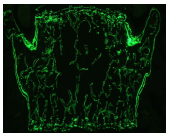
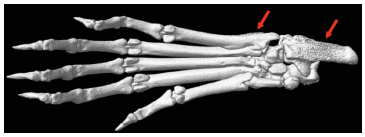
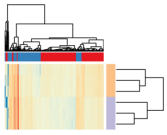

ulm university universität ulm

PhD student position

“Deciphering fibroblast – macrophage crosstalk in arthritis”

The Tuckermann Lab at the Instiute for Comparative Molecular Endocrinology/Ulm University (Director: Prof. Dr. Jan Tuckermann) is looking for a PhD student studying molecular mechanisms of fibroblast – macrophage crosstalk” in vivo.

Rheumatoid arthritis are chronic inflammatory diseases of the joints that are associated with pain and irreversible joint destruction. Arthritic diseases are frequently treated with **glucocorticoids** (e.g. cortisol and pharmacological derivatives) due to their strong immune suppressive effects. But the usefulness of glucocorticoid therapy is hampered by severe side effects such as diabetes and osteoporosis. Defining the mechanism how glucocorticoids reduce the inflammatory burden and the detrimental effects in bone is therefore decisive for new treatment strategies to optimize or replace glucocorticoid therapy. We recently reported **a novel molecular mechanism of anti-inflammatory activity of glucocorticoids** involving **glucocorticoid receptor (GR) dimerization** in non-immune stromal cells to induce con-classical anti-inflammatory polarization of macrophages (Ann Rheum Dis 2018, doi: 10.1136/annrheumdis-2017-212762). We now provide the paradigm shifting observation that reducing cytokine expression is not sufficient for reducing inflammation, but rather modulation of synovial fibroblast crosstalk to the innate immune system, such as macrophages is the key process to resolve inflammation.

The PhD project now aims **to decipher the cellular dynamics of this cross-talk and the molecular determinants essential for modulation of synovial fibroblast – macrophage interaction**. The project will reveal insights beyond glucocorticoid activity the modulation of inflammation in general. The project consists of in-depth analysis of **transgenic mouse models *in vivo***, and involves a broad range of state-of-the-art techniques: cell biological, molecular biological techniques, RNASeq, proteomics and metabolomics, viral gene delivery as well as histological methods, lineage tracing and micro computer tomography measurements in conditional knock out mice.

The **successful candidate** has a broad knowledge in molecular biology and a genuine interest in understanding **molecular mechanisms of immunometabolic processes** using ***in vivo* and omics approaches** in transgenic mouse models. Furthermore experiences in molecular and cell biological methods are appreciated. We expect a highly motivated ambitious student ready for scientific challenges in this project relevant for inflammation and bone integrity.

We offer an **enthusiastic international team** and strong interactions with the other research groups at the institute, the university campus (CRC 1149 Trauma) and many international cooperations. The position is enrolled in the **International Graduate School in Molecular Medicine** in Ulm with courses in state-of-the-art techniques and soft skills and support for conference visits (https://www.uni-ulm.de/einrichtungen/mm/).

The position starts from January 16th 2019 on a salary level according to TVLE13 (65%) for 3 years and will be extended upon evaluation.

Applicants are invited to apply by sending a letter of interest, CV and contact details of two referees in a single PDF file by email to: jan.tuckermann@uni-ulm.de **latest November 15th 2018**.

Please indicate the **index number 121**. According to German law, disabled persons with equal occupational aptitude will be given preferred consideration.

Prof. Dr. Jan Tuckermann; Institute of Comparative Molecular Endocrinology; Ulm University, 89081 Ulm

Further information about the lab can be found at: https://www.uni-ulm.de/en/nawi/cme/.