**Pre-program Winterschool « Bio-membranes, Pharmacology and Therapeutics »**

**December 12-16, 2022**

**Monday 12th PM: Biological membranes and cellular compartments**

* Lipid membrane territories in the cell (Bruno Antonny)
* Homeostatic mechanisms of sphingolipid metabolism (Joost Holthuis)
* Phospholipid polyunsaturated effects on biophysical properties of PM (Hélène Barelli)
* Ion channels in all cellular compartments (Delphine Bichet)

**Tuesday 13th AM: Bio-membranes and cell signaling**

* Lipid synthesis and cell signaling (Guillaume Drin)
* Regulation by phosphoinositides of a lipid flippase associated with human disorders (Guillaume Lenoir)
* Rare disease of Sphingolipid metabolism (Thorsten Hornemann)
* Lipid regulation of ion channels (Nazzareno D’avanzo)

**Tuesday 13th PM: Innovative tools to study membrane lipids**

* Bioinformatic approaches for studying biomembranes (Romain Gautier)
* Gene disruption strategy to analyze and manipulate lipid co-regulatory networks (Takeshi Harayama)
* Mass spectrometry of membrane lipids (Florian Fröhlich)
* Super-resolution imaging of lipid membranes (Ayelen Gonzalez Montoro)

**Wednesday 14th AM: Electrical properties of cell membranes**

* Membrane proteins at the origin of bioelectricity (Olivier Soriani)
* Synaptic pathophysiology (Fabio Benfenati ou Anna Fassio)
* Sodium channels in neurological disorders (Massimo Mantegazza)
* H+ exchangers in neurodevelopmental and neurodegenerative disorders (Laurent Counillon)

**Wednesday 14th PM: elaboration of an integrated LPBIOPHARMA master programme for the next EMJM call for proposal**

**Thursday 15th AM: Innovative tools to study membrane proteins**

* Methods for the production of membrane proteins for drug screening and structural analysis (Isabelle Mus-veteau)
* Cryo-electron microscopy of membrane proteins (Isabelle Broutin)
* Advanced patch-clamp and high-density multielectrode techniques (Pietro Baldelli)
* Using fluorescence microscopy to study proteins (Sylvain Feliciangeli)

**Thursday 15th PM: Transfer of knowledge on bio-membranes to industry**

* Research valorisation (Thierry Ferreira)
* From lab to start-up (Isabelle Mus-Veteau)
* Invitation of renowned national and international startups and companies (OnoPharma, Ephysience, Smartox, Gaoma therapeutics, Everzom, Lipidots…)

**Friday 16th AM: Targeting cell membrane components in therapy**

* Analgesic effects of mambalgin peptide inhibitors of acid-sensing ion channels (Eric Lingueglia)
* Targeting membrane lipids for therapy
* CFTR pharmacological modulators (Frederic Becq)
* Anti-PLA2R1 antibodies in diagnostic and prognostic of nephrotic syndrome (Gérard Lambeau)