

Pasteur - EMBL workshop

Building bridges in infection biology

July 10-11, 2024

Auditorium François Jacob

Wednesday, July 10

1:00 pm Welcome from Yasmine Belkaid (IP)

1:15 pm **Session I: Pathogen-specific protein machineries**

Talks by M.Baker (IP), S.Baumgarten (IP), I.Boneca (IP), M.Bowler (EMBL), J.Bryant (IP), K.Djinovic-Carugo (EMBL), L.Glover (IP), P.Guardado-Calvo (IP), E. Kowalinski (EMBL), M. Wilmanns (EMBL)

2:45 pm Coffee break

3:15 pm **Session II: Map, view, and model host-pathogen interfaces**

Talks by M.Bernabeu (EMBL), S.Bhogaraju (EMBL), C.Buchrieser (IP), J.Enninga (IP), M.Hamon (IP), J.Kosinski (EMBL), J.Mahamid (EMBL)

4:45 pm Coffee break

5:15 pm **Session III: Host, Immunology and Microbiome**

Talks by M.Boulard (EMBL), B.Chassaing (IP), D.Bikard (IP), G.Eberl (IP), J.Hennig (EMBL), M.Marbouty (IP), N.Sauvonnet (IP), J.Zaugg (EMBL), M.Zimmermann (EMBL)

Thursday, July 11

9:00 am **Session IV: Anti-infectives and AMR**

Talks by P.Arimondo (IP), F.Barras (IP), G.Batt (IP), A.Bernheim (IP), L.Debarbieux (IP), P.Glaser (IP), J.Marquez (EMBL), D.Mazel (IP), E.Rocha (IP), N.Typas (EMBL)

10:30 am Coffee break

11:00 am **Session V: Population (pathogen) genetics, epidemiology, computational frameworks, and reference collections**

Talks by C.Crestani (IP), S.Duchene (IP), A.Koumoutsi (EMBL), J.Lees (EMBL), N.de Maio (EMBL), L.Opatowski (IP), N.Rahman (EMBL), M.White (IP)

12:30 pm Wrap-up

DAY I - July 10

13:00 **WELCOME WORDS FROM YASMINE BELKAID,
PRESIDENT OF INSTITUT PASTEUR**

13:15 - **SESSION I - Pathogen-specific protein machineries**

14:45 Chairs: Sebastian Baumgarten & Eva Kowalinski

Kristina Djinovic-Carugo (EMBL Grenoble)

Overview/Introduction of EMBL Grenoble: science and services

Matthew Bowler (EMBL Grenoble)

Imaging actions and reactions at the host-pathogen interface

Sebastian Baumgarten (Institut Pasteur)

Lost in translation: A novel class of specialized ribosomes in *P. falciparum*

Jessica Bryant (Institut Pasteur)

Come together! Transcription factories activate stage-specific genes in the human malaria parasite

Eva Kowalinski (EMBL Grenoble)

RNA processing in trypanosomatids

Lucy Glover (Institut Pasteur)

Defining the trypanosome repairome

Matthias Wilmanns (EMBL Hamburg)

Structure, dynamics and function of Type 7 Secretion Systems

Ivo Boneca (Institut Pasteur)

Targeting the peptidoglycan assembly complexes

Max Baker (Institut Pasteur)

Insights from the structure of a human rotavirus

Pablo Guardado-Calvo (Institut Pasteur)

Targeting the poxvirus fusion machinery

14:45 - **COFFEE BREAK**

15:15

DAY I - July 10

15:15 - SESSION II - Map, view, and model host-pathogen interfaces

16:45 Chairs: Maria Bernabeu & Jost Enninga

Julia Mahamid (EMBL Heidelberg)

Illuminating infection biology by in-cell structural biology

Carmen Buchrieser (Institut Pasteur)

Extracellular vesicles: in cellulo secretion, transport and signaling in infection

Sagar Bhogaraju (EMBL Grenoble)

Structural and functional insights into the SdhA family of *Legionella* effectors

Maria Bernabeu (EMBL Barcelona)

Building barriers: bioengineered models to study cerebral malaria

Mélanie Hamon (Institut Pasteur)

Bacteria-induced chromatin modifications

Jost Enninga (Institut Pasteur)

Exploring intracellular niche formation of *Salmonella* and *Shigella*

Jan Kosinski (EMBL Hamburg)

How influenza-A-virus escapes the nucleus

16:45 - COFFEE BREAK

17:15

17:15 - SESSION III - Host, Immunology and Microbiome

18:45 Chairs: David Bikard & Maria Zimmermann

Gerard Eberl (Institut Pasteur)

Early life imprinting of the immune system by the microbiota

Maria Zimmermann (EMBL Heidelberg)

Mutimics-based prediction of evolved antibiotic resistance

Benoit Chassaing (Institut Pasteur)

The Microbiome and the ecological Koch's postulates

Janosch Hennig (EMBL Heidelberg)

Linking TRIM25's RNA binding with antiviral activity

DAY I - July 10

17:15 - **SESSION III - Host, Immunology and Microbiome**

18:45 Chairs: David Bikard & Maria Zimmermann

Martial Marbouty (Institut Pasteur)

Deciphering virus/host interaction networks in complex microbial communities

Matthieu Boulard (EMBL Rome)

Causal Role of Host Epigenetic Modifications

Nathalie Sauvonnet (Institut Pasteur)

Impact of microenvironment and mechanical forces on human intestinal homeostasis using organ-on-a-chip

Judith Zaugg (EMBL Heidelberg)

Systems Epigenetics to study macrophage polarization

David Bikard (Institut Pasteur)

CRISPR tools to study the microbiome

DAY II - July 11

9:00 - **SESSION IV - Anti-infectives and AMR**

10:30 Chairs: Aude Bernheim & Nassos Typas

Paola Arimondo (Institut Pasteur)

Malaria Epigenetics: the path to novel therapies to bypass resistance

Philippe Glaser (Institut Pasteur)

Factors driving chromosomal integration of antibiotic resistance genes in *E. coli*

José Márquez (EMBL Grenoble)

Opportunities for novel anti-infectives through X ray-based fragment screening

Frédéric Barras (Institut Pasteur)

Bioenergetic metabolism and Fe-S proteins : motors and targets for AMR?

Eduardo Rocha (Institut Pasteur)

Are interactions between mobile genetic elements accelerating the spread of AMR?

Didier Mazel (Institut Pasteur)

Development of new AB strategies: live ABs and adjuvants

Nassos Typas (EMBL Heildeberg)

New strategies to solve old problems in AMR

Aude Bernheim (Institut Pasteur)

Bacterial immunity and its conservation in eukaryotes

Laurent Debarbieux/Devon Conti (Institut Pasteur)

Trans-kingdom interactions

Grégory Batt (Institut Pasteur)

A quantitative approach to easily characterize and predict cell death and escape to β -lactam treatments

10:30 - **COFFEE BREAK**

11:00

DAY II - July 11

11:00 - 12:30 **SESSION V - Population (pathogen) genetics, epidemiology, computational frameworks, and reference collections**

Chairs: John Lees & Michael White

Nicola de Maio (EMBL EBI)

Pandemic scale phylogenetics

Sebastian Duchene (Institut Pasteur)

Leveraging model complexity and tractability in infectious disease phylodynamics

Nadim Rahman (EMBL EBI)

The Pathogens Platform: a platform for infectious disease life sciences data

Lulla Opatowski (Institut Pasteur)

Mathematical models of antibiotic resistance dissemination

Alexandra Koumoutsis (EMBL Heidelberg)

Microbial Automation & Culturomics Core Facility

Chiara Crestani (Institut Pasteur)

Bacterial strain nomenclature in the genomic era: Life Identification Numbers using a gene-by-gene approach

John Lees (EMBL EBI)

Genome graph methods for microbial population sequencing

Michael White (Institut Pasteur)

Serological surveillance of arboviruses

12:30 - 13:00 **WRAP-UP & FINAL DISCUSSIONS**

Nassos Typas & Sebastian Baumgarten