



Open position for the LSM call of applications

Department/Institute: LMU Faculty of Biology, Microbiology

Subject areas/Research fields:

Microbiology, Molecular Biology

Keywords: signal transduction, environmental stress, drug discovery

Name of supervisor: Prof. Dr. Kirsten Jung

Project title:

What is function of LytS/LytTR-type histidine kinase/response regulator systems?

Project description:

LytS/LytTR-type histidine kinase/response regulator systems are widely distributed in Gram-positive and Gram-negative bacteria. These systems are important during infection of human and animal hosts as they somehow prevent premature cellular lysis and increase survival during antibiosis.

In this project, we will focus on the YpdA/YpdB-system and answer the following questions:

1. What is the nature of the ligand recognized by the membrane-integrated LytS?
2. What is the function of the target gene encoding a transporter?

We will use a combination of multi-omics approaches (transcriptomics, metabolomics), biomolecular interaction studies (including protein purification, isothermal titration calorimetry, surface plasmon resonance spectroscopy), and microbial assays (persisters, VBNCs).

We aim to discover new targets for the treatment of chronic and recurrent bacterial infections.

Qualifications:

Experience with microbiological techniques, e.g., construction of mutants and reporter strains, and molecular and biochemical techniques, e.g., purification and characterization of RNA and proteins, is required.

References:

Schumacher, K., Gelhausen, R., Backofen, R., Kion-Crosby, W., Barquist, L., Jung, K. (2023) Ribosome profiling reveals the fine-tuned response of *Escherichia coli* to acid stress. *mSystems*, Nov 1:e0103723. doi: [10.1128/msystems.01037-23](https://doi.org/10.1128/msystems.01037-23)

Qiu, J., Gasperotti, A., Sisattana, N., Zacharias, M., Jung, K. (2023) The LytS-type histidine kinase BtsS is a 7-transmembrane receptor that binds pyruvate. *mBio*, Sep 1:e0108923. doi: [10.1128/mbio.01089-23](https://doi.org/10.1128/mbio.01089-23).

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Research group website: please find [here](#)

Apply: Please send your application through the [online portal](#) of the Graduate School Life Science Munich (LSM)