

PROGRAM

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Monday March 25th

Satellite Symposium "40 years of NMR Developments for Biology"

Symposium in honor of Dr. Dominique MARION's retirement

9:50 Opening / Welcome by IBS Director

10:00 Muriel Delepierre (Institut Pasteur - Paris - FR): *Biological NMR in France in the 80's*

10:35 Marc-André Delsuc (IGBMC - Illkirch - FR): *Dominique, in Phase with NMR, in Resonance with Biology, to Transform modern Science*

11:10 - Coffee break

11:40 Françoise Guerlesquin (CNRS Marseille - FR): *"NMR of metalloproteins : a wonderful life"*

12:15 Jo Zaccai (IBS/ILL - Grenoble - FR): *"The early days of Structural Biology in Grenoble"*

13:00 - Lunch in IBS Hall

15:00 Ad Bax (NIH - Bethesda- USA): *"1, 2, 3, ... How many dimensions do we need?"*

15:35 Mitsu Ikura (University of Toronto - CA): *"The Birth of Triple-Resonance Experiments for Protein NMR at NIH"*

16:10 - Coffee break

16:40 Gerhard Wagner (Harvard Medical School - Boston - USA): *"Observing the development of protein NMR from the beginning"*

17:15 Dominique Marion (IBS Grenoble - FR): *"Spin and science evolution"*

Tuesday March 26th

8:00-9:00 *Arrival / Registration / Coffee*

9:00 **Opening – Welcome** - Winfried Weissenhorn (Head of IBS) and Michael Plevin

Integrated Structural Biology of Protein Complexes I – Chair: Carine Tisné

9:20 **Sheena Radford** (University of Leeds – GB) – *The structural molecular mechanism of amyloid formation*

10:05 **Mitsu Ikura** (University of Toronto – CA) – *Targeting K-RAS4B on Biological Membranes*

10:40 **Beate Bersch** (IBS – FR) – *Structural Basis of Membrane Protein Translocation Through the Mitochondrial Intermembrane Space*

11:00 **Silke Wiesner** (University of Regensburg – DE) – *The importance of being inactive: Controlling the activity of ubiquitin ligases through restriction of conformational dynamics*

11:45-13:30 *Lunch in the IBS Hall – Poster set up*

Advanced Isotopic Labelling Methodologies I – Chair: Gerhard Wagner

13:40 **Pau Bernado** (CBS – FR) – *Access to Atomic Resolution Structural Information of Homo-Repeats by NMR: The Huntingtin Case*

14:15 **Takanori Kigawa** (RIKEN – JP) – *Cell-free protein synthesis for advanced isotopic labeling*

14:35 **François-Xavier Theillet** (I2BC – FR) – *α -Deuteration makes kinases more amenable to NMR studies*

14:55 **Galia Debelouchina** (UCSD – USA) – *A Molecular Engineering Toolbox for Integrated Chromatin Structural Biology*

15:15 **E. Luchinat** (CERM – IT) – *Recent developments and applications of in-cell NMR in mammalian cells*

15:50-16:20 *Coffee*

Chaperones, Folding & Dynamics – Chair : Bernhard Brutscher

16:20 **Malene Ringkjøbing Jensen** (IBS – FR) – *Elucidating the Dynamics of Intrinsically Disordered Protein Complexes by NMR Exchange Spectroscopy*

16:55 **Sigrid Milles** (IBS – FR) – *The Measles virus phosphoprotein – an intrinsically disordered chaperone that regulates nucleocapsid assembly*

17:15 **Ad Bax** (NIH – USA) – *Studies of protein folding, unfolding, and misfolding by rapid pressure jump NMR*

17:50 **Loïc Salmon** (CRMN – FR) – *Looking into chaperone assisted protein folding using NMR spectroscopy, X-ray crystallography and Molecular Dynamic Simulations*

18:10 **Jerome Boisbouvier** (IBS – FR) – *Structural and Functional investigation of a 1MDa chaperonin in action by solution NMR*

19:00-21:30 : *Wine & Cheese in the IBS Hall – Poster Session 1*

Wednesday March 27th

Advanced Isotopic Labelling Methodologies II – Chair : Ad Bax

- 9:00** **Gerhard Wagner** (Harvard Medical School – USA) – *Use of specific ^{19}F , ^{13}C and ^2H labeling for studies of large biopolymers*
- 9:45** **Jacob Anglister** (Weizmann Institute – IL) – *Observation of Intermolecular Transferred-NOE interactions in a 40 kDa Complex: MAP Kinase p38 α interactions with its recognition motif*
- 10:05** **Ricarda Törner** (IBS – FR) – *Selective Edition of Intra- vs. Inter- Subunit NOEs : A New Tool to Study Large Protein Complexes*
- 10:25** **Haribabu Arthanari** (Harvard Medical School – USA) – *Resolution beyond the Nyquist grid: Combining the amino acid specific information from pyruvate labeling with band selective pulses to extend the resolution for large systems*
- 11:00** **Charalampos Kalodimos** (St Jude Children's Research Hospital – USA) – *Approaches for the structure determination of large, dynamic protein complexes by NMR*

11:45-13:45 Lunch in the IBS Hall – Poster Session 2

Perdeuteration for Neutron Studies – Chair : Trevor Forsyth

- 14:00** **Frank Gabel** (IBS – FR) – *Small angle neutron scattering for structural biology and dynamics of large biomacromolecular complexes*
- 14:35** **Sarah Waldie** (ILL – FR) – *Cholesterol Deuteration and Exploitation for the Study of HDL/LDL Exchange Phenomena in Atherosclerosis*
- 14:55** **Vinardas Kelpšas** (Lund University – SE) – *Development of Escherichia coli Strains for Protein Perdeuteration*
- 15:15** **Janosch Hennig** (EMBL – DE) – *Segmental and sub-unit selective isotope labeling of protein-RNA complexes for structure determination, combining small-angle neutron scattering and other techniques*

Structural Biology of Nucleic Acid/Protein complexes – Chair : Michael Sattler

- 15:50** **Julie Feigon** (UCLA – USA) – *Integrative structural biology of regulatory RNPs: telomerase and TSK*
- 16:25-16:55 Coffee**
- 16:55** **Olga Vitsyna** (Leibniz University Hannover – DE) – *Structural studies of the 5'-UTR of HCV RNA by solid-state NMR based structural biology*
- 17:15** **Emil Spreitzer** (Medical University of Graz – AT) – *Deciphering the Molecular Regulatory Mechanisms of FUS Phase Separation*
- 17:35** **Junji Iwahara** (UTMB – USA) – *Ion labeling for NMR investigations of protein-DNA interactions*
- 18:10** **Andres Ramos** (University College London – GB) – *Understanding combinatorial protein-RNA recognition in RNA regulation*

19:30 Dinner at the EPN campus restaurant

Thursday March 28th

Integrated Structural Biology of large complexes – Chair : Silke Wiesner

- 9:00** **Michael Sattler** (BNMRZ – DE) – *Decoding regulatory protein-RNA recognition and dynamics using integrative structural biology*
- 9:45** **Sophie Zinn-Justin** (CEA – FR) – *How does the nucleoskeleton interact with the inner nuclear membrane and chromatin?*
- 10:20** **Nadia Izadi-Prunerye** (Institut Pasteur – FR) – *Integrative Structural Biology of bacterial nano-machines*
- 10:40** **Adrien Favier** (IBS – FR) – *Integrated NMR and cryo-EM atomic-resolution structure determination of a half-megadalton enzyme complex*
- 11:00** **Tobias Madl** (Medical University of Graz – AT) – *Protein structure determination using surface-accessibility data*

11:45-13:45 Lunch in the IBS Hall – Poster Session 3

13:00-14:00 Visit of cryoEM / ILL / ESRF / NMR Facilities

Mass-Spectrometry & Metabolomics – Chair : Bruno Kieffer

- 14:00** **Justin Benesch** (Univesity of Oxford – GB) – *Quantitative biophysics – weighing the evidence for mechanism*
- 14:35** **Hermann Heumann** (Silantes GmbH – DE) – *In vivo-stable isotopic labeling of animal models such as mice, zebrafish for quantitative proteomics and metabolomics*
- 14:55** **Roman Zubarev** (Karolinska Institutet – SE) – *Isotopic Resonance - the First 10 Years*
- 15:30** **Guy Lippens** (LISBP – FR) – *Pure Shift methodology for fluxomics*

16:05-16:35 Coffee

Isotopic Labelling of RNA & modified RNAs – Chair : Michael Plevin

- 16:35** **Pierre Barraud** (IBPC – FR) – *Time-resolved NMR monitoring of tRNA maturation*
- 17:10** **Hannes Feyrer** (Karolinska Institutet – SE) – *Making RNA at maxium purity and yield with minimal effort and cost*
- 17:30** **Christoph Kreutz** (University of Innsbruck – AT) – *Chemical tools to study nucleic acids via NMR spectroscopy*
- 18:05** **Katja Petzold** (Karolinska Institute – SE) – *MicroRNA's Dynamics Influence Targeting of mRNA*

20:00-22:30 Dinner at Grenoble Museum

Friday, March 29th**Advanced Isotopic Labelling Methodologies III** – Chair : Alvar Gossert

- 9:00** **Masatsune Kainosho** (Tokyo Metropolitan University – JP) – *Recent Advances in Isotope-Aided Methods for Studying Protein Structures and Dynamics – Historical Background and Future Perspectives*
- 9:45** **Roman Lichtenecker** (University of Vienna – AT) – *Late metabolic precursors – advantages in selectivity and efficiency concerning cell-based protein isotope labeling*
- 10:05** **Denis Lacabanne** (Université de Lyon – FR) – *Selective unlabeled strategies of a 120 kDa membrane protein for solid-state NMR spectroscopy*
- 10:25** **Daniel Häussinger** (University of Basel – CH) – *Intrinsic paramagnetic χ -tensors of lanthanide tags by isotopic labelling*

10:45-11:15 *Coffee Break*

NMR of Large Proteins Using Advanced Isotopic Labelling – Chair: J. Boisbouvier

- 11:15** **Alvar Gossert** (ETH – CH) – NMR studies of proteins produced in eukaryotic cells – challenges in expression and NMR spectroscopy
- 11:50** **Ichio Shimada** (The University of Tokyo – JP) *Function-related Dynamics of High Molecular Proteins*

12:25 *Closing of AILM2019*

12:45-13:30 *Lunch at the EPN Campus Restaurant*