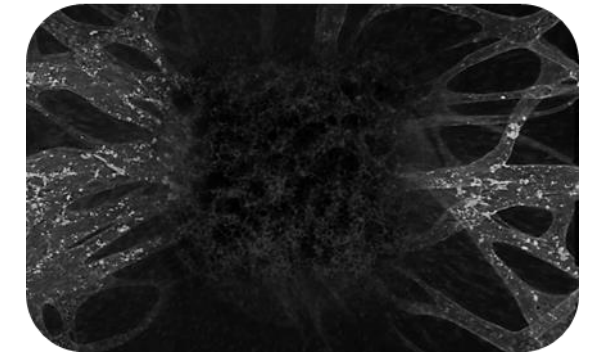
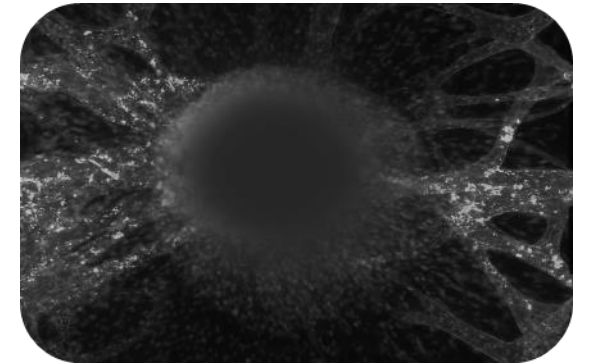


# Future perspective

## PCLS on Chip



## Vascularized PCLS on chip





# Key Takeaways

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- PCTS are robust ex vivo models for drug discovery and personalized medicine.
- Validated for long-term viability and functionality.
- Strong human relevance for lung disease modeling.
- Enables translational advancements in research.

# Acknowledgments

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