

# KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

## Delivering Therapeutics Across Biological Barriers (E1)

May 6-9, 2019 • Royal Dublin Society • Dublin, Ireland

Scientific Organizers: David Brayden, Claus-Michael Lehr and Kathryn Whitehead

Supported by the Directors' Fund

Abstract & Scholarship Deadline: January 8, 2019 / Abstract Deadline: February 6, 2019 / Discounted Registration Deadline: March 6, 2019

### MONDAY, MAY 6

#### Arrival and Registration

### TUESDAY, MAY 7

#### Overcoming the Blood-Brain Barrier to Treat CNS Disease

**Xavier Declèves**<sup>†</sup>, University Paris Descartes, France  
*Imaging Transporter Function on the Blood-Brain Barrier and their Role in Drug Delivery to the CNS*

**Roland Burli**, AstraZeneca Neuroscience iMED, UK  
*Medicinal Chemistry Designs to Achieve Therapeutic Delivery to the CNS*

**Elizabeth de Lange**, Leiden University, Netherlands  
*Exploiting BBB Transporters: Preclinical to Clinical Studies of Brain-Delivered Molecules*

**Svetlana Gelperina**, Drugs Technology Ltd, Russia  
*Clinical Outcome Data for a Phase-II Study of Nanoparticle-Bound Doxorubicin in Patients With Recurrent Glioblastoma*

**Short Talk(s) Chosen from Abstracts**

#### Nanoparticle and Polymer Advances to Enable Crossing of Biological Barriers

**Elias Fattal**, Université Paris-Sud, France  
*Talk Title to be Announced*

**Renata Pasqualini**, Rutgers University, USA  
*Ligand-Directed Therapies using Particulates for Targeting Cancer*

**W. Mark Saltzman**, Yale University, USA  
*Biocompatibility Assay of Nanoparticles and Polymers used in Drug Delivery*

**Short Talk Chosen from Abstracts**

#### Poster Session 1

### WEDNESDAY, MAY 8

#### Materials and Delivery Approaches for Use in Diagnostics and Therapeutic Delivery

**Tanja Weil**, Max Planck Institute for Polymer Research, Germany  
*Quantum Materials, Customized and Adaptive Macromolecules for Precision Sensing and Therapy*

**Paula T. Hammond**<sup>†</sup>, Koch Institute for Integrative Cancer Research at MIT, USA  
*Self-Assembly of Polymeric Nanomaterials to Generate Multifunctional Materials with Highly Controlled Architecture*

**Joke A. Bouwstra**, Leiden University, Netherlands  
*Drug-Device Combinations for Transdermal Delivery of Drugs and Vaccines*

**Julie A. Champion**, Georgia Institute of Technology, USA  
*Developing Therapeutic Protein Materials: Controlling and Understanding Protein Particle Self-Assembly*

**Short Talk(s) Chosen from Abstracts**

#### Advances in Oral Delivery of Peptides and Small Molecules

**David Brayden**, Conway Institute of Biomolecular & Biomedical Research, Ireland  
*Oral Peptide Delivery of Nanoparticles and Intestinal Permeation Enhancers*

**Anja Boisen**, Technical University of Denmark, Denmark  
*Oral Drug Delivery and Sensing Using Micro and Nanofabricated devices*

**Chris Porter**, Monash University, Australia  
*Lipid-based Formulations to Improve Solubility and Oral Bioavailability of BCS Class II Molecules*

**Short Talk Chosen from Abstracts**

#### Poster Session 2

### THURSDAY, MAY 9

#### Delivery Solutions for Delivery of Gene Medicines

##### Speaker to be Announced

**Kathryn Whitehead**, Carnegie Mellon University, USA  
*Enabling the Medicines of Tomorrow: Lipid Nanoparticles for Applications in mRNA Delivery*

##### Speaker to be Announced

**Short Talk(s) Chosen from Abstracts**

#### Human Cell and Tissue Models of Biological Barriers to Assist Translation

**Donald E. Ingber**, Wyss Institute for Biologically Inspired Engineering at Harvard, USA  
*Human Organs-on-Chips: An in vitro Platform for Drug Development and Delivery*

**Josué Sznitman**, Technion - Israel Institute of Technology, Israel  
*Biomimetic in vitro Airway Platforms for Drug Delivery Assays and Precision Medicine*

**Claus-Michael Lehr**, Saarland University, Germany  
*Modelling Epithelial Barriers of Disease States for Testing Safety and Efficacy of Novel Delivery Systems*

#### Summary and Analysis

**Kinam Park**, Purdue University, USA  
*An Assessment of the Current and Likely Impact of the Science of Crossing Biological Barriers on Medicine*

#### Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

### FRIDAY, MAY 10

#### Departure