

Posters

- 01 A-04 Stefano Bettinazzi (UK)** Linking the mitonuclear genotype with mitochondrial function and organismal fitness.
- 02 B-11 Saurabh Joshi (DE)** A versatile mitochondria isolation- and analysis-pipeline generates 3D nano-topographies and mechano-physical surface maps of single organelles.
- 03 C-03 Erich Gnaiger (AT)** Oxygen dependence of photosynthesis and light-enhanced dark respiration studied by high-resolution PhotoRespirometry.
- 04 C-04 Antoni Mateu Vera-Vives (IT)** Consequences of the inactivation of Complex I and Complex IV in the plant model *Physcomitrium patens*.
- 05 D-02 Eloísa Vilas-Boas (BR)** Energy metabolism regulation by mitochondrial Ca^{2+} transport in the liver.
- 06 D-03 Gergely Pallag (HU)** Proline oxidation supports mitochondrial ATP production when Complex I is inhibited.
- 07 D-04 Enrique Rodriguez (UK)** Mitonuclear interactions impact responses to metabolic and redox stress at different life stages in *Drosophila melanogaster*.
- 08 D-05 Maria Luigia Pallotta (IT)** NAD(P)⁺/NAD(P)H pool and the art of mitochondrial survival.
- 09 D-09 Brad Ebanks (UK)** Exercise alters mitochondrial physiology and has age-specific impacts on the fitness and lifespan of *D. melanogaster*.
- 10 E-05 Odeta Arandarcikaite (LT)** Hypoxia-induced lesions to different age Wistar rat brain mitochondria.
- 11 E-06 Lisa Bergmeister (AT)** The role of enkephalin in hypoxic preconditioning.
- 12 E-07 Raffaella Isola (IT)** In rat brain and heart acute hypoxia induced mild changes in OXPHOS in both sexes.
- 13 E-12 Tijana Ivanovic (RS)** Relationship of insulin resistance and mitochondria-associated endoplasmic reticulum membranes MAM in an *in vitro* lipotoxicity model.
- 14 E-18 Karin de Punder (AT)** Early life stress and perceived chronic stress are associated with increased immune cell mitochondrial DNA copy number in healthy individuals.
- 15 F-11 Kasja Pavlovic (RS)** Effects of metformin on mitochondrial function in skeletal muscle cells: differences between therapeutic and suprapharmacological concentrations.



16 F-12 Attila Kolonics (HU) Effects of *Scenedesmus rubescens* extract on Paraquat induced parkinsonism model in SH-SY5Y cells and mitochondrial dysfunction.

17 F Braeden Charlton (NL) A lower skeletal muscle oxidative phosphorylation capacity does not explain post-exertional malaise in patients with post-acute sequelae of Covid-19.

BEC BIOENERGETICS COMMUNICATIONS

Social program

Wednesday, June 29

Funicular ride & hike to Umbrüggler Alm

- 18:00 Meeting point 1: Rennweg 3
Funicular ride to Hungerburg
- Funicular leaves every 15 min until 19:15 (18:00, 18:15, 18:30, 18:45, 19:00, 19:15)
 - 45-min hike to Umbrüggler Alm, hiking shoes are necessary
 - It is recommended that slow hikers take the tram at 18:00 or 18:15
 - Car transport is available for those unable to hike: please contact Carolina

19:30 Dinner at Umbrüggler Alm

22:00 to 23:00

- Hike back down

22:30 or 23:30

- Bus transport from car park Hungerburgweg 4 back to your hotels

Thursday, June 30

The Black Knights guided tour & Celebration Dinner

- 18:00 Meeting point 2: Universitätsstraße 2
The Black Knights - guided tour
- 3 guided groups: two English, one German

19:00 Meeting point 3: Universitätsstraße 3
Celebration Dinner: flying buffet at restaurant Brahms

- 30 years Oroboros Instruments

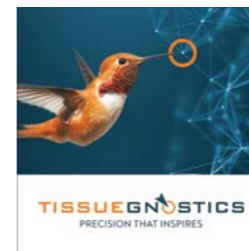
Do you need any assistance during the conference?

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Scientific and social program



BIOBLAST 2022
BEC Inaugural Conference

Wednesday, June 29

Session 1 Chairs: Beatrice Chabi, Anthony Molina

- 08:30 **Registration** and poster mounting - *Congress Innsbruck*
- 09:15 Opening: **Erich Gnaiger (AT)** Bioblasts - the taxonomic unit of bioenergetics: mitochondria, aerobic bacteria, chloroplasts.
- 09:35 **Odra Noel (UK)** MiPart - Krebs cycle at the heart of metabolism.
- 09:45 **A-01 Nick Lane (UK)** The alpha and omega of metabolism: why the Krebs cycle brings the earth to life and our own lives to an end.
- 10:15 **A-05 Lisa Chakrabarti (UK)** "Going south!" An Antarctic expedition to understand more about mitochondrial haemoglobin and ageing.
- 10:30-11:15 **Coffee break**

Session 2 Chairs: Kasja Pavlovic, Rafael Moreno-Sanchez

- 11:15 **A-02 Chris Donnelly (CH)** The ABC of hypoxia - what is the norm.
- 11:30 **B-03 Sabine Schmitt (AT)** Using oxygen and hydrogen gas in studies of mitochondrial respiration and hydrogen peroxide production under hyperoxic, normoxic, and hypoxic conditions.
- 11:45 **A-03 Steven Hand (US)** Metabolic shutdown of bioenergetics: Protection of macromolecules and survivorship during stress.
- 12:00 **C-02 Thomas Roach (AT)** Retrograde signalling during high light stress involves reactive carbonyl / electrophile species.
- 12:15 **C-01 Tomas Morosinotto (IT)** Application of the NextGen-O2k for building photosynthesis-irradiance curves in microalgae.
- 12:30 Group picture
- 12:40-14:00 **Lunch - Orangerie**

Session 3 Chairs: Lente Lerink, Micheal Roden

- 14:00 **D-01 Timea Komlodi (HU)** The protonmotive force - not merely membrane potential.
- 14:15 **D-06 Anthony Molina (US)** Platelet bioenergetics are associated with resting metabolic rate and exercise capacity in older women.
- 14:30 **D-07 Cesare Granata (DE)** Exercise training-induced enhancement of electron flow in the OXPHOS system is more important than increasing the OXPHOS machinery content to improve ATP generation in human skeletal muscle.

- 14:35 **D-08 Nicolas Place (CH)** Ca²⁺-induced mitochondrial adaptations in response to a single session of sprint interval training.
- 14:40 **D-10 Fanny Pilot-Storck (FR)** *Hacd1* and *Hacd2* genes control mitochondrial energetic efficiency through the modulation of mitochondrial membranes phospholipid composition.
- 14:45 **D-11 Christopher Axelrod (US)** Segmental regulation of intestinal mitochondrial function.
- 14:50 **F-06 Marcus Oliveira (BR)** Sterile activation of innate immunity specifically target Complex I activity and flight dispersal in the major arbovirus vector *Aedes aegypti*.
- 15:05-15:30 Poster session
- 15:30-16:00 **Coffee break**

Session 4 Chairs: Odeta Arandarcikaite, Rob Wuest

- 16:00 **B-01 Eleonora Baglivo (AT)** Statistical analysis of instrumental reproducibility as internal quality control in high-resolution respirometry.
- 16:15 **B-02 Adam Chicco (US)** Elucidating the complexity of substrate-uncoupler-inhibitor titration protocols.
- 16:30 **B-04 Luiza Cardoso (AT)** Redox monitoring and respiration - a new horizon with the NextGen-O2k.
- 16:45 **B-05 Pablo Garcia-Roves (ES)** Tuning the assessment of coenzyme Q redox state and respiration in permeabilized skeletal muscle fibers.

Topics

A - Evolutionary perspectives of bioenergetics

B - Methodological advancements in bioenergetics

C - Algal bioenergetics

D - Thermodynamic, kinetic, and molecular advances in bioenergetics

E - Perspectives of bioenergetics in health and disease

F - Mitochondrial pharmacology

Thursday, June 30

Session 5 Chairs: Eleonor Aasander, Brian Irving

- 09:00 **B-06 Cristiane Cecatto (AT)** Mitochondrial calcium uptake capacity is lower than calcium retention capacity in the presence and absence of cyclosporin A.
- 09:15 **B-07 Julian Serna (BR)** Measuring mitochondrial Ca²⁺ efflux in isolated mitochondria and permeabilized cells.
- 09:30 **B-08 Doris Wilflingseder (AT)** How to optimize respiratory models for SARS-CoV-2 research.
- 09:45 **B-09 Peter Wolf (DE)** Physiometabolic RTCA on an automated platform for short and long term applications.
- 10:00 **B-10 Rupert Ecker (AT)** Contextual tissue cytometry with artificial intelligence-functional single cell analyses *in-situ*.
- 10:15 **B-12 Nicola Lai (US)** Effect of isolation protocol of skeletal muscle mitochondrial subpopulations on bioenergetic function.
- 10:20-11:15 **Coffee break**

Session 6 Chairs: Timea Komlodi, Werner Koopman

- 11:15 **E-01 Lubos Sobotka (CZ)** The Crabtree effect and clinical nutrition.
- 11:30 **E-02 Rafael Moreno-Sanchez (MX-AT)** Estimation of energy pathway fluxes in cancer cells - beyond the Warburg effect.
- 11:45 **E-03 Richard Porter (IE)** A comparison of bioenergetics in human tongue pre-cancerous dysplastic oral keratinocytes and squamous cancer cells.
- 12:00 **E-04 Jiri Neuzil (AU-CZ)** Metabolic switch supports proliferation in regenerating liver.
- 12:15 **E-08 Lente Lerink (NL)** Renal respiratory conductance: a complex matter.
- 12:20 **E-09 Andras Meszaros (AT)** Pre-transplant mitochondrial respiration as a clinical prognostic marker during static cold storage and machine perfusion of the liver.

12:25-14:00 Lunch - Orangerie

Session 7 Chairs: Maija Dambrova, Pablo Garcia-Roves

- 14:00 **E-10 Moritz Eggelbusch (NL)** Nutrient overload and insulin resistance precede reductions in mitochondrial respiration in skeletal muscle after bed rest.
- 14:05 **E-11 Richie Goulding (NL)** Mitochondrial function is

not impaired in type 1 diabetes but does not respond to 4-weeks endurance training.

- 14:10 **E-13 Beatrice Chabi (FR)** Coordination between mitochondrial-associated membranes MAMs, mitochondrial function and protein synthesis in exercised and myopathic muscles.
- 14:15 **E-14 Brian Irving (US)** Impact of nitric oxide promoters on mitochondrial bioenergetics in a murine model of Alzheimer's disease.
- 14:20 **E-15 Johnny Stiban (PS)** NUBPL: a mitochondrial Complex I deficiency disorder.
- 14:35 **E-17 Alexander Karabatsiakis (AT)** Effects of eye-movement desensitization and reprocessing (EMDR) therapy on mitochondrial bioenergetics in immune cells from patients with post-traumatic stress disorder (PTSD): a pilot study.
- 14:40 **F-02 Werner Koopman (NL)** The decylITPP mitochondria-targeting moiety lowers electron transport system supercomplex levels in primary human skin fibroblasts.
- 14:55 **F-04 Jyotsna Batra (AU)** Nano-encapsulated dichloroacetophenone (DAP), a regulator of essential mitochondrial enzyme, is a potential inhibitor of prostate cancer cell growth.
- 15:00-15:30 Poster session
- 15:30-16:00 **Coffee break**
- ## Session 8 Chairs: Lisa Chakrabarti, Johnny Stiban
- 16:00 **F-01 Eleonor Aasander Frostner (SE)** Towards a treatment for mitochondrial disease: current compounds in clinical development.
- 16:15 **F-03 Maija Dambrova (LV)** Mitochondrial metabolites acylcarnitines: therapeutic potential and drug targets.
- 16:30 **F-07 Omar Torres-Quesada (AT)** Kinase perturbations redirect mitochondrial function.
- 16:40 **F-08 Eduard Stefan (AT)** Tracking patient-mutation and lead-molecule driven alterations of kinase activity conformations.
- 16:50 **F-09 Andrea Magri (IT)** Modulation of mitochondrial respiration in ALS cells by hexokinase-based peptides: a novel therapeutic approach to fight neurodegeneration.
- 16:55 **F-10 Zuzana Sumbalova (SK)** Ubiquinol supplementation accelerates the recovery of mitochondrial health of patients with post COVID-19 syndrome on mountain spa rehabilitation.

17:00-17:30 **Discussion: The future of BEC**

