

Master Thesis Research Project: *in vitro* mini-lung model

Are you interested in miniaturized *in vitro* models such as lung-on-chip?

We, the Laboratory for Pulmonary Aerosol Delivery (AG Dr. Schmid) at the Institute of Lung Health and Immunity (LHI) of Helmholtz Munich are working on the development of advanced *in vitro* models for the lung.

With our newly developed mini-lung model, we aim to investigate the efficacy (pharmacokinetics) of aerosolized drugs under physiological-clinical conditions as in inhalation therapy.

We are looking for Master's students interested in developing advanced *in vitro* lungs for preclinical drug development (You can start right away).

- We can offer you a multi-disciplinary project with an access to cutting-edge technologies
- We will train you, however, at the same time you would work independently –of course, you will get the full support of your supervisor and he will have time for you.
- You will work in a research team with international collaborations (language: English).

Your responsibilities would be:

- Basic laboratory experience
- Basic cell culture
- Good time management and organizational skills
- Knowledge of cellular assays such as ELISA and advanced cell culture models is an advantage

AND

Based on your project, you will know/improve:

- Advanced cell culture models (mono- and coculture model) with primary cells
- Analyze biological endpoints such as proliferation assays, immunofluorescence (IF) staining, and confocal microscopy
- Collect and analyze pharmacokinetic parameters
- Translation of preclinical results into clinical relevance
- Handling of *in vitro* mini lung which is unique in the world.
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Would like to know more about our research projects? Please check out these papers:

1. Doryab A., Taskin M., Stahlhut P., Groll J., Wagner D.E., Schmid O. 2021. "A Biomimetic, Copolymeric Membrane for Cell-Stretch Experiments with Pulmonary Epithelial Cells at the Air-Liquid Interface". *Advanced Functional Materials*: 2004707. <https://onlinelibrary.wiley.com/doi/10.1002/adfm.202004707>
2. Doryab A., Taskin M., Stahlhut P., Orak S. Voss C., Hilgendorff A., Rehberg M., Stöger T., Groll J., Schmid O. 2021. "A Bioinspired *In Vitro* Lung Model to Study Particokinetics of Nano-/Microparticles under Cyclic Stretch and Air-Liquid Interface Conditions." *Frontiers in Bioengineering and Biotechnology* 9: 42. <https://doi.org/10.3389/fbioe.2021.616830>

Please feel free to ask any questions about this position:

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