

First International Meeting of the



On-line meeting
30 November - 03 December 2021



iGPCRnet Conference Program

Day 1: Tuesday, November 30, 2021

14.00-14.20 : **Introduction**

Hosts: Ralf Jockers/ Martin Lohse/ Stephen Hill

Session 1: Structural dynamics of GPCR activation and signaling

Chairs: Andreas Bock and Chanjuan Xu

14.20-14.40 **Jianfeng Liu** (Huazhong University of Science and Technology, China)

Activation mechanism of neurotransmitter GPCR

14.40-15.00 **Fei Xu** (ShanghaiTech University, China)

A self-activated orphan GPCR

15.00-15.20 **Chris Tate** (MRC Laboratory of Molecular Biology, UK)

Structure and activation of a Class D GPCR

15.20-15.40 **Tracy Handel** (University of California, San Diego, USA)

Structure and activation mechanisms of G protein-coupled and atypical chemokine receptors

15.40-15.55 **Discussion**

5 min break

16.00-16.20 **Flash presentations 1**

Day 1: Tuesday, November 30, 2021

Session 2: Computational biology in GPCR research

Chairs: Nicolas Floquet and Marcel Bermudez

16.30-16.50 **Masha Niv** (The Hebrew University, Israel)

Molecular match-making for taste GPCRs

16.50-17.10 **Patrick Barth** (Swiss Federal Institute of Technology, Switzerland)

Uncovering and reprogramming GPCR signaling by computational design

17.10-17.30 **Peter Kolb** (Philipps-University Marburg, Germany)

The pocketome of GPCRs reveals previously untargeted allosteric sites

17.30-17.50 **Xavier Deupi** (Paul Scherrer Institute, Switzerland)

Structural basis of the activation of the CC chemokine receptor 5 by a chemokine agonist

17.50-18.05 **Discussion**

5 min break

18.10-18.30 **Flash presentations 2**

10 min break



18.40-19.30 **Keynote Lecture 1: Jin Zhang** (University of California, San Diego, US)

Illuminating the Biochemical Activity Architecture of the Cell

Chair: Martin Lohse

Day 2: Wednesday, December 1, 2021

Session 3: Compartmentalisation of GPCR signaling

Chairs: Andreas Bock and Charlotte Kayser

14.00-14.20 **Viacheslav Nikolaev** (University Medical Center Hamburg, Germany)
Nanodomains of cardiac beta-adrenoceptor/cAMP signalling visualised by live cell imaging

14.20-14.40 **Manuela Zaccolo** (University of Oxford, UK)
Mapping beta-adrenergic nanodomains in the heart using proteomics

14.40-15.00 **Meritxell Canals** (University of Nottingham, UK)
Modulation of the mu-opioid receptor signalling

15.00-15.20 **John Scott** (University of Washington, Seattle, USA)
Exploring and exploiting the spatial constraints of cAMP signaling

15.20-15.35 **Discussion**

5 min break

15.40-16.00 **Flash presentations 3**

10 min break

Session 4: GPCR Physiology and Pathology

Chairs: Françoise Bachelerie and Charlotte Kayser

16.10-16.30 **Aylin Hanyaloglu** (Imperial College London, UK)
Endosomal programming of gonadotropin hormone receptor signalling; new pharmacological targets and models of disease

16.30-16.50 **Torsten Schöneberg** (University of Leipzig, Germany)
GPCR dysfunctions as causes of human pathologies

16.50-17.10 **Julie Perroy** (Institut de Génomique Fonctionnelle, FR)
Restoring glutamate receptosome dynamics at synapses rescues autism-like deficits in Shank3-deficient mice

17.10-17.30 **Paul Insel** (University of California San Diego, USA)
GPCRs as novel therapeutic targets in cancers

17.30-17.45 **Discussion**

5 min break

17.50-18.10 **Flash presentations 4**

10 min break



18.20-19.10 **Keynote Lecture 2: Jean-Philippe Pin**

(Institut de Génomique Fonctionnelle, FR)

Structure and dynamics of the asymmetric activation of class C GPCR dimers

Chair: Stephen Hill

Day 3: Thursday, December 2, 2021

Session 5: Up and coming technologies to target GPCRs

Chairs: Laura Kilpatrick and Laura Lemel

14.00-14.20 **Carl White** (University of Western Australia, Australia)

CRISPR-tagging of chemokine receptors with Nanoluciferase to probe endogenous receptor function

14.20-14.40 **Eleonora Comeo** (University of Nottingham, UK)

Illuminating the Life of the Adenosine Receptors: Development and Application of Fluorescent Probes for the Study of the Adenosine A1 Receptor in Living Cells

14.40-15.00 **Mark Wheatley** (Coventry University, UK)

GPCR-Lipid Particles: the shape of things to come

15.00-15.20 **Mikel Garcia-Marcos** (Boston University, USA)

Versatile optical biosensors of heterotrimeric G protein activity

15.20-15.35 **Discussion**

5 min break

15.40-16.00 **Flash presentations 5**

10 min break

Session 6: GPCR crosstalk with microbe

Chair: Françoise Bachelerie

16.10-16.30 **Tim Lämmermann** (Max Planck Institute of Immunobiology and Epigenetics, Germany)
GPCR desensitization self-limits neutrophil swarms and control bacterial containment

16.30-16.50 **Martine Smit** (Vrije Universiteit Amsterdam, Netherlands)
Modulating viral GPCR function by nanobodies

16.50-17.10 **Nathalie Vergnolle** (INSERM U1220, FR)
Thrombin at the crossroads of GPCR and microbiota signalling

17.10-17.30 **Stefano Marullo** (Institut Cochin, FR)
Meningococcal/beta2 adrenergic interactions

17.30-17.45 **Discussion**

5 min break

17.50-18.10 **Flash presentations 6**

10 min break



18.20-19.10 **Keynote Lecture 3: Stefan Offermanns**
(Max Planck Institute for Heart and Lung Research, Germany)

Novel GPCR functions in the cardiovascular and metabolic system

Chair: Ralf Jockers

Day 4: Friday, December 3, 2021

Session 7: Frizzled and adhesion GPCRs

Chairs: Laura Kilpatrick and Denis Servent

14.00-14.20 **Ines Liebscher** (University of Leipzig, Germany)

Translating the force – pharmacology and physiology of mechano-sensing adhesion GPCRs

14.20-14.40 **JinPeng Sun** (Shandong University School of Medicine, China)

Structural basis of recognizing steroid hormones by aGPCRs

14.40-15.00 **Hannes Schihada** (Karolinska Institute, Sweden)

Dissecting WNT-induced Frizzled activation and signalling with conformational sensors

15.00-15.20 **Xianhua Piao** (University of California San Francisco, USA)

GPCR-dependent Microglia Function in Development

15.20-15.35 **Discussion**

5 min break

15.40-16.00 **Flash presentations 7**

10 min break

Session 8: GPCRs and drug development

Chairs: Julie Sanchez and Denis Servent

16.10-16.30 **Mark Soave** (University of Nottingham, UK)

Monitoring Allosteric Interactions at CXCR4 using NanoBiT-conjugated Nanobodies

16.30-17.00 **Sadashiva S Karnik** (Cleveland Clinic Lerner College of Medicine, USA)

A Novel Allosteric Pocket in the Major Receptor for Angiotensin II

17.00-17.20 **Christa Müller** (University of Bonn, Germany)

Development of novel ligands for purinergic G protein-coupled receptors

17.20-17.40 **Eric Trinquet** (Perkin Elmer, France)

Innovative Solutions to investigate GPCR function & signaling

17.40-18.00 **Discussion**

10 min break



18.10-19.00 **Keynote Lecture 4: Laura Bohn** (The Scripps Research Institute, USA)

Imparting biased agonism and allosterity at the mu opioid receptor to improve the therapeutic index

Chair: Phillipe Marin

19.00-19.20 **Awards & Conclusions**

Chairs: Ralf Jockers & Xavier Iturrioz

End of Conference

The i-GPCRnet meeting organizing committee

Françoise Bachelerie (Université Paris-Saclay, France)

Denis Servent (Université Paris-Saclay, France)

Andreas Bock (MDC Berlin, Germany)

Charlotte Kayser (MDC Berlin, Germany)

Laura Kilpatrick (University of Nottingham, UK)

Laura Lemel (University of Nottingham, UK)

Julie Sanchez (University of Nottingham, UK)

Chanjuan Xu (Huazhong University of Science and Technology, China)

Pin Yi (Huazhong University of Science and Technology, China)