UNIVERSITÄT DES SAARLANDES

Medical Biochemistry &
Molecular Biology Department

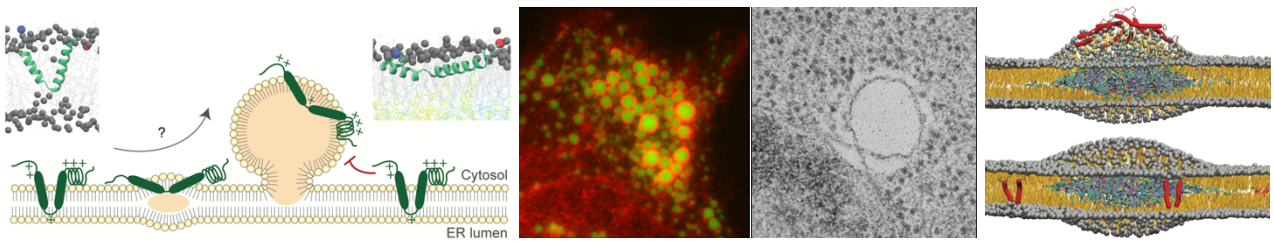
PhD / Postdoc Positions

(Medical Biochemistry & Molecular Biology):

Lipid Droplet Biogenesis and Function

We are looking for highly motivated scientists with a degree in natural sciences to join our young and growing team as PhD student or postdoc.

The positions are immediately available at the
Department of Medical Biochemistry & Molecular Biology and
Center for Molecular Signaling (PZMS)
at **Saarland University**, **Homburg**, **Germany**,
in the research group of
Prof. Bianca Schrul.



Our group is interested in the biogenesis and function of lipid droplets. These subcellular organelles dynamically balance the influx, storage and consumption of neutral lipids in nearly all cells of our body and are therefore central hubs in lipid metabolism. Lipid droplets are implicated in a range of human pathologies including hallmark diseases of our modern society such as obesity, diabetes, hepatic steatosis and cardiovascular disorders. However, the molecular mechanisms underlying lipid droplet biogenesis and function as well as pathologic aberrations in these processes remain largely unknown.

Projects in our lab address the following questions:

- What are the molecular mechanisms underlying protein targeting to and insertion into the membrane of lipid droplets?
- Which physicochemical membrane properties drive protein partitioning to lipid droplets?
- How is lipid droplet biogenesis from the endoplasmic reticulum membrane regulated?
- How do lipid droplets communicate with other lipid metabolizing organelles to adapt to metabolic changes?

We employ a range of biochemical and cell biological techniques including *in vitro* reconstitution experiments, protein-interaction studies, organelle / protein isolations, CRISPR/Cas9 genome editing, RNA interference, quantitative proteomics & lipidomics analyses as well as advanced fluorescence microscopy. We have established close interdisciplinary collaborations in which we integrate our expertise with molecular dynamics simulations, microfluidics, and EPR spectroscopy.

Further information can be found on our lab website:
https://www.uni-saarland.de/fakultaet-m/pzms/gruppe/biochemie-molekularbiologie/schrul.html

Qualification profile:

We are looking for highly motivated scientists with the following qualifications:

• For a PhD student position: M.Sc. degree (or equivalent) in Biochemistry, Molecular Biology, Biophysics or a related discipline

• For a postdoc position: PhD degree (or equivalent) in Biochemistry, Molecular Biology, Biophysics or a related discipline

• Strong interest in basic biochemical and cell biological research

• Excellent communication skills and strong team spirit

• Interest in learning / expertise in biophysical approaches to study membrane protein structures & dynamics and/or organelle properties would be a plus

• Fluent English (oral and written) is essential

• German language skills are desired

What we offer:

• Our young research team is integrated in an interdisciplinary and diverse research environment offering state-of-the-art technology and excellent scientific exchange.

• Further training opportunities are provided by Saarland University´s Graduate Centre GradUS.

• Modern lab space with excellent infrastructure and core facilities (advanced light microscopy, mass spectrometry, etc.) in a newly constructed research building (PZMS).

• The positions are immediately available.

Please send your application including a cover letter stating your motivation to join our lab and your research interests, a CV, degree certificates and contacts for two references as one PDF file *via* e-mail to Bianca Schrul.

Contact:

Prof. Bianca Schrul
Saarland University
Medical Biochemistry & Molecular Biology
Center for Molecular Signaling (PZMS)
Email: bianca.schrul(at)uks.eu

Selected Publications:

• Dhiman R, Perera RS, Poojari CS, Wiedemann HTA, Kappl R, Kay CWM, Hub JS, Schrul B (2024). Hairpin protein partitioning from the ER to lipid droplets involves major structural rearrangements. Nat Commun. 15(1):4504. doi: 10.1038/s41467-024-48843-8. PMID: 38802378

• Lyschik S, Lauer AA, Roth T, Janitschke D, Hollander M, Will T, Hartmann T, Kopito RR, Helms V, Grimm MOW, Schrul B (2022). PEX19 Coordinates Neutral Lipid Storage in Cells in a Peroxisome-Independent Fashion. Front. Cell Dev. Biol. 10:859052. doi: 10.3389/fcell.2022.859052. PMID: 35557938

• Puza S, Caesar S, Poojari C, Jung M, Seemann R, Hub JS, Schrul B, Fleury JB (2022). Lipid Droplets Embedded in a Model Cell Membrane Create a Phospholipid Diffusion Barrier. Small 18(12):e2106524. doi: 10.1002/smll.202106524. PMID: 35072348

• Dhiman R, Caesar S, Thiam AR, Schrul B (2020). Mechanisms of protein targeting to lipid droplets: A unified cell biological and biophysical perspective. Semin Cell Dev Biol. 2020 Mar 20. pii: S1084-9521(18)30299-4. doi: 10.1016/j.semcdb.2020.03.004. PMID: 32201131

• Schrul B and Schliebs W (2018). Intracellular communication between lipid droplets and peroxisomes: the Janus face of PEX19. Biol Chem. 2018 Jun 27;399(7):741-749. doi: 10.1515/hsz-2018-0125 PMID: 29500918

• Schrul B and Kopito RR (2016). Peroxin-Dependent Targeting of a Lipid Droplet-Destined Membrane Protein to ER Subdomains. Nat Cell Biol. 2016 Jul;18(7):740-51. doi:10.1038/ncb3373 PMID: 27295553