Fundamentals of Basic and Applied Phage Biology

12-16 May 2025, Biology Department, Lund University, Lund, Sweden Monday May 12, 2025

Dinner at Hotel Concordia

18:30

Course Introductio	n (Hörsal A213, Biology Building A)
11:30-12:00	Course Introduction
	Vasili Hauryliuk, Lund University, Sweden
12:00-12:45	Lunch
Lecture (Hörsal A2	13, Biology Building A)
Chair: Vasili Hauryli	uk, Lund University, Sweden
13:00-13:45	Bacteriophages – from the fundamentals of molecular biology to the BASEL collection
	Alexander Harms, Department of Health Sciences and Technology, ETH Zürich, Switzerland
13:45-14:00	Questions and discussion
Lab work: Environn	nental phage isolation (in Lund city and at Lab-Verandan, Biology Building A)
14:00-15:00	Collection of environmental samples across the town
15:00-15:30	Phage isolation from environmental samples (first steps)
15:30-15:45	Coffee break
15:45-17:00	Phage isolation from environmental samples (continued)
Lecture (Hörsal A2	13, Biology Building A)
Chair: Vasili Hauryli	uk
17:00-17:45	Oh no. My gut microbiome got a virus infection. The role of the gut virome in
	health and disease – and how to study it Dennis Sandris Nielsen, University of Cononhagon, Donmark
17:45-18:00	Questions and discussion

Tuesday May 13, 2025

Lab work: phage isolation continues, and immunity escaper isolation starts (Lab-Verandan)

9:00-9:30	Picking plaques from the environmental isolation plates and restreaking
	(purification Nr 1)
9:30-11:00	Isolation of immunity escape mutants: phage infections of resistant strains
	to generate escape plaques
Lecture	
Chair: Marcus Johar	nsson, Lund University, Sweden
11:00-11:45	Phage-bacteria evolution experiments - a powerful tool to watch evolution in
	action
	Carolin Wendling, LMU Munich, Germany
11:45-12:00	Questions and discussion

12:00-12:45 Lunch

Lectures (Hörsal A213, Biology Building A)

Chair: Marcus Johansson, Lund University, Sweden

18:30	Dinner at Hotel Concordia
17:15-18:00	Presentations by students (1-slide elevator pitch)
17:00-17:15	Questions and discussion
	Antonia Sagona, University of Warwick, the UK
16:15-17:00	Bacteriophage isolation and engineering for clinical applications
16:00-16:15	Questions and discussion
	Anna Dragoš, University of Ljubljana, Slovenia
15:15-16:00	Life after infection: the story of Bacillus subtilis lysogens
15:00-15:15	Coffee break
14:45-15:00	Questions and discussion
	Emre Gençay, SNIPRBIOME, Denmark
14:00-14:45	Engineered and UKISPK-armed phages as therapies against AMR bacteria
14.00 14.45	Engineering and OPICOD errors dishered as the remise error AMD bestering
13:45-14:00	Questions and discussion
	Hanne Ingmer, University of Copenhagen, Denmark
13:00-13:45	Resistance to phages and antibiotics: Challenges and possibilities

Wednesday May 14, 2025

Lab work: Single-plaque purification of environmental phages and escape mutants (Lab-Verandan)

9:00-9:30	Restreaking individual plaques of environmental isolates (purification Nr 2)
9:30-10:00	Restreaking individual plaques of escape mutants (purification Nr 1)

Lectures (Green Room A261b, Biology Building A)

12:00-12:45	Lunch
11:45-12:00	Questions and discussion
	Rob Lavigne, University of Leuven, Belgium
11:00-11:45	Phage vs host interactions
10:45-11:00	Questions and discussion
	Stan J.J. Brouns, Delft University of Technology, Netherlands
10:00-10:45	Fighting Pseudomonas phages
Chair: Ilya Terenin, Lur	nd University, Sweden

Lectures (Green Room A261b, Biology Building A)

Chair: Ilya Terenin, Lund University, Sweden

13:00-13:45	Exploiting phage for SynBio applications in non-model bacteria
	Rob Lavigne, University of Leuven, Belgium
13:45-14:00	Questions and discussion
14:00-14:45	Bacteriophages and plant-associated microbes
	Lars Hestbjerg Hansen, University of Copenhagen, Denmark
14:45-15:00	Questions and discussion
15:00-15:15	Coffee break
15:15-16:00	The biology of CRISPR-Cas: adaptive immunity in prokaryotes
	Rafael Pinilla-Redondo, University of Copenhagen, Danmark
16:00-16:15	Questions and discussion
16:15-17:00	Xenogeneic regulation of the bacterial transcription machinery
	Sivaramesh Wigneshweraraj, Imperial College London, the UK
17:00-17:15	Questions and discussion
17:15-17:35	Beyond fragments: how long read sequencing revolutionises DNA sequence
	verification, Jonas Juozapaitis, SeqVision, Lithuania
18:30	Dinner at Hotel Concordia

Thursday May 15, 2025

Lab work: Single-plaque purification of escape mutants, preparation of environmental phage working stock, determination of phage titre (Lab-Verandan)

9:00-9:30	Streaking the phage escape mutants into single plaques (purification Nr 2)
9:30-12:00	Preparation of the phage lysate (working stock) from environmentally
	isolated phages and determination of phage titre

12:00-12:45 Lunch

Lectures (Hörsal A213, Biology Building A)

Chair: Karin Ernits, Lund University, Sweden

	s, Lund Oniversity, Sweden
13:00-13:45	Phage therapy in Belgium
	Jean-Paul Pirnay, Laboratory for Molecular and Cellular Technology, Queen
	Astrid Military Hospital, Brussels, Belgium
13:45-14:00	Questions and discussion
14:00-14:45	Insane in the membrane, safe in the cell: the examples of Kiwa and Tmn
	Franklin Nobrega, University of Southampton, the UK
14:45-15:00	Questions and discussion
15:00-15:15	Coffee break
15:15-16:00	A dive into the Argonaute world – Immunity through a wide variety of mechanisms
16:00-16:15	Daan Swarts, Wageningen University, the Netherlands
16:15-17:00	Bioinformatic tools for visualising and comparing phage genomes
	Gemma C. Atkinson, Lund University, Sweden
17:00-17:15	Questions and discussion
Lab work: asses	sing the results of the morning experimental session (Lab-Verandan)
17:15-17:45	Looking at the plates

18:30 Dinner at Hotel Concordia

Friday May 16, 2025

Lab work: Preparation of phage escape mutant stocks, analysis of the results (Lab-Verandan)

9:00-11:00	Making the working stock of the escaper mutants, cleaning up the lab
11:00-12:00	Discussion and data analysis of both the actual data and theoretical
	aspects of the course (oral examination)
	Vasili Hauryliuk, Lund University, Sweden
12:00-12:45	Lunch
13:00-13:45	Course evaluation (Hörsal A213, Biology Building A)
13:45	Departure

Departure