



MiP

Mitochondrial
Physiology

15th MiPconference: Bioenergetics Communications on mitObesity and Healthy Aging.

PROGRAM

2023-Jul-27 Thursday - Arrival

- 17:30 Welcome reception
19:00 *Dinner*
20:30 **Opening - Erich Gnaiger (AT)** From globesity to mitObesity.

2023-Jul-28 Friday

Session A1. Lifestyle and mitoalterations in obesity

Chairs: Verena Laner and Orian Shirihai

- 08:30 **A1-1 Anthony Molina (US)** Targeting exercise intolerance in older, obese, heart failure patients.
08:55 **A1-2 Heather Petrick (CA)** Age- and sex-related differences in mitochondrial ADP sensitivity in human skeletal muscle.
09:10 **A1-3 Ana Valencia (US)** T-cell mitochondria exhibit a functional decline with obesity that is aggravated by weight loss.
09:25 **A1-4 Tal Yardeni (IL)** The host immune system and the gut microbiota are regulated by the mitochondrial DNA.
09:50 *Coffee/tea break*

Session A2. Exercise, training and hypoxia

Chairs: Dominique-Marie Votion and Alexander Karabatsiakos

- 10:25 **A2-1 Steen Larsen (DK)** Mitochondrial adaptations to weight loss – lifestyle, surgery or medication.
10:50 **A2-2 Henver Brunetta (BR)** Chronic aerobic training reverts the negative effects of high-fat high-sucrose diet on the left ventricle of adipocyte-specific DICER knockout mice in association with improved mitochondrial function.
11:05 **A2-3 Daniel Sadler (US)** Early life exercise training counters metabolic perturbations imparted by low parental cardiorespiratory fitness.
11:20 **A2-4 Bengt Kayser (CH)** Obesity and hypoxia: from etiology to therapy.
11:45 **A2-5 Steven Hand (US)** Oxidative stress and repetitive metabolic transitions: Challenges due to lifestyle of invertebrate extremophiles.
12:00 *Lunch / Walk & Talk*

Session A3. Nutrition and lifestyle in mitObesity

Chairs: Alba Timon-Gomez and Adam Chicco

- 15:30 **A3-1 Atan Gross (IL)** M(a)TCH2-ing up metabolism and apoptosis at the MOMbrane.
15:55 **A3-2 Graham Holloway (CA)** Mitochondrial bioenergetics as a nexus-point for the beneficial effects of nitrate in diverse tissues.
16:20 **A3-3 Patricia Owesny (DE)** Impairment of cardiac function and mitochondrial energy metabolism through diet induced obesity in aging.
16:35 **A3-4 Pavla Stankova (CZ)** Effect of telmisartan on nutritionally induced nonalcoholic steatohepatitis in mice.
16:50 *Coffee/tea break*

Session A4. Adipose tissue and fatty acid oxidation

Chairs: Luiza Cardoso and Pablo Garcia-Roves

- 17:25 **A4-1 Petr Zouhar (CZ)** Major site of non-shivering thermogenesis: brown fat or skeletal muscle?
17:50 **A4-2 Lukas Alan (CZ)** Dynamic complexomic analysis reveals a role for Von Willebrand Domain-containing Protein 8 (Vwa8) in mitochondrial morphology and substrate preference.
18:05 **A4-3 Lisa Guerrier (FR)** Human white adipose tissue mitochondrial respiration: effect of body composition.
18:20 **A4-4 Peter Schoenfeld (DE)** A view on brain's problem with fatty acid burning.
19:00 *Dinner*
20:30 **Poster session**
P-1 Lukas Alan (CZ) Dynamic complexomic analysis reveals a role for Von Willebrand Domain-containing Protein 8 (Vwa8) in mitochondrial morphology and substrate preference.
P-2 Daria Barkova (SK) Effects of short term and long term aerobic-strength training on muscle metabolism in the elderly.
P-3 Attila Kolonics (HU) Accelerated epigenetic changes may contribute to the development of metabolic syndrome revealed by NADH FLIM.
P-4 Murilo Othonicar (BR) Mitochondrial alternative enzymes and supercomplexes: functional and evolutionary insights.
P-5 Patricia Owesny (DE) Impairment of cardiac function and mitochondrial energy metabolism through diet induced obesity in aging.
P-6 Howard Phang (US) Screening marine natural products for bioenergetic effects in human cell models.
P-7 Sarah Piel (DE) Effect of dimethyl fumarate on cerebral mitochondrial metabolism in a porcine model of pediatric in-hospital cardiac arrest.
P-8 Karolina Pytlak (PL) Mitochondrial defect in human bronchial epithelial cells lacking the BKCa channel.
P-9 Linsey Stiles (US) Mitochondrial respirometry and ATP hydrolysis measurements in previously frozen tissue samples.



HAMILTON
THE MEASURE OF EXCELLENCE



2023-Jul-29 Saturday

Session B1. Fatty acid oxidation

Chairs: Tal Yardeni and Anthony Molina

- 08:30 **B1-1 Adam Chicco (US)** Delta-6 desaturase inhibition reverses aberrant cardiolipin remodeling and mitochondrial dysfunction in the obese mouse heart.
- 08:55 **B1-2 Cesare Granata (DE)** Novel mitochondrial respiration protocols reveal organ-specific reliance on ketone body metabolism in mice.
- 09:10 **B1-3 Markus Keller (AT)** Exploring the influence of the lipid environment on mitochondrial membrane structure and function.
- 09:25 **B1-4 Yvonne Wohlfarter (AT)** The Janus-faced nature of HSD10 in cardiolipin biosynthesis and mitochondrial function.
- 09:40 **B1-5 Luke Whitcomb (US)** Polyunsaturated fatty acid metabolism contributes to age-related impairment of cardiac mitochondrial calcium tolerance.
- 09:55 **B1-6 Luiza Cardoso (AT)** Electron transfer from beta-oxidation and TCA cycle and impact of OXPHOS coupling on NADH and coenzyme Q redox states.

10:10 *Coffee/tea break*

Session B2. Type 2 Diabetes

Chairs: Sarah Piel and Markus Keller

- 10:30 **B2-1 Christopher Axelrod (US)** Skeletal muscle mitochondrial dynamics in obesity and type 2 diabetes.
- 10:55 **B2-2 Pablo Garcia-Roves (ES)** Remission of obesity and insulin resistance. Is that enough?
- 11:20 **B2-3 Pau Gama-Perez (ES)** Impact of obesity on white adipose tissue plasticity: addressing depot-specific responses.
- 11:35 **B2-4 Dominik Pesta (DE)** Respiratory capacity of skeletal muscle and peripheral blood mononuclear cells of male and female individuals with type 2 diabetes.
- 11:50 **B2-5 Lubos Sobotka (CZ)** Macronutrients energy metabolism and obesity.

12:05 *Lunch / Walk & Talk*

Session B3. Respiratory complexes

Chairs: Tatyana Court and Atan Gross

- 15:30 **B3-1 Orian Shirihai (US)** Inhibition of ATP synthase hydrolytic activity restores cellular energy homeostasis in conditions of impaired respiration.
- 15:55 **B3-2 Maria Jose Saucedo-Rodriguez (CZ)** Effect of succinate dehydrogenase deficiency on mitochondrial function.

16:10 *Coffee/tea break*

Session B4. Diagnostic approaches

Chairs: Alejandra Romero and Lubos Sobotka

- 16:30 **B4-1 Alexander Karabatsiakakis (AT)** Combined metabolite and lipid fingerprinting of blood serum reveals biomarker candidates of altered mitochondrial bioenergetics in peripheral blood mononuclear cells of female patients with depression.
- 16:55 **B4-2 Dominique-Marie Votion (BE)** Serum acylcarnitines profile for diagnosis, prognosis and monitoring therapeutic intervention in equine atypical myopathy.
- 17:20 **B4-3 Ksenija Vujacic-Mirski (DE)** Bioenergetics health index and parameters of mitochondrial respiration in relatively healthy individuals. Insight in mitochondrial respiration for diagnosis and future targeted treatments.
- 17:35 **B4-4 Alba Timon-Gomez (AT)** Substrate-uncoupler-inhibitor titration protocol for analyzing carbohydrate and fatty acid metabolism.

17:50 **Conclusions**

18:00 **MiPs General Assembly**

19:00 *Dinner*

20:30 – 21:30 **Social evening with Trachtengruppe Umhausen. Award ceremony.**

2023-Jul-30 Sunday – Departure

09:00 *Bus departure*