PhD position Molecular Biology, Immunology, Biochemistry

We offer a PhD position at the University Clinic Freiburg, Dept. Neuropathology, AG Molecular genetics (Knobeloch Lab)
Our work is focused on proteases counteracting protein modification by **ubiquitin** and ubiquitin-like modifiers such as ISG15 and **SUMO**. We generate conditional knockout mice for different **Ubiquitin specific proteases (USPs)** and use a wide range of molecular, immunological and cellular technologies to define physiological and molecular functions. A selection of recent publications is listed below (1-4).

For this particular DFG funded project (3 years) we generated a novel conditional knockout mouse line for a sparsely investigated **SUMO-specific protease**. As this isopeptidase was reported to additionally harbour non-enzymatic functions, a second mouse line with selective inactivation of only the catalytic activity was engineered. The task of this project is to define and dissect enzymatic and non-enzymatic molecular and physiological functions of this particular USP within the context of the whole organism.

The applicant should hold a master degree or equivalent in Biology, Molecular Medicine, Immunology, Biochemistry or a related field. A strong interest in molecular biology and willingness to work with mice is mandatory. Experience with ubiquitin or SUMO modification and/or mouse genetics is a plus. Beside creativity and strong motivation we expect good communication skills and the ability for teamwork.

We offer a straightforward project which is based on extensive unpublished preliminary data and provide excellent working conditions in a highly motivated environment where hard work does not exclude fun.
Commencement of employment is sceduled for august, but flexible within a reasonable timeframe.

Please apply online providing a letter of interest, marks, credits, theme of the master/bachelor thesis, CV, and if available publications.

References
1. Basters, A. *et al.* Structural basis of the specificity of USP18 toward ISG15. *Nature structural & molecular biology*, doi:10.1038/nsmb.3371 (2017).
2. Ketscher, L. *et al.* Selective inactivation of USP18 isopeptidase activity in vivo enhances ISG15 conjugation and viral resistance. *Proc Natl Acad Sci U S A* **112**, 1577-1582, doi:10.1073/pnas.1412881112 (2015).
3. Goldmann, T. *et al.* USP18 lack in microglia causes destructive interferonopathy of the mouse brain. *The EMBO journal* **34**, 1612-1629, doi:10.15252/embj.201490791 (2015).
4. Dufner, A. *et al.* The ubiquitin-specific protease USP8 is critical for the development and homeostasis of T cells. *Nature immunology* **16**, 950-960, doi:10.1038/ni.3230 (2015).