

## **We are studying an essential part of the human immune defence – the complement system**

- Complement and innate immunity
- Immune homeostasis
- Immune evasion of the *Candida albicans*
- Complement evasion of human pathogenic microbes
- Pathology of complement mediated human diseases
- New diagnostics and therapy of kidney and retinal diseases

Complement is an important immune recognition and defence system that is central for homeostasis and that directs the anti-inflammatory immune response in humans.

The Department of Infection Biology studies how complement, as the central part of innate immunity, controls infectious microbes and contributes to the pathology of human diseases. We study how the human pathogenic yeast *Candida albicans* evades host complement attack and consequently causes infections. The research group Immunoregulation studies how complement together with macrophages controls the immune response and how complement drives the inflammatory response of these phagocytic cells.

The complement system regulates and controls immune homeostasis. Genetic modifications such as mutations, sequence and copy number variation cause several disorders that manifest in different organs, primarily in the kidney and in the retina of the eye. The identification of novel autoantibodies, as well as new disease-related genetic variants contributed to the better understanding of the pathology of two complement mediated kidney disorders. These results formed the bases for the development of new diagnostic and also new therapeutic approaches for the autoimmune kidney diseases DEAP-HUS and MPGN II/ DDD/C3G.