

PhD project

PhD position in ocular pharmacokinetics and PBPK modeling

The Project

The eye is the most important sensory organ in the human body and visual impairment places a huge burden on affected patients. Still, the complex anatomy of the eye hampers targeted drug delivery, since drug exposure at pharmacological sites of action can generally not be measured in humans. Computational pharmacokinetic models provide a structural framework to simulate drug distribution in different regions of the eye. In particular, physiologically based pharmacokinetic (PBPK) models allow to mechanistically describe the specific morphology and physiology. The specific impact on drug disposition in different segments of the eye can thus be systematically evaluated.

The goal of the PhD thesis is the development of an ocular PBPK model to simulate drug distribution within various layers of the eyes and a subsequent quantification of drug concentration levels in different tissues. Together with internal as well as external partners, the model will be iteratively developed, assessed and refined.

Goals of the PhD thesis

- Development of an ocular PBPK model
- Validation of the model with data from the literature, with internal as well as external partners

What do we expect from you?

We are looking for a highly motivated individual with an interest in computational biomedicine and physiology. The candidate should have a master in computational biology, natural sciences, pharmacology, engineering or informatics. She/he should furthermore be interested in PBPK modeling and have a quantitative mindset.

What do we offer?

We offer you a PhD thesis in the emerging field of PBPK modeling. You'll become part of a great team at the Joint Research Center for Computational Biomedicine at the University hospital in Aachen. Expertise in PBPK modeling is of great interest for pharmaceutical companies both in DMPK at the preclinical level as well as in pharmacometrics for the support of clinical studies.

Contact

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