Workshop New Approaches in Infection Biology

October 23rd- Professor Dr. Dandekar

Bioinformatics

Location: Seminar room of biochemistry B108/109
You find that easily, if you start in the main hall or Foyer of the Biocentre of the University of Würzburg
http://www.biozentrum2.uni-wuerzburg.de/en/solala/contact/how_to_get_to_biocenter/

If you have the lecture theatres A101 (big one) and A102 (medium one) in your back, you just turn right, go up the stairs to biochemistry and follow the signs (“workshop, new approaches in infection biology), then you reach the seminar room in B-section of the building, room B108/109.

Begin: 9:00

Equipment: notebooks – these are provided (CIP pool and our seminar room is already used by courses, e.g. F2 Bioinformatics and scientific training for the biology teacher students)

Introduction: Systems biology of infection – bioinformatical approaches
Prof. Thomas Dandekar 9:00-10:00

Part I Genome analysis and annotation 10-11:00
Prof. Thomas Dandekar (basics and challenges of sequence analysis; Annotation and pathway alignment; Comparative genomics)

Part II Databanks and Ressources 11-12:30
Dr. Chunguang Liang (Protecs database EcoliHub / MetaCyc, COGs etc.)

Lunch break 12:30-13:30

Part III Modelling metabolic networks 13:30-15:00
Astrid Fieselmann (how to do elementary mode analysis; simple examples on Staphylococci from own research)

Coffee break 15:00-15:30

Part IV Signalling in infectious biology 15:30-17:00
Dr. Muhammad Naseem (using Squad, gene expression data, semi-quantitative models)

Part V Current trends in systems biology in infectious biology 17:00-18:00
Prof. Thomas Dandekar (we will show and discuss current trends in systems biology with a focus on computer-based approaches, what they can and what they can not elucidate)
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October 24th- Dr. Susanne Kramer

Trypanosomes

Location: Seminar room of biochemistry, B108/109

Begin: 9:00

The African trypanosome: a killer and a survival genius

This course will introduce you to the unusual biology of the African trypanosome.
You will explore three features that largely contribute to the parasites pathogenity (antigenic variation, antibody clearance, resistance to the trypanolytic factor) in teams and you will present your results in a rather non-conventional way (by pantomine).

9:00-9:45 Introduction lecture to Trypanosomes
9:45-10:30 Movie (African sleeping sickness)
10:30-11:00 Coffee break
11:00-12:30 Reading time / research time for pantomine
12:30-13:30 lunch break
13:30-14:30 Current Research in Würzburg trypanosome labs: PhD students report
14:30-16:30 Team discussions, preparing the pantomine (Coffee break in between)
16:30-17:30 Pantomine
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October 25th- Dr. Martin Fraunholz

Staphylococci

Location:  Lecture    Seminar room of biochemistry, B108/109

Lab    Department of Microbiology, Room C235

• Introduction
  ◦ Phagosomal escape of Staphylococcus aureus
  ◦ Principles of Confocal Laser Scanning Microscopy

• Image analysis of fluorescent micrographs and other imaging data using ImageJ/Fiji
  ◦ images: visualization and manipulation (Background subtraction, Brightness & Contrast)
  ◦ particle counting
  ◦ multi-dimensional images
  ◦ Images stacks and stack manipulation (Aligning stacks slices, measuring intensities over time)
  ◦ Image Montages

• Experimental part: Phagosomal escape of S. aureus (on a Leica TCS SP5, Room C235; smaller groups)

Students can bring their own laptops and do image analysis with their own data as well.
Workshop New Approaches in \textit{In}
October 26th- PD Dr. P
\textit{Plasmodia}
Lifecycle stages, Screening, Therapy

\textbf{Meeting Point:}

Research Center for Infectious Diseases / Zentrum für Infektionsforschung
First Floor: Seminar room D15.01.002-004
Josef-Schneider-Str. 2 / Building D15
97080 Würzburg
Tel.: 0931-3182133
**Material:**

*If you own one, please bring your own lab coat!*

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**Time schedule:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>9:00-10:00</td>
<td>PD Dr. G. Pradel: Introduction on Malaria</td>
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<tr>
<td>10:00-10:30</td>
<td>Dr. Matthias Scheuermayer: Overview and description of lab assignment</td>
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<tr>
<td>10:35-11:05</td>
<td>Lab work: Rotation in groups of 5 through station approximately 30 minutes</td>
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<td>11:10-11:50</td>
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<tr>
<td>11:50-13:00</td>
<td>Lunch break</td>
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<td>13:35-14:05</td>
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<td>14:10-14:40</td>
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<tr>
<td>15:00-15:30</td>
<td>Concluding remarks</td>
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Topics:

Station 1: PD Dr. Gabriele Pradel
Confocal laser scanning microscopy: Imaging targets of transmission blocking vaccines.

Station 2: Ludmilla Sologub
Giemsa staining: Identifying *P. falciparum* blood stages in blood smears.

Station 3: Dr. Matthias Scheuermayer
Insectary: Dissecting *Anopheles stephensi* mosquitoes.

Station 4: Selina Kern
Malstat assay: Screening drugs in the *P. falciparum* blood stages.

Station 5: Andreas von Bohl
Exflagellation inhibition assay: Evaluating the effect of drugs on gametogenesis.