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Klinik für Hals-Nasen-Ohrenheilkunde,  
Kopf- und Halschirurgie  
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## PhD Position

(3 years, E 13 TV-L, Part time 65%)

### Characterization and Advancement of 3D Heterotypic Head and Neck Squamous Cell Cancer (HNSCC) Spheroids

**Your project:** 3D-cancer cell culture models have been developed in order to mimic the tumor and its microenvironment. Within this project, you will use 3D-bioprinting of suitable biomaterials to engineer and manipulate heterotypic HNSCC spheroids in vitro. You will characterize 3D-bioprinted HNSCC spheroids and further optimize them to resemble the tumor architecture. You will apply humanized culture conditions using human platelet lysate or human serum to replace fetal bovine serum. You will use kinetic live cell imaging (Incucyte SX5 technology) to automatically monitor and quantify spheroid formation, growth and cellular changes. Finally, you will add endothelial and immune cells to optimize bioprinted spheroids and to quantify dynamic drug responses of e.g. anti-angiogenic or immune-based drugs.

#### Your qualification:

- M.S. in Cell Biology, Molecular Biology, Immunology, Biochemistry or related disciplines
- Dedication for experimental cell biology and strong interest in independent working
- Excellent previous academic performance
- Strong technical skills (cell culture, flow cytometry, immunology/cell assays, Western blots), preferentially experience in 3D cell culture, tumor spheroid models, bioprinting, live cell imaging
- Good English language skills (no German language requirement)

Please send your application including the common documents (cover letter, curriculum vitae and certifications) electronically to Prof. N. Rotter (Dept. of Otorhinolaryngology, Head and Neck Surgery; [nicole.rotter@medma.uni-heidelberg.de](mailto:nicole.rotter@medma.uni-heidelberg.de)) and Prof. K. Bieback (Institute of Transfusion Medicine and Immunology, [karen.bieback@medma.uni-heidelberg.de](mailto:karen.bieback@medma.uni-heidelberg.de)) until March 1, 2021.

In case of any questions, please do not hesitate to contact us.

#### References:

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**Keywords:** Head and Neck Squamous Cell Cancer, spheroid culture, 3D-bioprinting, In-vitro-live cell imaging, Oncology

