

PROGRAMME

FEBS Advanced Course 2025 Biological Surfaces and Interfaces: Biointerfaces at lipids, proteins and polymers

IIS UTOKYO SYMPOSIUM NO 129

**8TH-13TH OF JUNE 2025 -HOTEL EDEN ROC,
SANT FELIU DE GUIXOLS, CATALONIA, SPAIN**

Chair

Andrea Salis
University of Cagliari,
Italy

Chair

Kaori Sugihara
The University of Tokyo
Japan

Vice-Chair

Jenny Malmström
University of Auckland
New Zealand

Vice-Chair

Rami Mhanna
American University of
Beirut, Lebanon

Sponsors





SUNDAY, 8TH OF JUNE

17:00	Registration
19:00	Welcome Mixer
20:00	Dinner

PROGRAMME

MONDAY, 9TH OF JUNE

- 8:00 – 8:45 Breakfast
- 8:45 – 9:00 Introduction and announcements: **Andrea Salis**, University of Cagliari

Session I: Interactions at virus surfaces

Chair: Francesca Baldelli Bombelli

- 9:00 – 9:45 **Miguel Castanho**
University of Lisbon
Tackling the urgent need for a broad spectrum antiviral drug, from lipid interfaces to in vivo activity
- 9:45 – 10:30 **Marta Bally**
Umeå University
Cell-surface mimics to study virus interactions with the glycocalyx
- 10:30 – 11:00 Coffee break & Poster viewing
- 11:00 – 11:20 **Fouzia Bano**
Umeå University
Sulfation patterns of heparan sulfate influence the physicochemical characteristics of papillomavirus interactions for entry
- 11:20 – 11:40 **Dario Valter Conca**
Umeå University
Variant-specific Interactions at the Plasma Membrane: Heparan Sulfate's Impact on SARS-CoV-2 Binding Kinetics

Session IIA: Nanoparticles at biointerfaces

Chair: Dimitrios Stamou

- 11:40 – 12:25 **Martin Malmsten**
University of Copenhagen
Boosting antimicrobial effects of photocatalytic TiO₂ nanoparticles by peptide coating
- 12:25 – 12:45 **Fatih Inci**
Bilkent University
Dynamic In Situ Synthesis of Molecularly Imprinted Polymeric Nanoparticles via a High-Performance Micro-Reactor Chip
- 12:45 – 15:00 Lunch & Free Time
- 15:00 – 15:15 **Mutay Aslan**
Akdeniz University
FEBS Introduction

Session IIB: Nanoparticles at biointerfaces

Chair: Miguel Castanho

- 15:15 – 16:00 **Francesca Baldelli Bombelli**
Politecnico di Milano
Tackling the urgent need for a broad spectrum antiviral drug, from lipid interfaces to in vivo activity
- 16:00 – 16:20 **Yeseren Saylan**
Hacettepe University
Development of Extracellular Vesicle-Imprinted Biosensors for Elucidating Tumor Microenvironment and Cancer Diagnosis
- 16:20 – 16:40 **Magdalena Goncerz**
Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Science
Advanced Dendrimer-Based Nanocarriers for Enhanced and Selective Delivery of 5-fluorouracil or Doxorubicin
- 16:40 – 17:10 Coffee Break & Poster viewing
- 17:10 – 17:30 **Beatrice Lucia Bona**
Politecnico di Milano
Tailor-Made Design of Fluorinated Nanotherapeutics for Cardiac Disfunctions
- 17:30 – 18:30 Keynote lecture: **Dimitrios Stamou**
University of Copenhagen
The shape of the plasma membrane regulates the nanoscale organization, function and pharmacology of transmembrane protein
- 18:30 – 19:00 Flash Presentations (3-5 min each) Chair: **Rami Mhanna**
- 19:00 – 20:30 Dinner
- 20:30 – Poster Session I

TUESDAY, 10TH OF JUNE

8:00 – 9:00 Breakfast

Session III: Lipid-based biointerfaces

Chair: Paul Cremer

9:00 – 9:45 **Tommy Nylander**
Lund University
Structure and processes at the lipid-aqueous interface – methods and applications

9:45 – 10:05 **Hudson Pace**
Umeå University
Cell Membrane Derived Supported Lipid Bilayers in Virology Research

10:05 – 10:25 **Leonardo Severini**
“La Sapienza” University of Rome
Influence of ethanol on liposome's bilayer properties; systematic comparison between preparation methods

10:25 – 10:55 Coffee Break & Poster viewing

Session IV: Antimicrobial Peptides and Enzymes

Chair: Martin Malmsten

10:55 – 11:40 **Chris Lorenz**
King's College London
Understanding synergistic antimicrobial peptide combinations through computational approaches

11:40 – 12:00 **Nawel Kaddour**
University of Limerick
Exploring the Biointerface of Polycrystalline Lysozyme Coatings: Interaction with Biological Fluids and Implications for Antimicrobial Release

12:00 – 12:45 **Kaori Sugihara**
The University of Tokyo
Antimicrobial peptide double cooperative effect towards the development of new antimicrobial agents

12:45 – 15:00 Lunch & Free Time

15:00 – 15:15 **Sara Fuentes: FEBS Open Bio**

Session V: Ions affect interactions at biointerface

Chair: Tommy Nylander

15:15 – 16:00 **Francesca Mocci**
University of Cagliari
Molecules at the Interface: Modelling Confinement Effects on DNA-Ion Interactions

16:00 – 16:20 **Robin Curtis**
University of Manchester
The impact of multivalent phosphate ions on protein selfassembly processes

16:20 – 16:40 **Cristina Carucci**
University of Cagliari
Into the core of Lipid Nanoparticles (LNPs); mRNA transfection efficiency is buffer specific

16:40 – 17:10 Coffee Break & Poster viewing


17:10 – 17:30 **Drew Parsons**
University of Cagliari
Bending, crowding and jostling: life is free inside the COVID vaccines.

17:30 – 18:30 Keynote lecture: **Paul Cremer**
Penn State University
Can Transition Metal Cations be Screened away from Biomembrane Interfaces?

18:30 – 19:00 Flash Presentations (3–5 min each) Chair: **Jenny Malmström**

19:00 – 20:30 Dinner

20:30 – Poster Session II



WEDNESDAY, 11TH OF JUNE

8:00 – 9:00 Breakfast

Session VIA: Gels, Polymers, Proteins and Amphiphiles

Chair: Cornelia Palivan

9:00 – 9:45 **Katarina Maniura**
EMPA
Instructive soft biomaterials for tissue response by design: steering events at the biointerface

9:45 – 10:30 **Jenny Malmström**
University of Auckland
Soft Materials to Understand Cell-Material Interactions

10:30 – 11:00 Coffee Break & Poster viewing

11:00 – 11:20 **Ashley Hancock**
University of Leeds
Advanced Methods to Control and Investigate Inter-Protein Interactions and Energy Transfer in Model Photosynthetic Biomembranes

Session VIB: Gels, Polymers, Proteins and Amphiphiles

Chair: Andreas Janshoff

11:20 – 11:40 **Hrachya Ishkhanyan**
National Academy of Sciences of the Republic of Armenia
Cross-Linking Effects on Mixed Surfactant Micelles: Insights from Molecular Dynamics Simulations

11:40 – 12:00 **Alberto Striolo**
University of Oklahoma
Competitive Behavior of Antibiotics vs. Surfactants on Microplastics

12:00 – 12:45 **Cornelia Palivan**
University of Basel
Functional surfaces by combining soft polymer membranes with biomolecules and catalytic nanocapsules

12:45 – 13:00 **Marcus Swan**
Semilab
Semilab company overview and current new technologies

13:00 – 19:00 Lunch & Excursion/Free Time

Plenary Talk: Women in Science

Chair: Francesca Mocci

20:30 – 21:30 **Claudia Steinem**
University of Göttingen
From solid supported to pores-spanning membranes – what do we gain?

21:30 – Poster Session III

PROGRAMME

THURSDAY, 12TH OF JUNE

8:00 – 9:00 Breakfast

Session VII: Enzymes, Biomedical Devices and Applications

Chair: Barbara Jachimska

Edmond Magner
University of Limerick
9:00 – 9:45 Immobilisation of enzymes for biocatalysis and biofuel cells

Rami Mhanna
American University of Beirut
9:45 – 10:30 Growth factor affinity binding alginate sulfate substrates for biomedical applications

10:30 – 11:00 Coffee Break & Poster viewing

Alessandra Del Giudice
"La Sapienza" University of Rome
11:00 – 11:20 Regulation of the photosynthetic ABGAPDH via selfassembly

Session VIII: Modelling Tissues and biointerfaces

Chair: Katharina Maniura

Delphine Gourdon
University of Glasgow
11:20 – 12:05 Obese Microenvironments Drive Breast Cancer Invasion

Andreas Janshoff
University of Göttingen
12:05 – 12:50 Tissue as a surface – using soap bubble physics to understand the mechanics of epithelia

12:50 – 15:00 Lunch and free time

15:00 – 15:45 PhD students + PostDoc career Round Table (Chairs: Rami Mhanna, Jenny Malmström)

Session IIC: Nanoparticles at biointerfaces

Chair: Edmond Magner

Barbara Jachimska
Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Science
15:45 – 16:30 Impact on Nanoparticles Biobehavior: Protein Corona Formation

16:30 – 17:00 Coffee break & Poster viewing

Luigi Talarico
University of Siena
17:00 – 17:20 Lipid Nanoparticles and Transethosomes for surface eye pathologies

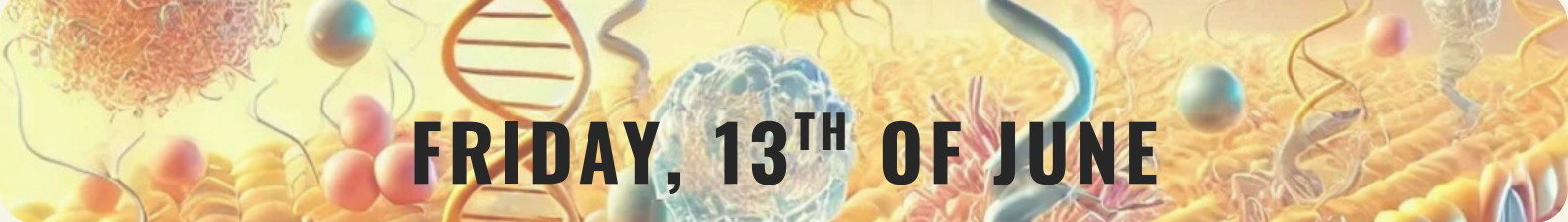
Simona Sennato
Consiglio Nazionale delle Ricerche CNR – Rome
17:20 – 17:40 Mitochondriotropic liposomes featuring a triphenylphosphonium bolaamphiphile: development of a protocol for loading antioxidants and evaluation of liposome ability in subcellular targeting

Ilaria Clemente
University of Siena
17:40 – 18:00 Design and investigation of microfluidic-synthesized lipid-based nanocarriers: High-throughput screening and optimization

Flaminia Cesare Marincola
University of Cagliari
18:00 – 18:20 Metabolomics for investigating molecular mechanisms of nanostructure– biology interactions

18:20 – 19:00 Concluding Remarks & Forward Look Pannel Discussion: **Rami Mhanna, Jenny Malmström, Kaori Sugihara**

19:15 Conference Dinner
Poster Prize Winners announcement



FRIDAY, 13TH OF JUNE

8:00

Breakfast

9:00

Departure

PROGRAMME