

The Junior Research Group *Immunotherapy and -prevention* (PI: PD Angelika Riemer, MD, PhD) at the German Cancer Research Center (DKFZ) is seeking a PhD student for a project entitled **“Mass-spectrometry-based identification of target epitopes for cancer immunotherapies”**.

The overall aim of the group is the development of a therapeutic vaccine against malignancies and precursor lesions caused by human papillomaviruses (HPV). For rational vaccine development, it is important to identify which HPV-derived T cell epitopes are presented to the immune system on the surface of transformed cells. To this end, we have developed a highly sensitive targeted nano-flow liquid chromatography-mass spectrometry (nano-LC-MS) approach for direct detection of viral epitopes.

This PhD project will deal with identifying novel HPV epitopes for the major human leukocyte antigen (HLA) types, thereby providing an “HPV epitome map” covering >95% of the population. In addition, there will be collaboration opportunities for detection of tumor-mutation derived T cell epitopes (neoepitopes) in other cancer types. The PhD student will operate the LC-MS instrumentation, and apply and constantly improve the existing methodology for direct identification of T cell epitopes by LC-MS analysis. In the group, (s)he will be tightly involved with immunological *in vitro* and *in vivo* validation studies of the identified T cell epitopes.

Main techniques employed:

- Targeted nano-flow liquid chromatography-mass spectrometry analysis
- Cell culture
- HLA immunoprecipitations, epitope elution and extractions

Your profile:

- Master or Diploma degree in a relevant natural science
- Experience and/or strong interest in mass spectrometry analysis of biomolecules (preferably peptides and/or proteins) or analytical (bio)chemistry.
- Ideally experience in or solid knowledge of T cell immunology
- Very good command of English

We offer:

- A unique research environment, combining direct MS-based identification and biological validation of target epitopes with *in vitro* and *in vivo* models within the same group.
- Our own state-of-the-art mass spectrometer.
- Hands-on training and respective expertise at the end of the PhD in a highly sought-after technique.
- Being part of the DKFZ graduate school (Helmholtz International Graduate School for Cancer Research, <http://www.dkfz.de/en/phd-program/>), offering a structured PhD training environment.
- Being part of the DKFZ, which is Germany’s largest biomedical research institute and has an international and dynamic work environment, providing students with access to state-of-the-art research facilities and exceptional resources.

Starting date: As soon as possible.

Interested candidates are encouraged to send a motivation letter, CV, references and university transcripts to a.riemer@dkfz.de.

Website: <http://www.dkfz.de/en/immuntherapie-immunpraevention/index.php>