Universidad Internacional de Andalucía

WORKSHOPS "CURRENT TRENDS IN BIOMEDICINE"

2023

SEDE ANTONIO MACHADO
BAEZA, SPAIN

BRAIN METABOLISM AND ENERGY HOMEOSTASIS

Baeza, Spain • 3rd-5th October 2023

Organized by:

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SCOPE

Mitochondria play a critical role in almost all aspects of cell biology, from energy production and metabolism to cell death and inflammation. Mitochondrial dysfunction is involved in the pathogenesis and progression of numerous human diseases, including neurodegenerative and cardiovascular disorders. As such, mitochondria have emerged as a key regulator of whole-body metabolism and a central target for maintaining cell homeostasis.

This meeting will focus on the latest research on the role of mitochondria in health and disease, with a particular emphasis on mitochondrial metabolism and cellular bioenergetics, mitochondria as a therapeutic target for diseases, brain energy metabolism in health and disease, and systemic cross-talk from peripheral tissue to brain metabolism.

We will discuss the physiological and pathological adaptations of mitochondria to achieve energetic demands. We will also explore the signaling cascades triggered by mitochondrial dysfunction that induce pathology, as well as mitochondrial-based therapy and new opportunities for future treatments.

We will examine the molecular mechanisms of mitochondrial diseases and how altering mitochondrial function by external stimuli may

trigger disease. We will discuss the development of new treatments targeting mitochondria, including modeling human diseases by targeting mitochondrial components. We will also examine the role of mitochondrial dysfunction in the pathogenesis of Parkinson's disease and its therapeutic implications. Additionally, we will discuss the role of autophagy and inflammation in neurodegeneration.

The molecular basis of mitochondrial disorders in non-neuronal brain cells will be also evaluated. We will discuss the role of mitochondria and energy efficiency in neurodegenerative disease states and in learning and memory formation in healthy brains. We will also examine how microglia act as brain injury sensors, favoring their homeostasis, and the importance of microglia activation in the pathogenesis of neurodegenerative diseases and its relationship with mitochondrial dynamics. Finally, we will review how modulation of mitochondrial ion channels might ameliorate stroke, neurodegenerative, and developmental brain diseases.

Finally, systemic cross-talk from peripheral tissue to brain metabolism will be examined. We will analyze the role of metabolism homeostasis in maintaining health, focusing on the crosstalk between organs. We will discuss recent progress in adipocyte biology, the interaction with the brain, and how these alterations in metabolism might affect heart disease. We will also examine the importance of organ crosstalk and how signaling in one tissue could affect metabolism in other tissues. This meeting will provide critical new insights into the primary pathogenesis of metabolic disorders and primarily focus on those that might lead to new therapies.

Overall, this meeting will give a broad spectrum of new and unique perspectives in understanding mitochondria's role in health and disease. The latest achievements in elucidating the role of mitochondria and brain metabolism under physiological conditions in various cell/animal models of human diseases and patients will be highlighted, with the ultimate goal of developing new treatments for a wide range of diseases.

FORMAT OF THE WORKSHOP

The workshop will bring together a maximum of 15 speakers and 35 participants, to form a group of around 50 people. The scientific programme will start in the morning of Tuesday, October 3rd, and will end around noon on Thursday, October 5th. Ample time for informal discussion will be reserved. Participants will be invited to present a poster.

VENUE OF THE WORKSHOP

The workshop will be held in Baeza, at the "Sede Antonio Machado", a XVII century building turned into a Conference Centre of the Universidad Internacional de Andalucía (UNIA). This Seat includes a residence, where participants will be accommodated. Baeza is a World Historic Heritage town, renowned for its Renaissance and Gothic buildings.

SPEAKERS

Juan P. Bolaños Institute of Functional Biology and Genomics (IBFG), Universidad de Salamanca, CSIC / Institute of Biomedical Research of Salamanca (IBSAL), Hospital Universitario de Salamanca / Centro de Investigación Biomédica en Red sobre Fragilidad y Envejecimiento Saludable (CIBERFES). Salamanca, Spain.

Navdeep S. Chandel Department of Medicine, Division of Pulmonary and Critical Care Medicine, Northwestern University Feinberg School of Medicine. Chicago, IL, USA.

Nika N. Danial Department of Cancer Biology, Dana-Farber Cancer Institute, Harvard Medical School. Boston, MA, USA.

José Antonio Enríquez Centro Nacional de Investigaciones Cardiovasculares (CNIC) / Centro de Investigaciones Biomédicas en Red en Fraglidad y Envejecimiento Saludable (CIBERFES). Madrid, Spain.

Cristina García-Cáceres Institute of Diabetes and Obesity, Helmholtz Center Munich ; German Center for Diabetes Research (DZD). Neuherberg / Medizinische Klinik und Poliklinik IV, Klinikum der Universität, Ludwig-Maximilians-Universität München. Munich; Germany.

Patricia González-Rodríguez Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC / Departamento de Fisiología Médica y Biofísica, Facultad de Medicina; Universidad de Sevilla / Centro de Investigación Biomédica en Red sobre Enfermedades Neurodegenerativas (CIBERNED). Sevilla, Spain.

Elizabeth A. Jonas Department of Internal Medicine, Section of Endocrinology, Yale University. New Haven, CT, USA.

Alberto Pascual Instituto de Biomedicina de Sevilla (IBiS), Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla / Centro de Investigación Biomédica en Red sobre Enfermedades Neurodegenerativas (CIBERNED). Sevilla, Spain.

Pere Puigserver Department of Cell Biology, Harvard Medical School / Department of Cancer Biology, Dana-Farber Cancer Institute. Boston, MA, USA.

Guadalupe Sabio	Spanish National Center for Cardiovascular Research (CNIC). Madrid, Spain.
Anu Suomalainen	Research Program of Stem Cells and Metabolism, University of Helsinki. Helsinki, Finland.
D. James Surmeier	Department of Neuroscience, Feinberg School of Medicine, Northwestern University. Chicago, IL, USA.
Aleksandra Trifunovic	Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases (CECAD) and Institute for Mitochondrial Diseases and Aging, Medical Faculty, University of Cologne. Cologne, Germany.
Matthias H. Tschöp	Helmholtz Munich, Neuherberg; Division of Metabolic Diseases, Department of Medicine, Technical University of Munich. Munich; Germany.
Eileen White	Rutgers Cancer Institute of New Jersey; New Brunswick / Department of Molecular Biology and Biochemistry, Rutgers University; Piscataway / Ludwig Institute for Cancer Research, Princeton University. New Brunswick; NJ, USA.

DEADLINE: 21st JULY 2023

MORE APPLICATIONS WILL BE ACCEPTED IN CHRONOLOGICAL ORDER UNTIL COMPLETING THE WORKSHOP

MORE INFORMATION AND APPLICATION:

http://www.unia.es/biomedicine

workshops.biomed@unia.es

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