



Course Program

The 2nd Course in Mitochondrial Medicine

December 1-3, 2014

*Bertinoro di Romagna - CEUB
Bologna (Italy)*

Course Directors:

G. Gasparre (Dept. of Medical and Surgical Sciences, University of Bologna, Italy)

A. M. Porcelli (Dept. of Pharmacy and Biotechnology, University of Bologna, Italy)

Faculty members:

Y. Bai (Department of Cellular and Structural Biology, Columbia University, USA), **H.T. Jacobs** (Institute of Medical Technology, University of Tampere, Finland), **G. Lenaers** (Institute of neurosciences, University of Montpellier, France), **J. Montoya** (Dept. of Biochemistry, University of Saragoza, Spain), **C.T. Moraes** (Dept. of Cell Biology, Miller School of Medicine, University of Miami, USA), **R. Rizzuto** (Dept. of Biomedical Sciences, University of Padua, Italy), **G. Romeo** (Dept. of Medical and Surgical Sciences, University of Bologna, Italy), **R. Rossignol** (Division of Genetics and Metabolism, University of Bordeaux, France), **E. Schon** (Dept. of Genetics and Development, Columbia University Medical Center, Usa), **E. White** (Rutgers Cancer Institute, NJ, USA), **H. Yu** (Bascom Palmer Eye Institute, University of Miami, USA).



MEET Marie Curie Fellows:

ESR1 Renaud Vatrinet - Department of Pharmacy and Biotechnology, University of Bologna, Italy;

ESR2 Selena Trifunov - Department of Biomedical and NeuroMotor Sciences, University of Bologna, Italy;

ER3 Oleksandr Lytovchenko - Mitochondrial Biology Unit, MRC, United Kingdom;

ESR4 Silvia Vidali - Gemeinnützige Salzburger Landeskliniken Betriebsgesellschaft, Research Program for Tumor metabolism, Centre for the Diagnosis of Mitochondrial Disorders, Dept. of Pediatrics, Austria;

ESR5 Lavinija Mataković - Gemeinnützige Salzburger Landeskliniken Betriebsgesellschaft, Research Program for Tumor metabolism, Centre for the Diagnosis of Mitochondrial Disorders, Dept. of Pediatrics, Austria;

ESR6 Mikael Pezet - University of Newcastle Upon Tyne, Mitochondrial Research Group, United Kingdom;

ESR7 Michele Giunta - University of Newcastle Upon Tyne, Mitochondrial Research Group, United Kingdom;

ESR8 Eliška Holzerová - Helmholtz Zentrum München, Institut für Humangenetik, Germany;

ESR9 Laura Sanchez Caballero - Stichting Katholieke Universiteit, Nijmegen Center for Mitochondrial Disorders, The Netherlands;

ER10 Umut Cagin - Fundación Centro Nacional de Investigaciones Cardiovasculares, Carlos III, CNIC, Spain;

ESR11 Eligio Iannetti - Khondrion, Research and Development, The Netherlands;

ESR12 Sarah Foriel - Khondrion, Research and Development, The Netherlands;

ESR13 Mara Mennuni - National Institute for Medical Research, MRC, Mitochondrial Biology Unit, United Kingdom;

ER14 Manar Aoun - Fondazione IRCCS Istituto Neurologico Carlo Besta, Unit of Molecular Neurogenetics, Italy.



Arrival day: Sunday 30th November

Monday 1st December

Session I: Mitochondrial Determinants of Diseases

Chair: **M. Rugolo** (Department of Pharmacy and Biotechnology, University of Bologna, Italy)

08.00 – 09.30 **Registration to the course**

09.30 – 10.30 **Keynote Lecture: Mitochondrial disease: where are we headed?**

E. Schon

Dept. of Genetics and Development, Columbia University Medical Center, USA

10.30 – 11.00 **Coffee Break**

11.00 – 12.00 **Mitochondrial genetic system: mutations in mitochondrial disorders**

J. Montoya

Dept. of Biochemistry, University of Saragoza, Spain

12.00 – 13.00 **Mitochondrial calcium homeostasis**

R. Rizzuto

Dept. of Biomedical Sciences, University of Padua, Italy

13.00 – 14.30 **Lunch Break**

14.30 – 15.30 **Involvement of membrane dynamics in mitochondrial physiology and pathologies.**

G. Lenaers

Institute of neurosciences, University of Montpellier, France



Afternoon Sessions I: ESR/ER lectures

Chair: **H. Prokisch** (Helmholtz Zentrum München Institut für Humangenetik, München, Germany)

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| 15.30 – 15.50 | mtDNA deletions, accumulation and their clonal expansion in tumorigenesis and neurodegeneration
ESR2 S. Trifunov
<i>Dept. of Biomedical and NeuroMotor Sciences, University of Bologna, Italy</i> |
| 15.50 – 16.10 | Cofactor deficiency in mitochondrial diseases
ESR5 L. Mataković
<i>Gemeinnützige Salzburger Landeskliniken Betriebsgesellschaft, Research Program for Tumor metabolism, Centre for the Diagnosis of Mitochondrial Disorders, Dept. of Pediatrics, Austria</i> |
| 16.10 – 16.30 | Investigation of the mechanism underpinning the inheritance of mitochondrial DNA
ESR6 M. Pezet
<i>University of Newcastle Upon Tyne, Mitochondrial Research Group, United Kingdom</i> |
| 16.30 – 17.00 | Coffee Break |
| 17.00 – 17.20 | Modifying factors in reversible mitochondrial disease/zebrafish as a model system in RNA metabolism deficiencies
ESR7 M. Giunta
<i>University of Newcastle Upon Tyne, Mitochondrial Research Group, United Kingdom</i> |
| 17.20 – 19.00 | Poster Viewing Session |



Tuesday 2nd December

Session II: Mitochondria in cancer

Chair: **B. Kofler** (Department of Pediatrics Paracelsus Medical University, Salzburg, Austria)

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| 09.00 – 10.00 | The role of mitochondrial DNA mutation and mitochondrial dysfunction in tumorigenesis
Y. Bai
<i>Dept. of Cellular and Structural Biology, Columbia University, USA</i> |
| 10.00 – 11.00 | Metabolic Remodeling induced by the oncogenic HRAS^{G12V} mutation
R. Rossignol
<i>Division of Genetics and Metabolism, University of Bordeaux, France</i> |
| 11.00 – 11.30 | Coffee Break |
| 11.30 – 12.30 | Importance of autophagy in mitochondria metabolism and cancer
E. White
<i>Rutgers Cancer Institute, NJ, USA</i> |
| 12.30 – 12.50 | Targeting CI as an anticancer strategy
ESR1 R. Vatrinet
<i>Dept. of Pharmacy and Biotechnology, University of Bologna, Italy</i> |
| 12.50 – 14.30 | Lunch Break |



Afternoon Sessions II: ESR/ER lectures

Chair: **I. Holt** (MRC National Institute for Medical Research, London, UK)

14.30 – 14.50	Metabolic targeting of solid cancers ESR 4 S. Vidali <i>Gemeinnutzige Salzburger Landeskliniken Betriebsgesellschaft, Research Program for Tumor metabolism, Centre for the Diagnosis of Mitochondrial Disorders, Dept. of Pediatrics, Austria</i>
14.50 – 15.10	Mitochondrial transport in cancer and normal cells ER 3 O. Lytovchenko <i>Mitochondrial Biology Unit, MRC, United Kingdom</i>
15.10 – 15.30	Respiratory complexes assembly and mitochondrial lipid metabolism ESR 8 E. Holzerova <i>Helmholtz Zentrum München, Institut für Humangenetik, Germany</i>
15.30 – 15.50	Structure, function and assembly defects of cl: comprehensive identification and characterization of cl chaperones ESR 9 L. Sanchez Caballero <i>Stichting Katholieke Universiteit, Nijmegen Center for Mitochondrial Disorders, The Netherlands</i>
15.50 – 16.20	Coffee Break
16.20	Social activity



Wednesday 3rd December

Session III: Molecular strategies for diseases treatment

Chair: **R. Horvath** (Institute of Human Genetics Newcastle University International Centre for Life, Newcastle upon Tyne, UK)

09.00 – 10.00	The use of mitochondrial nucleases to change mtDNA heteroplasmy C. T. Moraes <i>Dept. of Cell Biology, Miller School of Medicine, University of Miami, USA</i>
10.00 – 11.00	Return from the darkside: the LHON gene therapy trial H. Yu <i>Bascom Palmer Eye Institute, University of Miami, USA</i>
11.00 – 11.30	Coffee Break
11.30 – 12.30	Alternative respiratory chain enzymes: a possible therapy for mitochondrial dysfunction H. Jacobs <i>Institute of Medical Technology, University of Tampere, Finland</i>
12.30 – 12.50	Automated quantitative high-content and high-throughput analysis of mitochondrial morphology and membrane potential ESR11 E. Iannetti <i>Khondrion, Research and Development, The Netherlands</i>
12.50 – 14.30	Lunch Break



Afternoon Sessions III: ESR/ER lectures

Chair: **P.Chinnery** (Mitochondrial Research Group, Institute of Genetic Medicine, Newcastle University International Centre for Life, Newcastle Upon Tyne, UK)

- 14.30 – 14.50 **Drosophila as a model to study therapeutic approaches for mitochondrial diseases**
ESR12 S. Foriel
Khondrion, Research and Development, The Netherlands
- 14.50 – 15.10 **Manipulating segregation of human mitochondrial DNA**
ESR13 M. Mennuni
National Institute for Medical Research, MRC, Mitochondrial Biology Unit, United Kingdom
- 15.10 – 15.30 **Nuclear adaptation to mitochondrial dysfunction**
ER10 U. Cagin
Fundación Centro Nacional de Investigaciones Cardiovasculares, Carlos III, CNIC, Spain
- 15.30 – 15.50 **Cellular and animal models for the study of mitochondrial dysfunctions in Neurodegeneration with Brain Iron Accumulation**
ER14 M. Aoun
Fondazione IRCCS Istituto Neurologico Carlo Besta, Unit of Molecular Neurogenetics, Italy
- 15.50 – 16.20 **Coffee Break**
- 16.20 – 16.40 **IMP and Mitocon Presentations**
P. Santantonio
- 16.40 – 17.00 **Training and/or self-teaching? Three successful examples**
G. Romeo
Dept. of Medical and Surgical Sciences, University of Bologna, Italy
- 17.00 – 17.20 **Best Posters Ceremony**