

## Master thesis or Praktikum

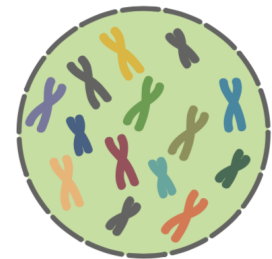
(Beginning autumn or winter 2021)

LMU Biomedical Center  
Physiological Chemistry (AG Ladurner)  
Group of Dr. Magdalena Murawska

### Epigenetic control of chromosome segregation by a novel centromeric enzyme

#### Background

Accurate chromosome segregation is essential for genome integrity and chromosome segregation errors are hallmarks of cancer. A centromere is a region of specialized chromatin that organizes a large network of proteins called kinetochore which generates attachment sites of duplicated chromosomes and spindle microtubules during cell division. Hence, accurate chromosome segregation requires orchestrated and spatial action of many structural proteins, signaling pathways as well as dedicated centromeric chromatin factors.



#### What will you be working on?

We have recently identified a highly conserved ATPase which accumulates on centromeres in a model organism fission yeast. In human cells, this factor is expressed in various cancers, however its molecular roles are unknown. The goal of this project is to establish molecular function(s) of this protein at centromeres and during chromosome segregation and to unveil mechanisms that drive its centromeric recruitment. As the project is very broad and novel, its direction can be adapted to student interests (e.g., with a stronger focus on biochemistry, genomics or cell biology).

#### Techniques you will be using:

- Genetics and molecular cloning
- CRISPR/Cas9
- ChIP-QPCR and ChIP-seq
- RT-QPCR
- Microscopy and live-cell imaging
- Various protein-protein interaction assays

#### Contact:

- If interested, please send me an email at: [magdalena.murawska@bmc.med.lmu.de](mailto:magdalena.murawska@bmc.med.lmu.de)
- You can also stop by and visit me in the LMU, BMC, Physiological Chemistry, Room NB02.024; Großhaderner Str. 9, 82152 Martinsried
- For more information visit:

<https://www.physiolchemie.abi.med.uni-muenchen.de/research/murawska/index.html>