

3rd Integrative Structural Biology School – Institut Pasteur

16 - 21 July 2018

Organizers **Claudine Mayer, Michael Nilges, Nicolas Wolff** (Paris)

Sunday, July 15 **Arrival of participants**

20:00 Informal get together

Monday, July 16 **Protein production** *Chair: Bruno Miroux*

Amphitheatre François Jacob

9:00 – 9:30 Welcome of the participants

9:30 – 10:00 *General presentation of the course* – **Michael Nilges** (Paris)

10:00 – 10:30 1 slide presentation of the participants

10:30 – 11:00 **Coffee break**

11:00 – 11:45 *Gene design and codon metrics* - **Gregory Boel** (Paris)

11:45 – 12:30 *Heterologous production of complex samples* – **Imre Berger** (Bristol)

12:30 – 14:00 **Lunch - Cantine**

14:00 – 14:45 *Microbial expression systems for membrane proteins* – **Bruno Miroux** (Paris)

14:45 – 15:30 *Amphipols nanodisc and SMA for membrane protein stabilization and purification* – **Manuela Zoonens** (Paris)

15:30 – 16:15 *Membrane Protein Reconstitution* – **Martin Picard** (Paris)

16:15 – 16:45 **Coffee break**

16:45 – 17:30 Andreas Plückthun (to be confirmed)

17:30 – 18:15 Quality control of purified proteins – **Sébastien Brulé** (Paris)

18:30 – 20:30 **Dinner (Buffet) / Poster session**

Tuesday, July 17 **X-ray diffraction** *Chair: Isabelle Broutin*

Amphitheatre François Jacob

9:00 – 9:30 *No structure without crystal, the long road to get it* – **Isabelle Broutin** (Paris)

9:30 – 10:30 *How the crystal got its spots* – **Pierre Legrand** (Saclay)

10:30 – 10:45 **Coffee break**

10:45 – 11:45 *From diffraction data to initial phases and from phases to model building and validation* – **Marc Delarue** (Paris)

11:45 – 12:15 *How bacterial RND transporters efflux antibiotics out of the cell* – **Isabelle Broutin** (Paris)

12:15 – 12:45 *Integrated structural biology for ribosome biogenesis understanding* – **Magali Blaud** (Paris)

13:00 – 14:30 Lunch - Cantine

Bioinformatics module (below the canteen)

14:30 – 18:00 Practical session – From data processing to structure refinement – **Marco Bellinzoni** (Paris)

18:30 Free evening

Wednesday, July 18

Liquid/solid NMR

Chair: Nadia Izadi-Pruneyre

Amphitheatre François Jacob

9:00 – 10:00 *Principles of NMR, structure determination et dynamics by liquid state NMR* – **Sophie Zinn-Justin** (Gif-sur-Yvette)

10:00 – 10:45 *Biomolecular interactions by liquid state NMR* – **Nadia Izadi-Pruneyre** (Paris)

10:45 – 11:15 Coffee break

11:15 – 12:15 *Cutting-edge solid-state NMR to elucidate insoluble protein structures-* **Birgit Habenstein** (Bordeaux)

12:30 – 13:45 Lunch

13:45 – 14:45 *From NMR data to structures: principles and contributions to integrative studies of large assemblies* – **Benjamin Bardiaux** (Paris)

Bioinformatics module (below the canteen)

15:00 – 18:00 *HADDOCK Introduction and Practical session* – **Alexandre Bonvin** (Utrecht)

18:30 – 19:30 Dinner (Buffet) / Poster session

Thursday, July 19

Electron microscopy

Chair: Dorit Hanein

Amphitheatre François Jacob

9:00 – 10:00 *An overview of cryo-EM* – **Dorit Hanein** (Paris)

10:00 – 11:00 *Image processing basics* – **Niels Volkman** (San Diego)

11:00 – 11:30 Coffee break

11:30 – 12:00 *Visualizing macromolecular machines* – **Rémi Fronzes** (Paris)

12:00 – 12:30 *Protein Structures and Dynamics from Cryo-EM* – **Gunnar Schroeder** (Jülich)

12:30 – 14:00 Lunch

Bioinformatics module (below the canteen)

14:00 – 18:00 Practical session – Image processing and visualization – **Niels Volkmann** (San Diego), **Dorit Hanein** (San Diego)

18:30 – 19:30 Dinner (Buffet) / Poster session

Friday, July 20

SAXS - Biophysics

Amphitheatre François Jacob

9:00 – 10:30 *Solution X-ray Scattering from Biological macromolecules (1)* – **Javier Perez** (Saclay)

10:30 – 11:00 Coffee break

11:00 – 12:30 Tutorials - SAXS data analysis and modeling – **Aurélien Thureau** (Saclay), **Patrice Vachette** (Orsay)

12:30 – 14:00 Lunch

Bioinformatics module (below the cantine)

14:00 – 15:00 *Integrative structural biology* - **Michael Nilges** (Paris)

15:00 – 16:00 integrative conference (to be confirmed)

16:00 – 18:00 Practical session: IMP Tutorial Part I – **Riccardo Pellarin** (Paris)

17:00 Free evening

Saturday, July 21

Mass spectrometry

Chair: Julia Chamot-Rooke

Amphitheatre François Jacob

9:00 – 9:30 *Mass Spectrometry in Structural Biology: an Introduction* – **Julia Chamot-Rooke** (Paris)

9:30 – 10:30 *Structural probing of protein complexes by protein cross-linking and mass spectrometry* – **Florian Stengel** (Konstanz)

10:30 – 11:00 Coffee break

11:00 – 12:00 *Insight into protein structure and dynamics utilizing backbone amide hydrogen/deuterium exchange monitored by mass spectrometry* – **Thomas Jorgensen** (Southern Denmark)

12:00 – 13:00 *Higher-order protein structure by native MS and ion mobility* – **Frank Sobott** (Antwerp)

13:00 – 14:00 Lunch (Buffet)

Bioinformatics module (below the cantine)

14:00 – 16:00 Practical session: IMP Tutorial Party II

16:30 – 16:45 Coffee break

16:45 – 17:45 Round table

17:45 – 18:00 *Conclusion of the course - Michael Nilges* (Paris)

19:00 – 20:00 **Free evening**

Sunday, July 22

Departure

Coffee every afternoon around 16:00 during practical sessions