

10th MiPschool Obergurgl 2017

Obergurgl, Tyrol, Austria
2017 Jul 23 – 27

**COST Action CA15203 MITO EAGLE
Training School**

jointly organized with the **Mitochondrial Physiology Society**
http://www.mitoeagle.org/index.php/MiPschool_Obergurgl_2017

Programme

Sunday, July 23 - Evening

Arrival	
16:00	Registration
18:30	Dinner
20:30 - 21:30	Welcome <ul style="list-style-type: none">- Welcome words and organizational aspects – Verena Laner- 10 years MiPschools – 1st MITO EAGLE Training School – Erich Gnaiger- Early Career Investigators Forum – Timea Komlodi, Luiz Garcia e Souza- MIGHT!TM The Energy Making Game – Shilpa Iyer, Raj R Rao



The objective of the MITO EAGLE network is to improve our knowledge on mitochondrial function in health and disease related to Evolution, Age, Gender, Lifestyle and Environment. Every study of mitochondrial (mt) function and disease is faced with EAGLE as the essential background conditions characterizing the individual patient, subject, study group, species, tissue or even cell line.



Monday, July 24 – Morning

A1

Coupling and pathway control in oxidative phosphorylation

Chairs: Raffaella Isola, Pablo Garcia-Roves

08:30-09:10 Erich Gnaiger

Elemental steps towards understanding mitochondrial core energy metabolism: coupling control

09:10-09:40 Charles L Hoppel

Biochemical coupling efficiency and ATP/O₂ ratios

09:40-09:50 Timea Komlodi

Electron pressure exerted by convergent succinate- and glycerophosphate-pathways to the Q-junction regulate reversed electron transfer to Complex I and H₂O₂ production

09:50-10:00 Ondrej Sobotka

Reference protocols for ROS production measurements

10:00-10:30 *Coffee/tea break - poster viewing*

10:30-11:10 Anthony L Moore

The electron transfer system – Q redox regulation and mitochondrial pathways to oxygen

11:10-11:40 Erich Gnaiger

Respiratory pathway control in mitochondrial core energy metabolism: from bioenergetics to mitochondrial physiology.

11:40-11:50 Andras Meszaros

(Very) High-Resolution FluoRespirometry – a deep dive into oxygen dependence of mitochondrial respiration

11:50-12:00 Kim Hellgren

Effect of prenatal hypoxia on adult mitochondrial respiration and ROS production

12:00-15:00 *Lunch*

Walk&Talks, Run&Fun, Person-to-person poster talks, MIGHT!TM game time



Monday, July 24 - Afternoon

Session B - selected abstracts/posters

B1

ROS signaling, oxidative stress, cancer

Chairs: Beata Velika, Werner Koopman

15:00-15:10 Robert A Brown

Peroxisomes; underappreciated sources, including post glucose depletion but prior to ketosis, of mitochondrial energy substrates; medium fats and ACoA? Polyunsaturated fats being preferred peroxisomal substrates; energetic implications of Omega 3:6 imbalances, including for the brain

- 15:10-15:20 Giedre Silkuniene**
Mitochondrial glutamate dehydrogenase activity changes in response to hyperthermic treatment
- 15:20-16:00 Poster session and general discussion**
- 16:00-16:30 Coffee/tea break Poster session continued**

- B2 Life style, degenerative and mitochondrial diseases**
Chairs: Michaela Markova, Hong Kyu Lee
- 16:30-16:40 Rogerio Soares**
Oxidative metabolism during hyperglycemia in individuals with obesity assessed by near infrared spectroscopy
- 16:40-16:50 Giovanna Distefano**
Effects of calorie restriction-induced weight loss and exercise on skeletal muscle mitochondrial energetics of older obese subjects
- 16:50-17:00 Jenny Collins**
The effects of a Mediterranean versus Western diet on nonhuman primate skeletal muscle bioenergetics
- 17:00-17:10 Raffaella Isola**
Do mitochondria counteract diabetes impairment by means of morphological and physiological strategies?
- 17:10-17:20 Hila Ene**
Isolated mitochondria transfer restores schizophrenia related deficits *in-vitro* and *in-vivo*
- 17:20-17:30 Kimberly Amick**
Bioenergetic profiling of mitochondria isolated from three distinct brain regions relevant to AD pathology in non-human primates
- 17:30-18:30 Poster session and general discussion**
- 18:30 Dinner**



Tuesday, July 25 – Morning

- C OXPPOS protocols and data reporting**
Chairs: Iyer Shilpa, Charles Hoppel
- 08:30-09:10 Erich Gnaiger**
Apparent Complex IV excess capacity and biochemical thresholds
- 09:10-09:40 Carolina Doerrier**
Substrate-uncoupler-inhibitor titration (SUIT) protocols – fundamental principles
- 09:40-09:50 Gloria Keppner**
Different respiratory states to determine LEAK and uncoupled respiration in the SUIT protocol: effect and consequences

09:50-10:00	Lara Nogueras Mitochondrial dysfunction in peripheral blood mononuclear cells from multiple sclerosis patients
10:00-10:30	<i>Coffee/tea break – poster viewing</i>
10:30-11:10	Erich Gnaiger Respiratory control ratios and control factors
11:10-11:40	Discussion: Normalization of respiratory flux and flow
11:40-11:50	Karolina Siewiera Blood platelets as bioenergetic markers of brain damage in STZ-diabetes
11:50-12:00	Luiz Felipe Garcia e Souza Assessment of mitochondrial respiratory function in cryopreserved platelets
12:00-15:00	<i>Lunch</i> <i>Walk&Talks, Run&Fun, Person-to-person poster talks or MIGHT!™ game time</i>



Tuesday, July 25 - Afternoon

Session D - selected abstracts/posters

D1	Models and mt-preparations in mitochondrial physiology Chairs: Gudrun Liebscher, Andras Meszaros
15:00-15:10	Laszlo Juhasz Blockade of N-methyl-D-aspartate receptors improves polymicrobial sepsis-evoked mitochondrial dysfunction in rats
15:10-15:20	Michaela Markova Mitochondrial respiration in the rat left heart ventricle after inhibition of pyruvate dehydrogenase kinase
15:20-15:30	Michele Petit Role of oxaloacetate decarboxylase FAHD1 in regulation of cell proliferation and cellular senescence
15:30-15:40	Max Holzknecht Metabolic characterization of Fahd1 knock-out cardiomyocytes in a mammalian model organism - an outlook
15:40-15:50	Shilpa Iyer Patient-specific stem cell models for mitochondrial diseases
15:50-16:00	Helen McKenna A systematic review of the use of respirometry in critically ill patients
16:00-16:30	<i>Coffee / tea break – poster viewing</i>

D2 Pharmacological intervention, toxicology, and regulation

Chairs: Karolina Siewiera, Ondrej Sobotka

16:30-16:40	Tania Dias Differential effects of epigallocatechin-3-gallate and L-theanine on the proliferation and mitochondrial functionality of human Sertoli cells
16:40-16:50	Raquel Bernardino Mitochondrial biogenesis and morphological alterations in human Sertoli cells after carbonic anhydrase inhibition
16:50-17:00	Giorgia Baraldo Fahd-1 links metabolism and neuronal activity in <i>C. elegans</i>
17:00-17:10	Gudrun Liebscher The LAMTOR complex in regulation of fat metabolism
17:10-18:00	Poster session and general discussion
18:00	<i>Dinner</i>

D3 MITOEAGLE Early Career Investigators forum *Meet the expert*

20:00-21:30 Timea Komlodi and Luiz Garcia e Souza (ECI moderators)

Experts and topics:

- **Pablo M Garcia-Roves:** Mitochondrial physiology - (skeletal) muscle
- **Erich Gnaiger:** Respiratory control, mitochondrial physiology, concepts and terminology, MITOEAGLE network
- **Charles L Hoppel:** Mitochondrial diseases
- **Pidder Jansen-Duerr:** Cellular senescence and mitochondrial aspects of aging
- **Werner JH Koopman:** Live-cell bioenergetics: ROS, mitochondrial dynamics and morphology, calcium dynamics
- **Hong Kyu Lee:** Mitochondrial medicine: diabetes, obesity, metabolic syndrome
- **Anthony L Moore:** Electron transfer system and redox changes
- **Richard K Porter:** Mitochondria and cancer



Wednesday, July 26 - Morning

E1 Clinical mitochondrial physiology

Chairs: Gloria Keppner, Anthony Molina

08:30-09:00	Charles L Hoppel The challenges of functional mitochondrial diagnosis
09:00-09:30	Pablo Garcia-Roves Mitochondrial fitness in skeletal muscle

09:30-10:00	Anthony JA Molina Scope and limitations of functional mitochondrial diagnosis in blood cells.
10:00-10:30	<i>Coffee / tea break</i>
10:30-11:00	Beata Velika The scope of cryopreservation in blood cells for functional mitochondrial diagnosis
11:00-11:30	Anthony L Moore Mitochondrial physiology in plants, alternative oxidases, and clinical perspectives
11:30-12:00	Masashi Tanaka Pyruvate therapy for mitochondrial diseases
12:00-15:00	<i>Lunch</i> <i>Walk&Talks, Run&Fun, Person-to-person poster talks or MIGHT!™ game time</i>



Wednesday, July 26 - Afternoon

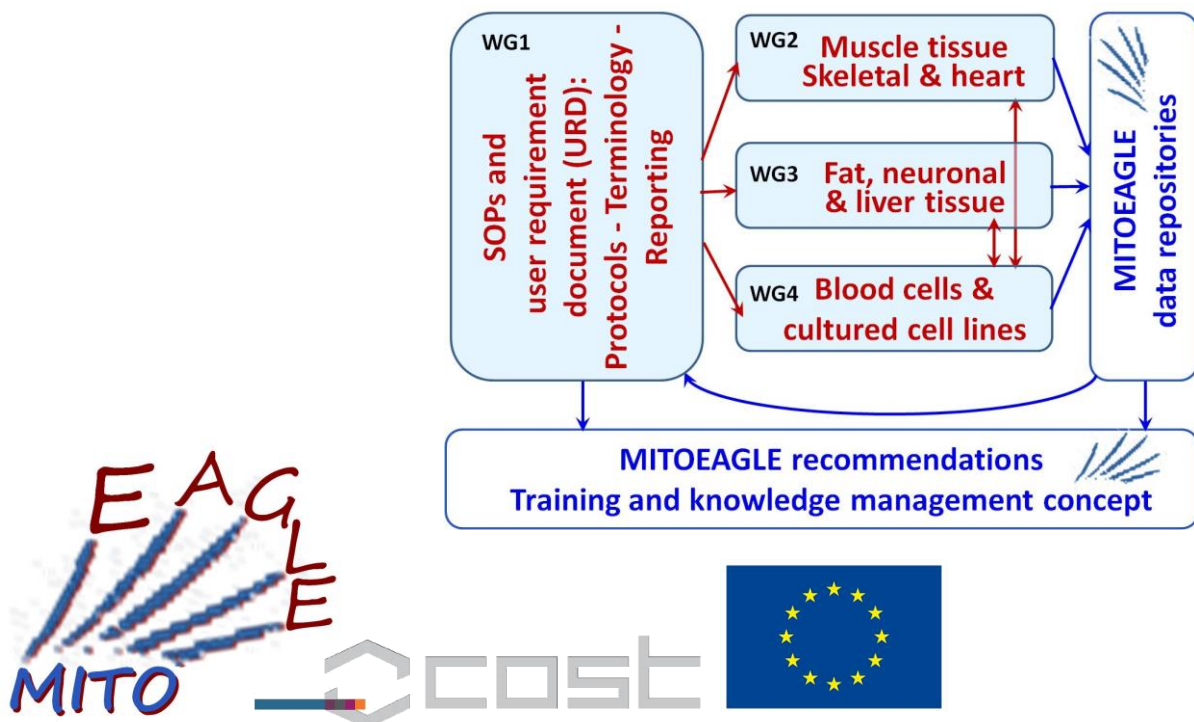
E2	Mitochondrial physiology: biomedical applications Chairs: Carolina Doerrier, Masashi Tanaka
15:00-15:30	Werner JH Koopman Mitochondrial function and dysfunction: ROS and Ca ²⁺
15:30-16:00	Richard K Porter Mitochondrial function and dysfunction in cancer
16:00-16:30	<i>Coffee / tea break</i>
16:30-17:00	Hong Kyu Lee The metabolic syndrome - dysmitochondrial syndrome and mitochondrial disruptors
17:00-17:30	Pidder Jansen-Duerr Mitochondrial function in aging and regeneration
18:30	<i>Dinner</i>
20:00	Conclusions and social programme with Raphael

Thursday, July 27

Departure MiPschool	
08:45	<i>Departure with joint bus transfer</i>
Relaxing day for participants staying for the MITOEAGLE WG Workshop	

Posters

Gainutdinov Timur: Different ways of reactive oxygen species (ROS) formation by brain mitochondria.	B1
Gasparrini Massimiliano: Anti-inflammatory effects of strawberry and honey extracts in RAW 264.7 macrophages stressed with LPS.	B1
Giampieri Francesca: Strawberry extract protects human dermal fibroblasts against oxidative stress and improves mitochondrial functionality.	B1
Afrin Sadia: Induction of mitochondrial dysfunction by Manuka honey as a strategy for prevention of colon cancer in vitro model: a rising role on reactive oxygen species, apoptosis, and cell metabolism.	B1
Krylova Tatiana: High-resolution respirometry in diagnostic of mitochondrial complex I deficiency.	B2
Crisostomo Luis: Glycerol metabolism in testicular cells – a mitochondrial tale that may control male reproductive potential.	B2
Sharma Vipin: Role of ATP-sensitive potassium (KATP) and maxi potassium (BKCa) channels in beta3-adrenoceptors mediated tocolytic effect and involvement of associated mitochondrial calcium dynamics pathways in buffaloes (<i>Bubalus bubalis</i>).	B2
Varela-Lopez Alfonso: Mitochondrial function impairment after Duxorubicin treatment is attenuated by strawberry intake in old and young rats.	D2
Reboredo-Rodriguez Patricia: Protective effect of a polyphenol-rich strawberry extract on oxidative and endoplasmic reticulum stresses in HepG2 cell line.	D2
Baraldo Giorgia: Fahd-1 links metabolism and neuronal activity in <i>C. elegans</i> .	D2
Forbes-Hernandez Tamara: The reduction of mitochondrial functionality by a strawberry extract: a mechanism that contributes to its lipid-lowering effect?	D2



Mitochondrial Physiology
MiP2017

12th Conference on Mitochondrial Physiology
2017 Nov 15 to 17, Hradec Králové, Czech Republic

*Dpt of Physiology, Faculty of
Medicine in Hradec Králové,
Charles University, CZ
The MiPsociety.*



Organizers:

Zuzana Červinková
Otto Kučera
Halka Lotková
Pavla Staňková
Ondřej Sobotka
Michal Pop
Email: wolff@lfhk.cuni.cz

» http://www.mitophysiology.org/index.php/MiP2017_Hradec_Kralove_CZ

MiP2017 Conference co-organized as a COST MITOEAGLE Conference: Nov 15 to 17 at the conference facility of the Charles University, Faculty of Medicine in Hradec Králové, Šimkova 870, 500 03, Hradec Králové, Czech Republic.

MITOEAGLE Working Group Meeting: Thursday Nov 16 afternoon until Saturday Nov 18 midday. The MiP2017 participants are invited to stay and participate on the COST MITOEAGLE WG Meeting which is free of charge.

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MiPschool2017



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