

# International Workshop on Advanced Isotopic Labelling Methods for Integrated Structural Biology

February 2-5, 2015 - IBS Grenoble, FR.

## Organization

- J. Boisbouvier (IBS - Fr.)
- B. Kieffer (IGBMC - Fr.)
- M. Plevin (Univ. York - UK)
- C. Tisné (LCRB - Fr.)



## AILM2015 - Program

### Monday

- 13:00 Opening AILM2015**  
**High Molecular Weight Proteins (Chair : T. Carlomagno)**
- 13:30 C. Kalodimos** (Rutgers Univ. - USA): *Determining structures of large dynamic protein complexes by NMR (NMR-Bio sponsored talk).*
- 14:15 B. Reif** (Tech. Univ. München - Germany): *Amyloid aggregates and large soluble protein complexes.*
- 14:50 R. Sprangers** (MPI - Germany): *Obtaining high quality spectra of large asymmetric protein complexes: challenges and solutions*
- 15:25 G. Mas** (IBS - France): *Methyl specific Labelling, a tool to study a 1 MDA chaperonin in action.*
- 15:45 R. Walsler** (AstraZeneca - UK): *Elucidating Structure and Function of a Nucleosome-Chromatin-Reader Complex.*
- 16:05 R. Lichtenecker** (Univ. Vienna - Austria): *Isotope Labeled Precursors to be used in E. coli Protein Overexpression.*
- 16:25 Y. Monneau** (Rutgers Univ./IBS): *Development of non-stochastic and locally exhaustive search-based software to automatically assign <sup>13</sup>C/<sup>1</sup>H resonances of methyl-labelled protein from 3D NOESY spectra and crystal structure.*
- 16:45 Coffee Break**
- Dynamics Studies of Large Proteins (Chair : I. Shimada)**
- 17:15 V. Tugarinov** (NIH - USA): *Methyl Isotope Labeling in NMR Studies of Protein Dynamics, Allostery and Recognition.*
- 17:50 P. Schanda** (IBS - France): *Seeing "invisible states" of proteins by MAS-NMR: new methods provide functional insight in a half-megadalton enzymatic assembly.*
- 18:25 K. Gardner** (CUNY - USA): *NMR-based studies of bacterial signalling pathways: Insights into nature's view of the environment.*

### Tuesday

- Isotopic Labelling in Eukaryotic Cells (Chair : M. Plevin)**
- 8:30 I. Shimada** (Tokyo Univ. - Japan): *Functional dynamics of GPCR in micelles and lipid bilayers (NMR-Bio sponsored talk).*
- 9:15 A. Gossert** (Novartis, CH): *Affordable uniform isotope labeling with <sup>2</sup>H, <sup>13</sup>C and <sup>15</sup>N in insect cells.*
- 9:50 F. Bontems** (ICSN - France): *Cost effective production of labeled proteins in insect cells for NMR studies. Application to class II viral fusion proteins.*
- 10:10 R. Sounier** (IGF - France): *Towards a mechanistic understanding of opioid receptors activation by liquid-state NMR spectroscopy.*
- 10:30 Coffee Break**
- 11:00 R. Trouillard** (Rouen Univ. - France): *Production of uniformly <sup>15</sup>N/<sup>13</sup>C labeled glycosylated proteins by hairy roots in view to NMR structural studies.*
- 11:20 C. Laguri** (IBS - France): *Glycoconjugates isotopic labeling as tools to study cell surfaces and interactions of cells with their environment.*
- 11:40 R. Kerfah** (NMR-Bio - France): *Advanced Solutions for the Investigation of Challenging Biological Systems using NMR Spectroscopy (Presentation from Sponsor).*
- 12:00 Lunch at EPN restaurant**
- 13:45 Poster Session**
- Isotopic Labelling for NMR Studies of Proteins (Chair : B. Bersch)**
- 15:15 J. Markley** (Madison Univ. - USA): *Labeling strategies for NMR studies of interactions between nuclei and unpaired electrons in iron-sulfur proteins..*
- 15:50 L. Elantak** (CNRS - France): *Galectin-1 dependent pre-B cell receptor activation.*
- 16:10 M. Casiraghi** (IBPC - France) : *Towards the detection of transiently formed G Protein-Coupled Receptor conformers in nanometric lipid bilayers by NMR spectroscopy.*
- 16:30 R.A. Byrd** (NIH - USA): *Bio-orthogonal <sup>19</sup>F Labeling - New Approaches to <sup>19</sup>F Methyl Labeling.*
- 16:50 Coffee Break**
- Isotopic Labelling for Mass Spectrometry (Chair : J. Garin)**
- 17:20 J. Williamson** (Scripps Institute - USA): *Dynamics of Ribosome Assembly in Bacteria.*
- 17:55 V. Brun** (IRTSV - France): *Protein isotope-labelling and mass spectrometry analysis: Selected biomedical applications.*
- 18:30 J. Benesch** (Oxford Univ. - UK): *Weighing the quaternary dynamics of proteins.*

### Wednesday

- In vitro and Segmental labelling (Chair : B. Kieffer)**
- 8:30 M. Kainosho** (Tokyo Univ. - Japan): *Perspectives of the SAIL Method for Studying Structures and Dynamics of Larger Proteins (IUPAB sponsored talk).*
- 9:15 V. Dötsch** (Frankfurt Univ. - Germany): *New labeling approaches for the structure determination of membrane proteins.*
- 9:50 B. Odaert** (CBMN - France): *Initial steps in describing the F1Fo ATP synthase dimer interface and modelling the small hydrophobic subunits of the Fo region with solution state NMR.*
- 10:10 E. Lescop** (ICSN - France): *A well-balanced pre-existing equilibrium governs electron flux efficiency in a 70 kDa diflavin reductase from NMR/SAXS combined techniques.*
- 10:30 Coffee Break**
- 11:00 T. Schubeis** (Giotto Biotech - Italy) *Segmental Isotope labelling of insoluble proteins for solid state NMR analysis.*
- 11:20 E. Michel** (Zurich Univ. - Switzerland): *Amino acid-selective segmental isotope labeling of multidomain proteins.*
- 11:40 D. Hart** (ISBG - France): *User access to high-level research platforms through EU Instruct and French FRISBI programs (Presentation from Sponsor).*
- 12:00 Lunch at EPN restaurant**
- 13:45 Poster: Session**
- Isotopic Labelling for Neutron Studies (Chair : T. Forsyth)**
- 15:15 M. Weik** (IBS - France) : *Combining deuterium labelling and neutron spectroscopy to study protein and hydration-water dynamics.*
- 15:50 A. Podjarny** (IGBMC - France): *Solving biological puzzles using "tiny" perdeuterated crystals for subatomic resolution X-Ray and neutron diffraction.*
- 16:25 A. Duff** (National Deuteration lab. - Australia): *A robust and reliable method for high yield deuterated recombinant protein production using Escherichia coli BL21.*
- 16:45 Coffee Break**
- Isotopic Labelling for Integrated Structural Biology (Chair : Boisbouvier)**
- 17:15 P. Macek** (IBS/AstraZeneca): *Unraveling Self-Assembly Pathways of Large Protein Machinery by Combining Time-Resolved EM, Native MS on Isotopically Hybridized Particle and Methyl-TROSY NMR.*
- 17:35 P. Rajagopal** (Washington Univ. - USA): *Hybrid Methodologies for Elucidating Structure and Function of a Chaperone.*
- 17:55 T. Carlomagno** (EMBL-Germany): *RNA-protein complexes in RNA metabolism: an integrative structure biology approach (Biochemical Society sponsored talk).*
- 19:45 Banquet at Epicurien**

### Thursday

- Isotopic Labelling of Nucleic Acids (Chair : C. Tisné)**
- 8:30 C. Kreutz** (Innsbruck Univ. - Austria): *Advanced stable isotope labeling methods for RNA NMR spectroscopy.*
- 9:05 C. Wunderlich** (Innsbruck Univ. - Austria): *Dynamics of naturally occurring methylated RNA building blocks probed by NMR spectroscopy.*
- 9:25 J. Chugh** (IISER - India): *Visualizing Transient Structures in A-site RNA of the Ribosome: New Structures of Known Molecules for Drug Target.*
- 9:45 I. Lebars** (IGBMC - France): *A fully enzymatic method for site-directed spin labeling of long RNA.*
- 10:05 Coffee Break**
- 10:35 S. Keane** (HHMI - USA): *Structure of the HIV-1 RNA Packaging Signal.*
- 11:10 L. Ponchon** (Univ. Paris V - France): *In vivo production of uniformly labelled RNA in Escherichia coli using a tRNA scaffold.*
- 11:30 Closing AILM2015**
- 11:45 Lunch at EPN self-service restaurant / Ski Outgoing**

## Sponsors & Supporting Organizations

