Workshop

in

Mitochondrial function and metabolic diseases.

8 – 9 December 2008

University of Bergen, Norway

Background

Evidence has accumulated that a reduced mitochondrial function plays an important role in the etiology of obesity, insulin resistance, and type 2 diabetes mellitus. The reduced mitochondrial function is compatible with the defective lipid oxidation seen in obese patients. An impaired metabolic flexibility, implying decreased fat oxidation as well as an impaired substrate switching in response to high fat is a feature of subjects prone to develop obesity. Evidence is accumulating that mitochondrial dysfunction may also be involved in metabolic dysregulations in adipose tissue, skeletal muscle and liver.
Dietary components including bioactive components may modulate mitochondrial function, and thereby metabolic flexibility. By improving mitochondrial function such ingredients have the potential of beneficially affecting human health.

The objectives of this workshop is to provide
- A better understanding of mitochondrial function in relation to metabolic regulation
- A review of the role of mitochondrial dysfunction in disease development
- A presentation of appropriate methodology for determining mitochondrial function and biogenesis including case studies with interpretation of analytical data.

This workshop can be attended by master and PhD students and other researchers.

Scientific program

Monday 8 December

08.30 Registration

Session 1: Mitochondrial function, metabolic regulation and disease development

Chair persons: Dr. Jon Skorve and Professor Rolf K. Berge

09.00 Opening address
Professor Rolf K. Berge, University of Bergen

09.10 Evolving concepts within inherited human mitochondrial disorders
Professor Laurence Bindoff, University of Bergen

10.00 Mitochondrial structure-function relationships
Dr Werner Koopman, Radboud University Nijmegen

10.45 Coffee break

11.00 The dynamic control of mitochondrial function
Assoc. Professor Karl Johan Tronstad, University of Bergen

11.45 AMPK and its role in metabolism and inflammation
Dr Thomas Svensson, Stockholm

12.30 Lunch

13.30 Mitochondrial ion channels in relation to oxidative injury
Prof. Adam Szewczyk, the Nencki Institute of Experimental Biology, Warsaw

14.30 Lipotoxicity and muscular mitochondrial dysfunction in insulin resistance
Assoc. Professor Matthijs Hesselink, Maastricht University.

15.15 Coffee break

15.30 Role of NAD in bioenergetics and signaling pathways
Professor Mathias Ziegler, University of Bergen

16.15 Bioactive compounds for improving mitochondrial function
Professor Rolf K. Berge, University of Bergen

17.00 Closing session

Tuesday December 9.

Session 2. Methodology and data analysis in studies of mitochondrial function

Chair persons: Dr. Jon Skorve and Professor Rolf K. Berge

09.00 Quantitative multi-parameter microscopy of mitochondrial function in living cells
Dr. Werner Koopman, Radboud University Nijmegen

09.45 Breath taking organelles in vital bodies; in vivo measures of mito function
Assoc. Professor Matthijs Hesselink, Maastricht University.

10.30 Coffee break

10.45 Oxygen consumption analysis for studying mitochondrial function
Assoc. Professor Karl Johan Tronstad, Professor Rolf K. Berge
University of Bergen.

12.00 MR imaging of organs and tissues in laboratory animals
Assoc. Professor Frits Thorsen, Molecular Imaging Center, University of Bergen.

12.30 Lunch

13.30 Multifunctional enzymes in the mitochondrial fatty acid synthesis and degradation.
Professor Kalervo Hiltunen, University of Oulu

14.15 New technologies: Multiwell analysis of mitochondrial respiration
I Dr Per Bo Jensen, SeaHorse Biosciences Inc
II Dr Richard Fernandes, Luxcel Biosciences Ltd

16.00 Closing session

Registration and accomodation

Deadline for registration: Monday 1 December for attending the workshop
Thursday, 13 November if accommodation is required

Accomodation:

1) Rica Travel Hotel Bergen where a limited number of rooms are booked for the Workshop. Price is NOK795,- pr night, breakfast included.
http://www.rica-hotels.com/index.cfm?oa=hotel.display&con=439

2) Montana Family and youth hostel. Price is NOK1020,- for two nights (breakfast not includeed)
http://www.montana.no

Lunch will be provided at site on Monday and Tuesday.

For registration please fill in the attached registration form and email to post.mitohealth@med.uib.no

For further information: http://www.mitohealth.org/index.htm

Location:

Auditorium 4, Institute for Biomedicine, located in the Bygg of Biologiske Basalfag (BBB), Jonas Lies Vei 91, 5009 Bergen. The BBB Building is located behind Haukeland University Hospital, which is regularly serviced by buses No. 2, 31 and 50 from the city centre.
A detailed map can be found at the link:

http://www.uib.no/info/english/visitors/

The financial support from Luxcel Biosciences Ltd. and Seahorse Bioscience Inc. is highly appreciated.