



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

MAX VON PETTENKOFER-INSTITUT
LEHRSTUHL MEDIZINISCHE MIKROBIOLOGIE UND
KRANKENHAUSHYGIENE



The Max von Pettenkofer Institute Microbiology Seminar Series

Date: **Wednesday, November 06, 2024**

Time: **5.00 pm (sharp)**

Location: **Lecture Hall MvPI (3rd floor)**

Speaker:

Prof. Dr. Christoph Dehio

Professor for Molecular Microbiology at Biozentrum,
Universität Basel and
Director of the National Centre of Competence in Research
(NCCR) "AntiResist", Switzerland



Title:

Physiological *in vitro* models for studying infection and treatment of uropathogenic bacteria

Urinary tract infections (UTIs) are among the most common bacterial infections in humans and represent a major cause of human morbidity and mortality worldwide. The majority of UTIs are caused by uropathogenic *Escherichia coli* (UPEC). UTIs are a primary cause for the prescription of antibiotics and thus represent a major driver of antimicrobial resistance evolution. Moreover, following standard-of-care antibiotic treatment, up to 50% of patients experience recurrent infection, necessitating further treatment. The bacterial and host factors that contribute to UTI and the response to drug treatment remain poorly understood, which in part is due to the lack of physiological models for studying UTI *in vitro*.

I will present our ongoing efforts to establish models and tools for studying UPEC infection and treatment under patient-like conditions, including a well characterized collection of clinical UPEC isolates, a synthetic human urine model for axenic studies, and a human urothelial barrier model in a microphysiological set-up for studying UPEC infection and treatment at the tissue level. We are using proteomic analysis for benchmarking these models against human UTI samples, and genome-wide CRISPRi for mapping fitness landscapes in these physiological *in vitro* models.

Host: Doc@MvPI graduate program and Prof. Dr. Sebastian Suerbaum

This Seminar is registered by BLAEK (Bayerische Landesärztekammer) and authorized with 1 Training Point (Fortbildungspunkt).

Medical course leader: Prof. Dr. med. Sebastian Suerbaum
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