



Journées plénières du GDR CellTiss 2013

Du 4 au 6 novembre 2013

Domaine St Joseph, Lyon

Monday November 4, 2013

- 11:30 Check-In and Registration
- 12:00-13:30 Welcome lunch
- 13:30-15:00 A. Wlaczak (Laboratoire Physique Théorique, ENS)
Information processing in gene regulatory circuits
T. Strick (Institut Jacques Monod, Paris)
Bottom-up, single-molecule reconstruction of multi-component DNA repair pathways
M. Nollmann (Centre de Biochimie Structurale, Montpellier)
Mechanisms of DNA segregation at the single-molecule level
- 15:00-15:30 Coffee break
- 15:30-16:45 Talks:
L. Ciandrini (DIMNP et Lab. Charles Coulomb, Montpellier) *How ribosome crowding on mRNAs affects protein synthesis? (15')*
F. Montel (MSC, Paris VII) *Flow injection of DNA in nanopores: direct optical visualization of a pressure threshold (15')*
L. Valon (PhysicoChimie Curie, Paris): *Quantitative subcellular control of Cdc42, Rac1 and RhoA GTPases using the Cry2/CIBN optogenetic dimerizer (15')*
J.C. Walter (Univ. Montpellier 2) *Unwinding dynamics of polymers: a model for single biomolecules? (15')*
E. Helfer (Laboratoire d'enzymologie et de biologie structural, Gif) *A tamoxifen-based assay to unleash acutely the activity of actin regulators (15')*
- 16:45: "Poster minute" + Posters
- 20:00 Dinner



Avec le soutien de la **Fédération des systèmes complexes hors équilibre**

Tuesday November 5, 2013

- 9:00-10:00 **Overview:** A. Viallat (Adhésion Cellulaire et Inflammation, Marseille) – *Microcirculation*
- 10:00-11:00 O. Du Roure (Physique et Mécanique des milieux hétérogènes, ESPCI)-
Mechanics of branched actin networks
E. Lemichez (Centre Méditerranéen de Médecine Moléculaire, Nice)-
Transcellular tunnel opening: control of cellular dewetting by actomyosin contractility and I-BAR proteins
- 11:00-11:30 Coffee break
- 11:30- 12:25 Talks:
M.P. Valignat (Adhésion Cellulaire et Inflammation, Marseille) *Upstream mechanotaxis of lymphocytes under flow (10')*
F. Quemeneur (PhysicoChimie Curie, Paris) *How a membrane-shaping protein deforms and diffuses in a lipid bilayer (15')*
D. Molino (IJPB, INRA-AgroParisTech, Saclay) *Sphingolipids and membrane dynamics (15')*
L. Picas (Compartimentation et dynamique cellulaires, I. Curie) *Impact of phosphoinositides on cell membrane remodeling (15')*
- 12:25-14:00 Lunch
- 14:00-15:00 **Overview:** L. Blanchoin (CEA Grenoble)
Cytoskeleton
- 15:00-16:10 Talks:
L. Bonnemay (Dept Chimie, ENS) *Engineering microtubules aster positioning using magnetic nanoparticles (15')*
S. Roth (AMOLF, Amsterdam), P. Recouvreux (IBDML, Marseille) *Positioning of Microtubule organizing centers (MTOC) in 3D confinement (20')*
M. Delattre (Plasticité et Evolution de la Division Cellulaire, ENS Lyon) *Evolution of mechanical forces controlling spindle positioning and spindle elongation in nematode embryos (15')*
T. Bornschlögl (PhysicoChimie Curie, Paris) *How Filopodia Pull (10')*
A. Jegou (Laboratoire d'enzymologie et de biologie structural, Gif): *Force sensing and force generation by formin mDia1 (10')*
- 16:10-18:00 Posters
- 18:00-18:45 **Keynote talk:** A. Oates (MRC National Institute of Medical Research London)
Patterning of the embryo by a Doppler effect
- 20:00 Dinner



Wednesday November 6, 2013

- 9:00-10:00 **Overview** J.F. Joanny (PhysicoChimie Curie, Paris)
Physical description of tissue mechanics and growth
- 10:00-11:00 D. Vignjevic (Compartimentation et dynamique cellulaires, I. Curie)
Migration and invasion of cancer cells – role of microenvironment
Y. Forterre (IUSTI, Marseille)
Physics of plant movements: fast motion and gravitropism
- 11:00-11:30 Coffee break
- 11:00-12:25 Talks:
C. Rivière (LPMCN, Lyon) *Quantification of the interplay between substrate elasticity and cell plasticity during vasculogenesis (10')*
D. Isabey (Biomécanique Cellulaire et Respiratoire, Institut Mondor, Créteil) *Rôle des forces mécaniques dans le contrôle de l'adhésion cellulaire (15')*
R.M. Mège (Institut Jacques Monod, Paris). *Cadherin engagement limits the recruitment of microtubules at cell-cell contacts through organization of acto-myosin, impact on cell polarization (15')*
A. Confavreux (Laboratoire de Physique de la Matière Condensée et Nanostructures, Lyon) *Interplay between cell-substrate adhesion and random and chemotactic motility for highly invasive cancer cell lines (15')*
J.D. Julien (Reproduction et Développement des Plantes, ENS Lyon) *Symmetry breaking in spore germination relies on an interplay between polar cap stability and spore wall mechanics (15')*
M. Louveaux (Reproduction et Développement des Plantes, ENS Lyon) *Mechanical stress influences the orientation of the cell division plane in Arabidopsis thaliana (15')*
- 12:30-14:00 Lunch
- 14:00-15:00 X. Wang (Biologie Cellulaire et Moléculaire du Contrôle de la Prolifération, Toulouse)
Translation vs. Rotation: two types of collective cell movements
J. Vermot (IGBMC, Strasbourg)
Fluid mechanics during cardiovascular development
- 15:00-16:00 Talks:
V. Gurchenkov (Compartimentation et Dynamique Cellulaires, I. Curie) *Cellular capsules technology as a tool for imaging tumoral growth in vitro (15')*
A. Hallou (MSC, Paris VII) *Cancer Metastasis: Collective Invasion and Cell Guidance in Heterogeneous Multicellular Systems (15')*
T. Risler (PhysicoChimie Curie, Paris) *A Hydrodynamic Instability in Tumor Formation (15')*
M.K. Khelloufi (Adhésion Cellulaire et Inflammation, Marseille) *Mucus transport and ciliary beat in asthma (15')*
- 16:00 End of the meeting

