

Online, March 18th, 2021

aviesan

ITMO Biologie cellulaire,
développement et évolution

Spatio-temporal encoding and
decoding in cell signaling

$$\frac{dc_{in}}{dt} = f_{in}(J_n + \delta J_{CX} - \delta J_{ACU})$$

Spatio-temporal encoding and decoding in cell signaling

March, 18th 2021, Online

Program

9:00 am

Introduction

Session 1: Calcium signaling

Chair person: Geneviève DUPONT, Université libre de Bruxelles, Belgique

Invited talks

9:15 am

Spatio-temporal dynamics of calcium signaling in tiny subcellular domains: the case of astrocyte processes - Hugues BERRY, Inria Grenoble Rhône-Alpes, équipe-projet Beagle

9:55 am

Amplitude versus frequency coding in calcium oscillations - Ursula KUMMER, COS Heidelberg, Modeling of Biological Processes

Selected short talks

10:35 am

Simulation of astrocytic calcium signals in microscopy images based on kinetic models – Anaïs BADOUAL, Inria Rennes, France

10:47 am

Three-dimensional model of sub-plasmalemmal Ca²⁺ microdomains evoked by the interplay between ORAI1 and InsP3 receptors – Diana Gil Montoya, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

11:00 am

Short break

Session 2: Signaling and decision making

Chair person: Laurence CALZONE, Institut Curie, Paris, France

Invited talks

11:10 am

Decoding and Re-encoding MAPK Fate Decision Signaling - Olivier PERTZ, University of Bern, Institute of Cell Biology

11:50 am

A positive feedback loop in apoptosis to explain heterogeneity in cell response to cancer drugs - Madalena CHAVES, Inria Sophia Antipolis - Méditerranée, équipe-projet Biocore

Selected short talks

12:30 pm

Control of SRC molecular dynamics encodes distinct cytoskeletal responses by specifying its signaling pathway usage – Olivier Destaing, Institute for Advanced Biosciences, Grenoble, France

12:42 pm

Modeling cell fate specification during early embryonic development in mouse – Didier Gonze, Université Libre de Bruxelles, Belgium

12:54 pm

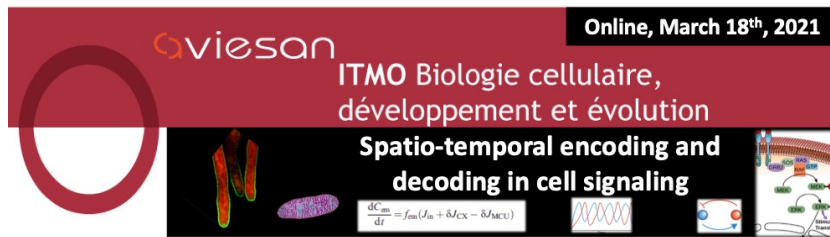
Chemotaxis impact on a Turing reaction-diffusion system – Camille Fraga Delfino Kunz, Frankfurt Institute for Advanced Studies, Frankfurt, Germany

1:06 pm

Detection and tracking of collective signalling – Maciej Dobrzynski, Institute of Cell Biology, University of Bern, Switzerland

1:20 pm

Lunch break



Session 3: GPCR signaling

Chair person: Frédérique CLEMENT, INRIA-Saclay, France

Invited talk

2:30 pm **Role of kinetics and trafficking in GPCR-mediated signaling** - Eric REITER, UMR Physiologie de la Reproduction et des Comportements, équipe BIOS (Biologie et bioinformatique des systèmes de signalisation)

Selected short talks

3:10 pm **Dynamics and cell-specific activity of signaling pathways are altered in neurons of Parkinsonian mice** – Nicolas Gervasi, Collège de France, Paris, France

3:22 pm **Quantitative fret and stoichiometry measurements with Quanti-FRET** – Aurélie Dupont, LIPhy, Grenoble, France

3:34 pm **Kinetic control of the temporal dynamics of a RhoA signaling cascade** – Serena Prigent-Garcia, IBPS – LBD, Paris, France

3:46 pm **Short break**

Session 4: Onset and propagation of oscillations in signaling

Chair person: Laurent COMBETTES, Inserm, Orsay, France

Selected short talk

4:00 pm **cAMP bursts control T cell directionality by actinmyosin cytoskeleton remodelling** – Morgane Simao, Institut Cochin, Paris, France

Invited talks

4:12 pm **Modeling the onset of periodic and excitable dynamics in signaling motifs** - Jacques-Alexandre SEPULCHRE, Institut de Physique de Nice

4:52 pm **Short break**

5:05 pm **Autonomous oscillations of confined epithelia: a dance-based rangefinder** - Joseph D'ALESSANDRO, Institut Jacques Monod, équipe Adhésion cellulaire et mécanique

5:45 pm **Awards for the best short communications, concluding remarks**