SFB 900

SFB 900 SEMINAR SERIES

ALL GUESTS ARE WELCOME

TITLE

Evolutionary ecology meets the antibiotic crisis: Can we control pathogen adaptation?

SPEAKER

Prof. Hinrich Schulenburg
Department of Evolutionary Ecology and Genetics, Christian-Albrechts-Universität zu Kiel, Germany

LOCATION

Lecture Hall Q, Building J6
MHH, Carl-Neuberg-Str. 1
Hannover

06.12. 2018

5.00 PM (s.t.)

» Research of Hinrich Schulenburg:

Evolutionary processes are responsible for the current antibiotic crisis. Surprisingly, they are usually ignored during design of novel therapy, which mainly focuses on finding new drugs. In general, bacteria show an enormous potential to adapt. Therefore, it is critical to consider bacterial evolution for the design of sustainable treatment. In my talk, I will present examples of our work on using evolutionary concepts to enhance efficacy of antibiotic therapy. Our work currently focuses on two main treatment protocols: combination therapy and sequential treatments. Our work demonstrates that combination therapy can be optimized by using drugs that interact synergistically (i.e., they enhance each other's effect) and also produce evolutionary trade-offs (e.g., evolved collateral sensitivity). Sequential treatments can similarly increase bacterial clearance and reduce adaptation rates, if changes between antibiotics are fast, thereby producing highly fluctuating selection conditions. Our work highlights the potential power of the currently emerging field of evolutionary medicine. It simultaneously yields fascinating insights into the selective processes and underlying molecular mechanisms that determine rapid adaptation to novel environments.

Prof. Burkhard Tümmler
Dept. of Pediatric Pneumology, Allergology and Neonatology
Tel.: 0511 532-2920
Tuemmler.Burkhard@mh-hannover.de

Dr. Eugenia Faber, MHH
Institute of Virology
Tel.: 0511 532-4107
SFB900.Sekretariat@mh-hannover.de