



The Department of Gene Therapy  
(director: Prof. Dr. Stefan Kochanek, group leader: Dr. Lea Krutzke)  
of the University of Ulm  
offers a

## **PhD Position (f/m/x)**

### **Development of prime-boost vaccine platform based on new adenovirus types**

Starting date: January 1<sup>st</sup>, 2023  
Payment: TV-L E13 65%  
Contract: fixed-term, 2 years  
Application deadline: November 28<sup>th</sup>, 2022

To fight the Covid-19 pandemic global and efficient vaccination is indispensable and to date two adenoviral vector-based vaccines have been approved by the FDA and the EMA. However, recent data reveals that their efficacy needs to be enhanced to reduce virus transmission by vaccinated individuals and achieve long-lasting protective immunity. We aim to develop an improved vaccination platform based on mostly unexplored new adenovirus types that can be used for prime-boost vaccinations against coronaviruses and emerging pathogens in general.

#### **Your research project:**

With the aim to develop an improved vaccination platform you will purify and investigate an available set of different adenovirus types using various *in vitro* assays with a special focus on infection efficacy of relevant immune cells and low seroprevalence. The most promising vaccination vector candidates will be equipped with different SARS-CoV2 antigens - single or in combination. Further, you will evaluate the vaccination efficacy of these new adenoviral vectors *in vivo* by measuring antigen-specific total and neutralizing antibody titers and T-cell responses in mice. Moreover, you will analyze induced type-specific anti-adenovirus antibodies in the murine plasma samples and evaluate their respective cross-reactivity with the other adenovirus types. Thereby you will classify vector groups ( $\geq$  tandems) that are suitable for heterologous prime-boost vaccination. Vaccination efficacy of selected tandems will be assessed in heterologous prime/boost vaccination experiments, with respect to antigen-specific antibody and T-cell responses.

Additionally, you will have the opportunity to participate in projects dealing with the development of oncolytic adenoviruses for cancer virotherapy and cancer immunotherapy. Here, the main focus will be on the evaluation of immunostimulatory transgenes that are introduced into tumor cells by the oncolytic virus to induce a tumor-directed activation of the immune system.



### Your profile:

- You have a master's degree in biology, biochemistry, molecular medicine, life science or comparable with above-average grades
- You have a strong interest in and encompassing textbook knowledge about virology, immunology, and oncology
- You have the ability to perform creative and independent research
- You have a high level of motivation and are eager in gathering new insights in your doctoral project as well as publish respective data in peer-reviewed journals
- You have already first or strong experience in some of the following methods: cell culture, microbiology methods including cloning strategies, viruses production and handling (safety level 1 or 2), flow cytometry, chromatography, and standard molecular biology methods like (q)PCR, WesternBlot and ELISA.
- You are well-structured, organized, reliable and enjoy working in a team
- The willingness to perform animal experiments is a plus but not mandatory

### We offer:

We offer interesting research topics close to clinical application in a stimulating and interactive scientific environment. The doctoral candidate will be employed by University of Ulm (TV-L West E13 65%) for a duration of two years with strong assurance for an extension by up to 24 month.

We are a small, cooperative, open-minded and supportive team with a warm and friendly working atmosphere and flat hierarchies. Further, we ensure comprehensive and detailed training as well as close supervision during the entire doctoral period. The doctoral candidate will have the opportunity to work independently and will be involved in and responsible for the elaboration and further development of the project. Further, we offer and welcome the candidate to participate in national and international conferences.

Ulm is a nice middle-sized city that offers many urban social events and the possibility of in- and outdoor activities. In addition, the region is a hotspot of the pharmaceutical industry with several global players nearby. Our laboratory and the University of Ulm with more than 10,000 students stands for high-quality academic education and offers a well-equipped, cutting-edge research environment. Moreover, the University of Ulm offers PhD students to enroll in the PhD program of the International Graduate School of Molecular Medicine, which ensures excellent training of young researchers (<https://www.uni-ulm.de/en/einrichtungen/mm/phdprogramme/the-international-phd-programme-in-molecular-medicine/>).

Please send your applications promptly including a curriculum vitae (+ list of publications), certificates and transcripts of grades, a letter of motivation detailing your research interests, and references at [lea.krutzke@uni-ulm.de](mailto:lea.krutzke@uni-ulm.de).

### Contact:

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