

Fundamentals of Basic and Applied Phage Biology

Sunday April 23, 2023

Meet and Greet

Time and Place ?

Monday April 24, 2023

Course Introduction

8:30-9:00

Course Introduction

Vasili Hauryliuk, Lund University, Sweden

Toomas Mets, Lund University, Sweden/Tartu University, Estonia

Lectures

Chairperson: **Vasili Hauryliuk, Lund University, Sweden**

9:00-9:45

Bacteriophages - from the fundamentals of molecular biology to the BASEL collection

Alexander Harms, Biozentrum, University of Basel, Switzerland

9:45-10:00

Questions and discussion

10:00-10:15

Coffee break

10:15-11:00

Bacteriophages - the unexplored treasure chest of medicines within the tropical rainforests

Thomas Sicheritz-Pontén, University of Copenhagen, Denmark

11:00-11:15

Questions and discussion

11:15-12:15

Lunch

Phage Isolation Lab Work

12:15-14:15

Collection of environmental samples across the town (Botanical Garden)

14:15-15:00

Lab work: Preparation of the top agar and SM buffer and isolation of phages infecting *E. coli* BW25113 strain from the environmental samples

15:00-15:15

Coffee

15:15- 17:00

Lab work continues

PRELIMINARY SCHEDULE

Tuesday April 25, 2023

Lab work: Phage Isolation continues and Phage Immunity Assays

9:00-9:30	Picking plaques from the isolation plates and re-streaking
9:30-13:00	Immunity assays: <i>E. coli</i> BW25113 + pBR322-EcoRI and BW25113 transformed with pBR322-TA expression constructs vs BASEL phage collection
13:00-14:00	Lunch

Lectures

Chairperson: **Toomas Mets, Lund University, Sweden/Tartu University, Estonia**

14:00-14:45	Using bacteriophages to control plant pathogenic bacteria Ville Friman, University of Helsinki, Finland
14:45-15:00	Questions and discussion
15:00-15:15	Coffee break
15:15-16:00	Bacterial CRISPR-Cas immunity system Virginijus Siksnys, Vilnius University, Lithuania
16:00-16:15	Questions and discussion
16:15-17:00	Phages, engineered phages and phage lysins: the Belgian phage valley Yves Briens, Ghent University, Belgium
17:00-17:15	Questions and discussion

PRELIMINARY SCHEDULE

Wednesday April 26, 2023

Lab work: Preparation of phage working stock, Determination of phage titre, Confluence plates and Phage escape mutants

9:00-10:30	Preparation of the phage lysate (working stock) from isolated phages
10:30-12:00	Determination of the phage titre
12:00-13:00	Lunch
13:00-14:00	Phage escape mutant assay

Lectures

Chairperson: **Marcus Johansson, Lund University, Sweden**

14:00-14:45	Phages as master regulator of nutrient cycles in aquatic environments Karin Holmfeldt, Linnaeus University, Sweden
14:45-15:00	Questions and discussion
15:00-15:15	Coffee break
15:15-16:00	Insights into phage ecology to inform translation to the clinic Martha R.J. Clokie, University of Leicester, UK
16:00-16:15	Questions and discussion
16:15-17:00	Understanding the molecular interplay between phages and their host Rob Lavigne, University of Leuven, Belgium
17:00-17:15	Questions and discussion

PRELIMINARY SCHEDULE

Thursday April 27, 2023

Lab work: Isolation of escape mutants continued

9:00-10:30 **Streaking the phage escape mutants into single plaques**

Lectures

Chairperson: **Karin Ernits, Lund University, Sweden**

10:30-11:15	Phage-bacteria interactions in mucosal conditions Gabriel Magno de Freitas Almeida, UiT The Arctic University of Norway,
11:15-11:30	Questions and discussion
11:30-12:30	Lunch
12:30-13:15	Gene sharing networks structure the phage (meta)genomics space Gipsi Lima-Mendez, University of Namur, Belgium
13:15-13:30	Questions and discussion
13:30-13:45	Coffee break
13:45-14:30	Hundreds of viral families in the human gut virome Shiraz Shah, Herlev and Gentofte Hospital, University of Copenhagen, Denmark
14:30-14:45	Questions and discussion

PRELIMINARY SCHEDULE

Friday April 28, 2023

Lab work: Verification of phage escape mutants and analysis of the results

9:00-10:00	Working stocks of escape mutants and verification of the escape mutants with a spot assay - Data will be sent later
10:00-12:00	Discussion and data analysis of both the actual data and theoretical aspects of the course (oral examination) Vasili Hauryliuk, Lund University, Sweden
12:00-13:00	Lunch
14:00	Departure