

Cycle A: Infection Biology

Coordinator: Urs Jenal

A1.1: New Trends in Developmental and Molecular Immunology – 13167

(2 hrs/week; 2 CP; Fall 2019)

A1.2: Immune Disorders and Immune Therapy – 16515

(2 hrs/week; 2 CP; Spring 2021)

D. Finke

In the present lecture series various immune cell subsets and immune pathways which regulate health and disease will be discussed. During the first hour one Immunologist from Basel, from Switzerland or from abroad (e.g. Oxford, Utrecht, Tübingen) will give an overview on published knowledge about cutting-edge research in Immunology. In the second hour the lecturer will present and discuss his/her own state-of-the-art research and give insights into latest results.

A2: Molecular Virology – 12412

(2 hrs/week; 2 CP; Fall 2020)

R. Gosert, M. Heim, **H. Hirsch**, T. Klimkait, D. Penschewer

This course covers the biological principles of viruses in vertebrates, invertebrates, plants, and in bacteria. Lectures will focus on virion and genome organization; molecular mechanisms of the replication cycle; technical tools for studies in virology; virus-host interaction including innate immune responses and oncogenic transformation; molecular aspects of transmission and epidemiology; virus evolution and mechanisms of molecular pathology; translational exploitation in biotechnology and therapy.

A3.1: Antibiotic drug targets and resistance – 14466

(1 hr/week; 1 CP; Fall 2020)

D. Bumann, C. Dehio, S. Gagneux, **U. Jenal**

This course will give an introduction to antimicrobials, their most prominent cellular targets and action mechanisms. Mechanisms of antibiotic resistance will be discussed as well as their impact on the fight against the clinically most relevant infections. Finally, the course will give some insights into the efforts to identify promising chemotherapeutical targets and develop novel antimicrobials.

A3.2: Antibiotic drug targets and resistance (Journal Club) – 39341

(1 hr/week; 1 CP; Fall 2020)

M. Basler

The Infection Biology Journal Club discusses recent papers of our guest speakers. Subjects covered include organisms, models, methods, biological questions. The aim is to learn new techniques that help us actively participate in seminars and ask interesting questions.

A4: Recent Progress in Infection Biology – 39403

(1 hr/week; 1 CP; Spring 2020)

M. Basler

The Infection Biology Journal Club discusses recent papers of our guest speakers. Subjects covered include organisms, models, methods, biological questions. The aim is to learn new techniques that help us actively participate in seminars and ask interesting questions.

A6.1: Infection Biology – From in vitro models to human patients – 30638

(1 hrs/week; 1 CP; Fall 2019)

D. Bumann, Ch. Dehio

This introductory course to Systems Biology of Infection will focus on data and knowledge-based modeling and model-driven analysis of microbial infection processes. We will discuss recent advances in understanding the interaction of the host with bacterial and viral pathogens by integrative analysis of genome-wide and spatio-temporal data sets using computational approaches that can employ this data to generate models of host-pathogen interaction. We will further discuss how such systems-level approaches may facilitate the identification of diagnostic biomarkers and potential drug targets for novel anti-infectives and possibly allow exploring novel strategies for personalized therapy.

A6.2: Infection Biology – From in vitro models to human patients (Journal Club) – 41271

(1hrs/week; 1 CP; Fall 2019)

M. Basler

The Infection Biology Journal Club discusses recent papers of our guest speakers. Subjects covered include organisms, models, methods, biological questions. The aim is to learn new techniques that help us actively participate in seminars and ask interesting questions.

A7: Molecular Infection Biology – 12384

(2 hrs/week; 2 CP; Fall 2019)

S. Gagneux, P. Mäser, T. Voss

This course on molecular infection biology will focus on molecular aspects of host-pathogen interactions, pathogen virulence, immune evasion strategies, pathogen transmission or drug resistance mechanisms of several eukaryotic and prokaryotic pathogens that cause important poverty-related infectious diseases such as malaria, sleeping sickness and tuberculosis.