



## Bioblast Conference

*Mitochondrial Physiology Network 17.13: 1-8 (2012)*

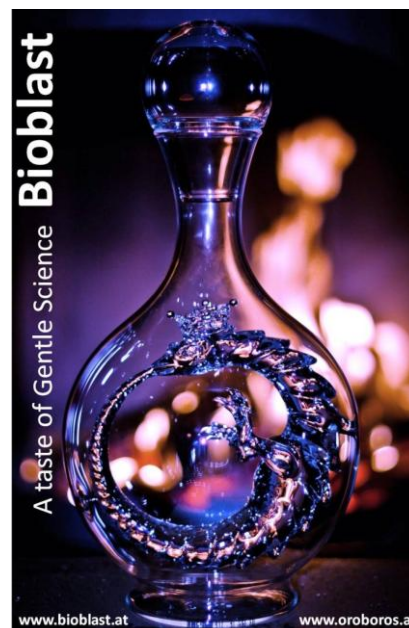
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# Bioblast 2012 Mitochondrial Competence

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**with the O2k-Team**

**10. - 12. 12. 2012**  
**Innsbruck, Austria**

20 years high-resolution respirometry  
10 years O2k with WGT Elektronik  
12-12-12 Swarovski Crystal Worlds



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Abstracts: Gnaiger E, Meissner B, Laner V, eds (2012) Bioblast 2012: Mitochondrial Competence. Mitochondr Physiol Network 17.12. OROBOROS MiPNet Publications, Innsbruck: 96 pp.

## 1. Programme

<b>Monday, Dec 10 2012</b>	
<b>Bioblast 2012</b>	
<b>15:00-20:00</b>	<b>Registration</b>
<b>17:00-18:00</b>	<b>Welcome to Bioblast 2012</b>
p. 17	<b>Erich Gnaiger:</b> Gentle Science and the Bioblast Conference.
p. 18	<b>Harald Gohm:</b> Welcome to Tyrol.
	<b>Hannes Leo:</b> Happiness and mitochondrial activity.
<b>18:00</b>	<i>Welcome Dinner at Hotel Grauer Bär</i>

<b>Tuesday, Dec 11 2012</b>	
<b>1. From bioenergetics to mitochondrial medicine</b> Chairs: <b>Zuzana Cervinkova, Guy Brown</b>	
<b>09:00-09:30</b> p. 20	<b>Keith Garlid</b> Bioenergetics: a physiological overview.
<b>09:30-09:45</b> p. 21	<b>Nivea Amoedo</b> Mitochondrial function and bioenergetics during malignant transformation and metastasis.
<b>09:45-10:00</b> p. 22	<b>Karl Tronstad</b> Mitochondrial morphology and biogenesis in cellular stress.
<b>10:00-10:15</b> p. 23	<b>Lech Wojtczak</b> A novel putative function of uncoupling proteins.
<b>10:15-10:30</b> p. 24	<b>Mary-Ellen Harper</b> Metabolic effects of microRNA-133 and its antagomir in mice.
<b>10:30-11:15</b>	<i>Coffee / Tea - "O2k exhibition"</i>
<b>2. Mitochondrial testing</b> Chairs: <b>Shilpa Iyer, Steven Hand</b>	
<b>11:15-11:30</b> p. 26	<b>Michael Duchon</b> Separation of NADPH and NADH fluorescence emission in live cells using fluorescence lifetime imaging microscopy.
<b>11:30-11:45</b> p. 27	<b>Charles Hoppel</b> Mitochondrial functional testing – muscle biopsy, isolated mitochondria and others.
<b>11:45-12:00</b> p. 28	<b>Dominique-Marie Votion</b> The cause of atypical myopathy in grazing European horses revealed.
<b>12:00-12:15</b> p. 29	<b>Russel Hepple</b> Is latent mitochondrial dysfunction in aging muscle exposed through mitochondrial isolation?
<b>12:15-12:30</b> p. 29	<b>Magdalena Labieniec-Watala</b> Seasonal fluctuations affect the physiology of laboratory animals – facts and artifacts from the perspective of heart mitochondrial respiratory response to tested compounds.
<b>12:30-14:00</b>	<i>"Meet the Expert" - Lunch</i>
<b>3. Muscle activity and mitochondrial health</b> Chairs: <b>Dominique-Marie Votion, Bret Goodpaster</b>	
<b>14:00-14:15</b> p. 37	<b>Martin Burtscher</b> Strategies for improving exercise tolerance: targeting the skeletal muscles and/or the brain?
<b>14:15-14:30</b> p. 38	<b>Robert Jacobs, Carsten Lundby</b> Mitochondria express enhanced quality as well as quantity in parallel with aerobic fitness across recreationally active individuals up to elite athletes.

14:30-14:45 p. 38	<b>Catherine Le</b> Two-week acclimatization to 5200m markedly alters substrate utilization and increases OXPHOS efficiency, with no effect on respiratory capacity in skeletal muscle mitochondria.
14:45-15:00 p. 39	<b>Ugo Carraro</b> Muscle training in ageing, denervation and beyond.
15:00-15:15 p. 41	<b>Michael Fischer</b> Myofascial pain syndrome and myofascial trigger points.
15:15-15:30 p. 41	<b>Graham Holloway</b> Over-expressing mitofusin-2 in healthy mature mammalian skeletal muscle does not alter mitochondrial bioenergetics.
15:30-15:45 p. 42	<b>Dominik Pesta</b> Prevention of diet-induced hepatic steatosis and hepatic insulin resistance by antisense oligonucleotides targeted to mIndy.
15:45-16:30	<i>Coffee / Tea - "O2k exhibition" and Poster presentation</i>
	<b>4. Melatonin and mitochondria in ageing</b> Chairs: <b>Mary-Ellen Harper, Robert Boushel</b>
16:30-16:45 p. 43	<b>Dario Acuna-Castroviejo</b> Melatonin and the quality of life: the melatonin-mitochondrion connection.
16:45-17:00 p. 44	<b>Michael Breitenbach</b> Roles of mitochondria in aging and in energy metabolism.
17:00-17:15 p. 44	<b>Eva Albertini</b> Cystathionine beta synthase modulates senescence of human endothelial cells.
17:15-17:30 p. 45	<b>Rafal Koziel</b> NADPH oxidase Nox4 induces mitochondrial dysfunction in human endothelial cells.
18:00	<i>Dinner and Xmas market on the way to MiPArT</i>
20:00 onwards  p. 47  p. 1 p. 3	<b>5. MiPArT and Science Communication</b> Filou, Stiftgasse 12 <b>Johannes Zipperle</b> From the bench to the public: Visualization of purinergic signalling as a model for contemporary science communication. <b>Odra Noel</b> <i>MiPArT</i>
	<b>Wednesday, 2012-12-12</b>
	<b>6. Evolution, adaptation and mitochondrial dysfunction</b> Chairs: <b>Nivea Amoedo, Chuck Hoppel</b>
09:00-09:30 p. 49	<b>Nick Lane</b> Evolutionary perspective.
09:30-09:45 p. 50	<b>Guy Brown</b> Low selective pressure on our mitochondrial genome may explain its rapid evolution, poor adaption and our aging.

09:45-10:00 p. 50	<b>Werner Koopman</b> Cellular consequences of mitochondrial dysfunction.
10:00-10:15 p. 51	<b>Mark Felix</b> Ocean warming and acidification – when fish mitochondria turn sour.
10:15-10:30 p. 52	<b>Steven Hand</b> Respiration in embryo lysates reveals diminished Complex I activity and inhibition of the phosphorylation system during diapause in <i>Artemia franciscana</i> .
10:30-11:15	<i>Coffee / Tea - "O2k exhibition"</i>
11:15-11:30 p. 53	<b>Adam Chicco</b> Substrate-specific impairment of cardiac mitochondrial respiration in Taz-deficient mice: insight into the pathogenesis of Barth Syndrome.
11:30-11:45 p. 54	<b>Zuzana Cervinkova</b> Evaluation of mitochondrial functions – an important tool for experimental hepatology.
11:45-12:00 p. 55	<b>Cezary Watala</b> Oxygen consumption in resting and activated blood platelets: platelet mitochondria and cyclooxygenases as compounding targets for HRR.
12:00-12:15 p. 56	<b>Sameh Ali</b> Interrogating Egyptian mitochondria!
12:15-12:30	<b>7. Discussion session: Global Mitochondrial Network?</b> Chairs: <b>Pablo Garcia-Roves, Antonio Galina</b> Impulse statements (2.5 min): <b>Erich Gnaiger</b> : A global perspective. p. 59 <b>Dominik Pesta</b> : GMN from a young investigator's perspective. p. 59 <b>Rainer Mutschler</b> : Regenerative mitochondrial medicine.
12:30-14:00	<i>A Global Mitochondrial Lunch</i>
	<b>8. Neuronal Mitochondrial Function, H<sub>2</sub>S, and NO</b> Chairs: <b>Magdalena Labieniec-Watala, Sameh Ali</b>
14:00-14:15 p. 60	<b>Christos Chinopoulos</b> Exclusive neuronal expression of SUCLA2 in the human brain.
14:15-14:30 p. 61	<b>Zuzana Sumbalova</b> Evaluation of mitochondrial respiration and membrane potential in mouse brain homogenate.
14:30-14:45 p. 61	<b>Frederic Bouillaud</b> Sulfide a remarkable mitochondrial substrate.
14:45-15:00 p. 63	<b>Enrico Calzia</b> Interactions between sulfide metabolism and oxygen concentration.
15:00-15:15 p. 64	<b>Antonio Galina</b> Nitric oxide inhibits succinate dehydrogenase-driven oxygen consumption in potato tuber mitochondria in an oxygen tension-independent manner.
15:15-15:45 p. 65	<b>Shilpa Iyer</b> Gentle Science in the real world of mitochondrial physiology and genetics.
15:45-16:30	<i>Coffee / Tea - "O2k exhibition"</i>
16:30-17:00	<b>Discussion session - Perspectives</b>

<b>17:45</b>	<b>Departure - bus transfer to Swarovski Crystal Worlds, Wattens</b>
p. 15	in front of Hotel Grauer Bär. * We suggest a formal dresscode.
18:30-19:00	Reception at Swarovski Crystal Worlds
19:00-19:45	Guided Tour Swarovski Crystal Worlds
19:45-21:15	Gala Dinner Swarovski Crystal Worlds
21:30-23:00	Piano Concert Uwe Kliemt - <i>Tempo giusto</i>

## 2. Additional Abstracts – Meet the Expert Lunch, Posters or Informal Discussions

<b>Anders Garlid</b> Na,K-ATPase signaling to mitochondria.	<b>Session 1</b> p. 24
<b>Andrea Eigentler</b> The PBI-Shredder - an auxiliary HRR-tool for the preparation of tissue homogenates for diagnosis of mitochondrial respiratory function.	<b>Session 2</b> p. 30
<b>Mario Fasching</b> O2k-Fluorometry - a <i>MitoCom</i> project.	<b>Session 2</b> p. 32
<b>Gergoe Horvath</b> Respiratory substrate effects on mitochondrial membrane potential - experiments with mouse cardiac muscle homogenate.	<b>Session 2</b> p. 33
<b>Hannah Stoeger</b> Cell respiration with yeast as a model.	<b>Session 2</b> p. 33
<b>David Harrison</b> O2k-Spectrophotometry - a <i>MitoCom</i> project.	<b>Session 2</b> p. 34
<b>Gergely Kiss</b> The negative impact of alpha-ketoglutarate dehydrogenase complex deficiency on matrix substrate-level phosphorylation.	<b>Session 2</b> p. 35
<b>Carolina Doerrier</b> Treatment with melatonin prevents myocardial mitochondrial dysfunction in experimental sepsis in mice.	<b>Session 4</b> p. 45
<b>Barbara Meissner</b> Open Innovation.	<b>Session 5</b> p. 47
<b>Csaba Konrad</b> Absence of Ca <sup>2+</sup> -induced mitochondrial permeability transition but presence of bongkrekate-sensitive nucleotide exchange in <i>C. crangon</i> and <i>P. serratus</i> .	<b>Session 6</b> p. 56
<b>Dominika Dudzinska</b> The influence of the extract from <i>Rubus parvifolius</i> leaves (EL17) on expression and activity of apyrase (CD 39) on Human Umbilical Vein Endothelial Cells (HUVECs).	<b>Session 6</b> p. 57
<b>Johannes Burtscher</b> Mitochondrial function in the mouse hippocampus.	<b>Session 8</b> p. 67
<b>Christos Chinopoulos</b> Properties of the mitochondrial permeability transition in human cells lacking the adenine nucleotide translocase isoform 1.	<b>Session 8</b> p. 67

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## 4. Presentation Previews

Monday 10<sup>th</sup>: 15:00 – 16:45  
 Tuesday 11<sup>th</sup>: 08:00 – 08:45, 13:00 – 13:45  
 Wednesday 12<sup>th</sup>: 08:00 – 08:45, 13:00 – 13:45

**Bioblast - [wiki.oroboros.at](http://wiki.oroboros.at)** - the *information synthase* for Mitochondrial Physiology and high-resolution respirometry:

**O2k-Catalogue:** [www.bioblast.at/index.php/O2k-Catalogue](http://www.bioblast.at/index.php/O2k-Catalogue) **OROBOROS**

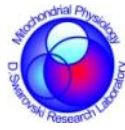
**Publications:** [www.bioblast.at/index.php/O2k-Publications](http://www.bioblast.at/index.php/O2k-Publications)

## 5. Acknowledgements



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