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## Master thesis (m/f/d)

### Characterization of immune cell infiltration in 3D tumor organoid-on-chip models

As part of a BMBF funded project, a position for a master thesis is available starting in **August 2024** at in the Institute of Pharmaceutical Biology and Biotechnology.

We are looking for a highly talented and enthusiastic candidate with a strong background in human cell culture and a high motivation in cancer biology and anti-cancer drug discovery. The candidate will work closely with a team of experienced PhD students. Furthermore, within this project we are collaborating with partners from industry.

### Background and job description

Pancreatic ductal adenocarcinoma (PDAC) is the most common neoplastic disease of the pancreas and the fourth most common cause of cancer death worldwide. Thus, the development of new targeted therapies is urgently needed. The objective of this project is to characterize the infiltration and polarization of primary immune cells in a human 3D PDAC co-culture model platform with integrated blood vessels to identify new personalized therapeutic approaches. The 3D co-cultures are composed of pancreatic tumor cells and stellate cells derived from primary patient material. The physiological nutrient supply of the organoids and the infiltration with immune cells is simulated by a vasculature composed of human endothelial cells in the biochip.

#### Aims of this master thesis in detail:

- Perfusion of fibrotic 3D PDAC models with human primary peripheral blood cells to determine the influence of e.g. infiltrated tumor-associated macrophages on tumor viability and growth behavior of vascularized PDAC organoids as well as the influence of the epithelial/mesenchymal differentiation status, a key step in metastasis, via FACS, qPCR and confocal imaging techniques.
- Exploring effects of drug candidates to restore the proliferation and activation of T cells within the tumor model.

### Qualifications

Profound experience in human cell culture is mandatory, practical expertise with primary cells is a plus, qPCR, FACS, imaging techniques and molecular biology methods are a clear benefit. Excellent grades, a high motivation and effective time management are expected.

If you are interested in our work, we look forward to receive your application as a single PDF file to [nicole.teusch@hhu.de](mailto:nicole.teusch@hhu.de).

Applications should include a short letter of motivation, your CV, your grade certificates from your bachelor and your master courses of study and a short summary of your bachelor thesis.