

# 13th Conference on Mitochondrial Physiology

## The role of mitochondria in health, disease and drug discovery

### COST MitoEAGLE perspectives and MitoEAGLE WG and MC Meeting

MiP2018/MitoEAGLE, Jurmala, Latvia, 18 – 21 Sep 2018



## Programme Overview

Time	Tuesday Sep 18th	Wednesday Sep 19th	Thursday Sep 20th	Friday Sep 21st
<b>9:00</b>				
9:30		Session B1	Session WG1	Session D1
<b>10:00</b>				
10:30		Coffee break	Coffee break	Coffee break
<b>11:00</b>				
11:30		Session B2	Session WG2	Session D2
<b>12:00</b>				
12:30		Lunch, Walk & Talk		Light lunch
<b>13:00</b>			Take away lunch – excursion to <i>Great Kemerī Bog</i>	MC meeting
13:30				
<b>14:00</b>	Registration	Session B3		Coffee break
14:30				
<b>15:00</b>				
15:30		Coffee break		MC meeting
<b>16:00</b>	Opening & welcome			
16:30	Session A1	Session B4	Session WG3	Departure
<b>17:00</b>				
17:30	Coffee break	<b>MiPAssembly</b>	Coffee break	
<b>18:00</b>				
18:30	Special session A2		Session WG4	
19:30				
<b>20:00</b>	Welcome reception		Dinner	

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## Conference Programme

### Tuesday, September 18th

Conference venue	Panorama hall, 10th floor, Hotel SemaraH Hotel Lielupe SPA Bulduri prospect 64/68, Jurmala, Latvia
13:00-15:30	Registration
15:30-15:45	Opening and welcome address
15:45-17:30	<b>Session A1</b> <b>Mitochondria &amp; basic science</b> Chairs: Beatrice Chabi, Markus Keller
A1-01	<b>Adam Chicco</b> Defective cardiolipin remodelling and cardiac mitochondrial dysfunction: supercomplexes or just complex?
A1-02	<b>Markus Keller</b> The structural molecular diversity of mitochondrial cardiolipins
A1-03	<b>Patrice X Petit</b> Decreasing cytosolic translation is beneficial to yeast and human Tafazzin-deficient cells with disrupted mitochondrial homeostasis (Barth syndrome cell model)
A1-04	<b>Maria Luisa Genova</b> Respiratory supercomplexes: evidence for separate though interconnected compartments of Coenzyme Q10 in mammalian mitochondria
A1-05	<b>Helene Lemieux</b> Plasticity of a critical regulator of energy production under hypothermia, the phosphorylation system
A1-06	<b>Thierry Arnould</b> Changes in mitochondria morphology in Brucella-infected cells: what is the impact for the bacteria and/or the host cell?
A1-07	<b>Mikhail Dubinin</b> The effect of triclosan on the permeability of mitochondrial membranes and lecithin liposomes
A1-08	<b>Ted Han</b> 670nm Light Induced Decrease in Complex IV Function

17:30-18:00	Coffee break
18:00-20:00	<b>Special session A2</b> <b>60 years since discovery of role of carnitine in fatty acid oxidation</b> Chairs: Marina Makrecka-Kuka, Sean H Adams
A2-01	<b>Maija Dambrova</b> Carnitine: from discovery to cardiometabolic risk marker
A2-02	<b>Sean H Adams</b> Long-chain acylcarnitines: new perspectives on bioactivities and trafficking
A2-03	<b>Edgars Liepinsh</b> Mitochondrial and extramitochondrial effects of long-chain acylcarnitines
A2-04	<b>Kristine Volska</b> The accumulation of acylcarnitine during ischemia
A2-05	<b>Rob Wust</b> Reduction of acylcarnitines restores electrophysiological abnormalities in VLCAD deficient hiPSC-cardiomyocytes
A2-06	<b>Carolina Doerrier</b> Evaluation of anaplerotic pathways to avoid artefacts in respirometric measurement of fatty acid oxidation
A2-07	<b>Marina Makrecka-Kuka</b> Fatty acid oxidation in brain: from aging to ischemia and sepsis
20:00	Think&Drink session (welcome reception)

## Wednesday, September 19th

9:00-10:30	<b>Session B1</b> <b>Mitochondria &amp; cancer</b> Chairs: Ljudmila Ounpuu, Uwe Schlattner
B1-01	<b>Thomas A Gorr</b> Myoglobin outside of muscle: new roles of an "old protein"
B1-02	<b>Germaine Escames</b> Suppression of AKT/mTOR pathway and activation of mitophagy by melatonin via mitochondrial regulation in head and neck cancer
B1-03	<b>Ljudmila Ounpuu</b> Metabolic plasticity of cancer stem-like cells
B1-04	<b>Uwe Schlattner</b> Intramitochondrial nucleotide regeneration by NME/NDPK proteins - roles in mitochondrial dynamics, signalling and metastasis
B1-05	<b>Gro Vatne Rosland</b> Mitochondrial reshaping and suppression of succinate dehydrogenase C are integral parts of epithelial to mesenchymal transition in breast cancer
10:30-11:00	Coffee break

11:00-12:30

**Session B2  
Mitochondria & lifestyle**

Chairs: Carolina Doerrier, Edgars Liepinsh

B2-01

**Pavla Stankova**

Impact of Western diet on energy metabolism in mouse liver

B2-02

**Pablo Miguel Garcia Roves Gonzalez**

Mitochondrial signature and lifestyle modulation of metabolic plasticity

B2-03

**Elina Makarova**

Plasma concentrations of fatty acids and acylcarnitines as biomarkers for diagnosis of insulin resistance in adipose and muscle tissues

B2-04

**Michal Nemec**

Three-month exercise modulates skeletal muscle mitochondria function health and memory of seniors

B2-05

**Adam Chicco**

Role of mitochondria in skeletal muscle acclimatization to high-altitude

B2-06

**Dominique Votion**

Functional diagnosis of mitochondrial defects in equine atypical myopathy and targeted mitochondrial therapy: a preliminary study

B2-07

**Erkan Tunkay**Regulation of mitochondrial  $Zn^{2+}$  level by  $Zn^{2+}$  transporter ZIP7 effects sarco(endo)plasmic reticulum S(E)R-mitochondria coupling in hyperglycaemia

12:30-14:00

Lunch at the hotel  
Walk&Talk

14:00-15:30

**Session B3  
Mitochondria & aging & neurological disorders**

Chairs: Nicoleta Moiso, Dario Acuna-Castroviejo

B3-01

**Ivica Rubelj**

Role of mitochondria in mammalian senescence and aging

B3-02

**Nicoleta Moiso**

Mitochondria nucleus communication in age related neurodegeneration: Who talks first? Who talks louder?

B3-03

**Jan Nehlin**

Biomarkers of mitochondria dysfunction during aging

B3-04

**Lisa Chakrabarti**

Fatty acid binding protein 3 regulation of mitochondrial lipids - A strategy for exceptional longevity in the Pipistrelle bat

B3-05

**Sentiljana Gumeni**

Disruption of mitochondria dynamics induces proteome instability and promotes ageing

B3-06

**Natasha Kopitar-Jerala**

The role of cystatins in metabolism and neuroinflammation

B3-07

**Dario Acuna-Castroviejo**

Mitochondrial impairment, melatonin, and neuroinflammation in Parkinson's disease

B3-08

**Elena Marchesan**

Mitophagy and Parkinson's disease: the PINK1-Parkin link

B3-09	<b>Gundega Vikmane</b> Neuroprotective compound R-fenibut protects brain mitochondria against anoxia-reoxygenation damage <i>in vitro</i>
15:30-16:00	Coffee break
16:00-17:30	<b>Session B4</b> <b>Mitochondria &amp; drug discovery</b> Chairs: Maija Dambrova, Rob Wust
B4-01	<b>Mark Bamberger</b> Discovery and development of elamipretide: targeting mitochondrial dysfunction in rare and common diseases
B4-02	<b>Alex Dyson</b> Therapeutic utility of sulphide-donating thiometallates
B4-03	<b>Janis Kuka</b> The discovery of Methyl-GBB - the pharmacological potential of acylcarnitine lowering
B4-04	<b>Belma Turan</b> Role of Mitochondria-associated Oxidative Stress in Aging Heart Function
B4-05	<b>Cenk Aral</b> Effects of melatonin treatment on LETM1 silenced mouse embryonic fibroblast cells
17:30-18:30	<b>MiPAssembly</b>

## Thursday, September 20th

9:00-10:30	<b>Session WG1</b> <b>SOPs and user requirement document (URD): Protocols - Terminology - Reporting</b> Chairs: Helene Lemieux, Pablo Miguel Garcia Roves Gonzalez
WG1-01	<b>Erich Gnaiger</b> Mitochondrial respiratory control by fuel substrates and specific inhibitors of respiratory enzymes: Building blocks of mitochondrial physiology Part 2
WG1-02	<b>Martin Laasmaa</b> Introducing open source platform for primary kinetics data analysis
WG1-03	<b>Ondrej Sobotka</b> ROS measurement under hypoxia and unexpected methodological pitfalls of Amplex Red assay
10:30-11:00	Coffee break
11:00-12:30	<b>Session WG2</b> <b>MitoEAGLE data repository on muscle tissue</b> Chairs: Dominique Votion, Adam Chicco
WG2-01	<b>Paul de Goude</b> Timing of Feeding Behavior Affects Daily Rhythms in Body Temperature and Muscle Mitochondrial Metabolism

WG2-02	<b>Yusuf Olgar</b> Mitochondria-Targeted Antioxidants in Aging related functional changes in the heart and aorta: MitoTEMPO improves aged-cardiovascular performance
WG2-03	<b>Rob Wust</b> The antibiotic doxycycline impairs cardiac mitochondrial and contractile function
WG2-04	<b>Craig Porter</b> Skeletal muscle mitochondrial thermogenesis in hypermetabolic humans
WG2-05	<b>Carolina Doerrier</b> Inter-laboratory study on human permeabilized myofibres: effects of fibre preparation, respiration buffer, and blebbistatin on mitochondrial respiratory capacity and oxygen limitation
WG2-06	<b>Carolina Doerrier</b> Inter-laboratory harmonization of protocols for mitochondrial function evaluation in permeabilized muscle fibers
WG2-07	<b>Pablo Miguel Garcia Roves Gonzalez</b> Generating reference values on mitochondrial respiration in permeabilized fibers of mouse soleus muscle. MitoEAGLE Working Group 2 report

12:30-16:30 Take away lunch – Excursion to *Great Kemer Bog*

16:30-18:00 **Session WG3**  
**MitoEAGLE data repository on fat, neuronal and liver tissues**  
Chairs: Zuzana Cervinkova, Craig Porter

WG3-01	<b>Filomena Silva Grilo Silva</b> The unspecific effect of etomoxir on mitochondrial respiration
WG3-02	<b>Josep Villena</b> Lack of MTERF4 in brown adipocytes impairs mtDNA-encoded protein translation and leads to brown adipose tissue thermogenic dysfunction
WG3-03	<b>Craig Porter</b> Evidence of functional UCP1 in subplatysmal and subcutaneous adipose tissue of hypermetabolic trauma patients
WG3-04	<b>Thierry Arnould</b> A form of autophagy triggers lipolysis in 3T3-L1 adipocytes exposed to a mitochondrial uncoupling
WG3-05	<b>Christos Chinopoulos</b> Exclusive neuronal expression of KGDHC-specific subunits in the adult human brain cortex despite pancellular protein lysine succinylation
WG3-06	<b>Irina Shabalina</b> Elovl2-ablation leads to mitochondrial phospholipid remodeling and reduced oxidative phosphorylation capacity in mouse liver mitochondria
WG3-07	<b>Konstantin Belosludtsev</b> Effect of bedaquiline and delamanide on the functions of rat liver mitochondria

18:00-18:30 Coffee break

18:30-20:00	<b>Session WG4</b> <b>MitoEAGLE data repository for blood cells and cultured cells</b> Chairs: Beata Velika, Slawomir Michalak
WG4-01	<b>Adam Chicco</b> Maternal aging increases granulosa cell mitochondrial ROS release and reduces oocyte OXPHOS-linked respiration: implications for embryo development
WG4-02	<b>David Carrageta</b> Role of SIRT1 and SIRT3 in human sperm cells metabolism and bioenergetics
WG4-03	<b>Tereza Danhelovska</b> The relevance of ACBD3 protein in energy metabolism in various cell lines
WG4-04	<b>Dita Kidere</b> Cytoplasmic hybrid cells as a model to characterize the effect of the mtDNA mutations on the OXPHOS system
WG4-05	<b>Andrea Evinova</b> High resolution respirometry of neuroblastoma SH-SY 5Y cell line
WG4-06	<b>Vlad Florian Avram</b> Cell-permeable succinate bypasses statin-induced mitochondrial complex I inhibition in human platelets
WG4-07	<b>Gloria Keppner</b> Effects of cryopreservation of peripheral blood mononuclear cells
WG4-08	<b>Nicoleta Moisoï</b> Integrating published data of mitochondrial function in cell lines as models of neurodegenerative disease
20:00	Dinner

## Friday, September 21st

9:00-10:30	<b>Session D1</b>
9:00-9:45	Discussions WG1 Moderator: Erich Gnaiger
9:45-10:30	Discussions WG2 Moderators: Pablo Garcia Roves & Marina Makrecka-Kuka
10:30-11:00	Coffee break
11:00-12:30	<b>Session D2</b>
11:00-11:45	Discussions WG3 Moderators: Zuzana Cervinkova & Thierry Arnould
11:45-12:30	Discussions WG4 Moderators: Nicoleta Moisoï & Slawomir Michalak
12:30-13:00	Light lunch at the hotel
13:00-14:30	<b>MC meeting</b>
14:30-15:00	Coffee break
15:00-16:30	<b>MC meeting</b>
	<b>Departure</b>