ON THE HUNT FOR NEXT GENERATION ANTIMICROBIAL AGENTS

December 9-10, 2021
From 1pm (UTC+1) to 6pm (UTC+1)
Virtual symposium, http://www.sct-asso.fr/fall_one_day_symposium.html

Thursday 9 December

Introductory words

- ✓ **13:00 – Pr Rébecca Deprez (President, SCT) and Pr Jean-Louis Herrmann (Vice-President, SFM)**

Introductory conference

- ✓ **13:15 – Florence Séjourné, President of the Beam Alliance**

"Innovation in AMR: unlocking the late gates."

Florence Séjourné is the Chief Executive Officer of Da Volterra, a late-stage French biopharmaceutical company developing innovative products to protect patients with cancer from consequences of intestinal microbiome dysbiosis induced by antibiotics.

In addition to her activities at Da Volterra, Florence is the founder and President of the BEAM Alliance since 2016, which represents 70 European biotech companies involved in developing innovative products to tackle AMR, in order to speak with one voice in front of stakeholders in charge of policy changes required to support AMR innovation. Prior to joining Da Volterra in 2008, Florence co-founded another French biotech GENFIT (GNFT), and holds degrees from Mines ParisTech and from the University of Illinois, Chicago.

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Session 1. The hunt for active natural compounds

- ✓ **13:35 – Cédric Couturier, PhD, Evotec, Lyon, France**

"Corramycin: a novel class of natural antibacterial from myxobacteria."

Dr Cédric Couturier joined Evotec in 2018 as group and project leader in the Infectious Disease department. His research interests include the design/synthesis of new gram-negative antibiotics from natural products and target-based approach. Cédric started his professional career as a Medicinal Chemist at Sanofi in 2005 in Exploratory Research department with a focus in metabolism and then joined the Infectious Disease (Gram-positive, tuberculosis, malaria). He completed a PhD in Organic Chemistry at ICSN (Gif-sur-Yvette, France) in the group of Prof. Jieping Zhu.

- ✓ **14:15 – Paul Race, Pr, University of Bristol, United Kingdom**

"Antibiotic Discovery in the Abyss."

Pr Paul Race is Professor of Biological Chemistry at the University of Bristol. He is a founding Director of the Bristol BioDesign Institute (BBI) and is Bristol lead for the EPSRC funded UK Innovation and Knowledge Centre in synthetic biology (SynbiCITE). From 2014-2018 he served as Co-Director of the >£14M BBSRC/EPSRC funded Bristol Centre for Synthetic Biology Research (BrisSynBio). His research focuses on the discovery of antimicrobial natural products and the development of functionally optimised 'non-natural' derivatives of these important molecules.

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Session 2. Blocking the exit : Efflux pump inhibitors

- ✓ **14:55** – **Klaas Martinus Pos, Pr, Goethe University Frankfurt, Germany**

"Multidrug efflux pumps: Approaches on how to get insight in their structure and function."

Pr Klaas Martinus Pos is Professor of Membrane Transport Machineries at the Institute of Biochemistry, Goethe University Frankfurt (DE), Training in Biology, Molecular Microbiology, Membrane Biochemistry, and Structural Biology. His research focuses on the molecular basis of drug poly specificity, energy transduction, and inhibition of bacterial multidrug efflux pumps via X-ray crystallography and Cryo-EM.

- ✓ **15:35** – **Timothy Opperman, PhD, Microbiotix, Massachusetts, USA**

"Pyranopyridine EPIs as adjunctive therapies for MDR Enterobacteriaceae."

Dr Timothy Opperman is Director of Microbiology at Microbiotix, Inc., an anti-infective drug discovery company located in Worcester, MA USA. His company is developing a series of novel efflux pump inhibitors that target the RND-type pumps of Gram-negative bacterial species.

Presentation from our sponsor Incate

- ✓ **16:15 : Douglas Haggstrom and guests**
  INCATE – helping you turn your catch into dinner – a discussion around the support needed to turn ideas into successful companies

INCATE is partnership between academic and industry partners that supports innovators in the fight against drug-resistant bacterial infections. INCATE supports with advice, community and funding to help innovators shape their projects and teams. It launched in 2021 and is taking applications on an ongoing basis. Learn more at www.incate.net.

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Session 3. Challenging bacterial membrane permeability

- ✓ **16:30 – Paul Hergenrother, Pr, University of Illinois Urbana-Champaign, USA**

"Accumulation rules lead to novel antibiotics for Gram-negative bacteria."

Professor Paul Hergenrother received his B.S. in chemistry from the University of Notre Dame in 1994. He went on to the University of Texas at Austin and obtained his Ph.D. in 1999; during this time Paul was the recipient of an American Chemical Society graduate student fellowship and the Roche Award for Excellence in Organic Chemistry. After an American Cancer Society post-doctoral fellowship at Harvard University, he joined the faculty at Illinois in 2001. His research interests are in the areas of synthetic organic chemistry, chemical biology, and biochemistry.

- ✓ **17:10 – Glenn Dale, PhD, Bioversys, Basel, Switzerland**

"Rifabutin for infusion (BV100) for the treatment of severe carbapenem-resistant Acinetobacter baumannii infections."

Dr Glenn Dale is the Chief Development Officer of BioVersys. He is a distinguished expert in infectious diseases, the author of numerous publications, and inventor on many patents. Since February 2019 Glenn has led the clinical development activities at BioVersys, applying his 25 years of R&D experience and significant knowledge in the modern development of antibiotics. Glenn obtained his Ph.D. in Biochemistry in 1993 from the University of Basel. Following post-doctoral studies in Basel he has held the following positions; Group Leader at Roche, Head of Biology, Site Head at Morphochem AG and Scientific Coordinator responsible for pre-clinical research at Arpida. In 2009 he joined Polyphor where he led the Antibiotic Research and Early Development, successfully transitioning Murepavadin (POL7080) from pre-clinical activities to Phase 3 studies. Glenn is an expert in developing and implementing modern antibiotic clinical development plans (e.g. devising pathogen specific development) and is experienced in presenting to and discussing with European and US regulatory authorities, e.g. scientific advice meetings (MHRA, EMA), Type C meetings (FDA) and End of Phase 2 meeting (FDA).

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Friday 10 December

Session 1. Stepping up the fight against tuberculosis

- ✓ **13:00 – Robert H. Bates, PhD, GSK, Tres Cantos, Spain**

"First steps on the road to TB Drug Candidates – Highlights and challenges from 10+ years of phenotypic screening."

Dr Robert Bates is Head of Tuberculosis Portfolio at GSK Global Health Pharma R&D. Robert was trained in organic and medicinal chemistry at the Massachusetts Institute of Technology (B.S.) and the Scripps Research institute (Ph.D.). He is now responsible for TB research at GSK with projects ranging from target validation and screening through to early clinical development.

- ✓ **13:40 – Giulia Manina, PhD, Institut Pasteur de Paris, France**

"Targeting mycobacterial phenotypic variation to potentiate therapy and prevent persistence."

Dr Giulia Manina heads the Junior Group of Microbial Individuality and Infection at the Institut Pasteur in Paris, France. She was trained in genetics and molecular microbiology at the University of Pavia, Italy, where she worked on the cellular target of a new anti-tubercular drug. As a postdoc at EPFL, Switzerland, she focused on the single-cell biology of tuberculosis and microfluidic microscopy. In 2015, Giulia started her own research group, where she builds up a cutting-edge program on tuberculosis persistence at the single-cell level, using molecular and cell biology, microsystems engineering approaches, live-cell imaging and omics. Her group is also involved in tuberculosis drug discovery programs and subpopulation-based biomarkers.

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Session 2. New insights in β-lactamase inhibitors

- ✓ **14:20** – **Michel Arthur, PhD, Centre de Recherche des Cordeliers, Paris, France**

"Modulation of the specificity of carbapenems and diazabicyclooctanes for selective activity against *Mycobacterium tuberculosis.*"

Dr Michel Arthur did his PhD at the Pasteur Institute on the mechanisms of resistance to macrolide antibiotics. As a postdoctoral fellow at Boston University, he worked on bacteriophages and virulence factors of enterobacteria. He was then hired by the Pasteur Institute as a permanent scientist to study the genetics and biochemical mechanisms of resistance to glycopeptide antibiotics in E. faecium. He extended his expertise in biochemistry through a sabbatical leave at CNRS-Paris 11, where he initiated a research program on tRNA-dependent aminoacyl transferases that catalyze an essential step of peptidoglycan synthesis in Gram positive bacteria. He was recruited by INSERM as a group in 2000 and as a research unit leader in 2004. He currently leads a laboratory of ca. 15 members working on different aspects of cell wall synthesis in relation to antibiotics resistance. The main focus of his team is the design of β-lactams and β-lactamase inhibitors to combat drug resistance, as well as the study of the adaptability of bacterial cell wall synthesis in response to antibiotics treatments.

- ✓ **15:00** – **David Davies, PhD, Antabio, Labège, France**

"Discovery and Preclinical Development of ANT3310 a Broad-Spectrum Serine β-Lactamase Inhibitor which Potentiates Meropenem against Carbapenem Resistant Bacteria."

Dr David Davies spent 25 years in medicinal chemistry within the pharmaceutical industry (GSK) most of which were in the antibacterial area (clavulanates, penicillinates, pseudomonates and bacterial topoisomerase inhibitors). After GSK, David consulted with biotech companies in the antibacterial area in support of their medicinal chemistry efforts while simultaneously holding a part-time academic position in the Chemistry Department of University College London (UCL) where he is still part of the Anderson group. For the past decade David has been Head of Medicinal Chemistry at Antabio, working in a variety of antibacterial areas including beta-lactamase and bacterial elastase inhibitors. David is an inventor on 40 patents and an author on a similar number of papers.

Presentation from our sponsor Incate

- ✓ **15:40** – **Douglas Haggstrom**

  "INCATE – helping you turn your catch into dinner – a discussion around the support needed to turn ideas into successful companies."

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Session 3. Suffocate the bug : OxPhos inhibitors

- ✓ **15:55** – **Garrett Moraski, PhD, Montana State University, USA**

"Quest for inhibitors of the mycobacterial respiratory terminal oxidases."

Dr Garrett Moraski is a Senior Research Scientist, Montana State University, Department of Chemistry and Biochemistry and affiliate of the University of Notre Dame, Department of Chemistry and Biochemistry. Prior to academics, Garrett worked as a medicinal chemist within industry (Pfizer, Array Biopharma, and Thios Pharmaceutical) and at SRI International (a non-profit). His research focusses on small molecule inhibitors of mycobacterial diseases with particular emphasis on Ox-Phos targets.

- ✓ **16:35** – **Kevin Pethe, Assoc. Pr, Nanyang Technological University, Singapour**

"Quest for inhibitors of the mycobacterial respiratory terminal oxidases."

Dr Kevin Pethe is associate Professor and Provost's chair in Infectious Diseases at the Nanyang Technological University, Lee Kong Chian School of Medicine, Singapore. He is known for his contribution in the area of chemical biology and antibiotic drug discovery for tuberculosis and mycobacterial diseases. Notably, he led an interdisciplinary team that developed Telacebec, a drug candidate for tuberculosis, Buruli ulcer, and leprosy that completed human clinical trial phase 2. Before joining NTU, he gained expertise in Research & Development in the private sector as research investigator and project manager at the Novartis Institute for Tropical Disease (Singapore) from 2004 to 2011. In 2011, joined the Institut Pasteur Korea as Principal Investigator. He was subsequently nominated head of the department of disease biology & chemical genomics and acting CEO of Institut Pasteur Korea in 2013. He received his PhD in genetics and molecular biology from Institut Pasteur de Lille and University of Lille (France) and his postdoctoral training in cellular microbiology at Cornell University.

Concluding remarks

- ✓ **17:15** – **Pr Nicolas Willand, University of Lille and Dr Alain Baulard, Institut Pasteur de Lille, France**