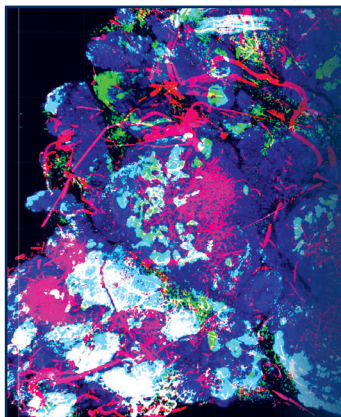




Therapeutic Targeting of Hypoxia-Sensitive Pathways

April 10–14, 2018 | University of Oxford Mathematical Institute | Oxford | UK

Scientific Organizers:

Chris W. Pugh, University of Oxford, UK

Pablo Wappner, Fundacion Instituto Leloir, Argentina

Johanna Myllyharju, University of Oulu, Finland

Moir K. Whyte, MRC/UoE Centre for Inflammation Research, University of Edinburgh, Queen's Medical Research Institute, UK

Tissue oxygen gradients contribute to morphogenesis and in healthy cells in different tissues, function under differing ambient oxygen conditions. Diseases or environmental challenges can reduce oxygen supply or increase demand, resulting in tissue hypoxia. Adaptive mechanisms have evolved that range from almost instantaneous acute ventilatory changes, through transcriptional events entrained in hours, to epigenetic events with slower effects and genetic adaptations selected across species and over generations. The role of the 2-oxoglutarate dependent dioxygenase enzyme family in influencing many, but not all, of these pleiotropic processes is increasingly recognized, and drugs targeting these enzymes are being evaluated in both experimental and clinical settings. The conference aims to combine the Keystone Symposia brand with the European HypoxiaNET consortium to bring together experts in hypoxia biology from clinical, academic and industrial backgrounds, including trainees, to: 1) Address gaps in our knowledge of responses to hypoxia across these timeframes and in different tissues; 2) Benefit the field by sharing techniques and reagents to enhance therapeutic targeting of the hypoxic response in general, including via inhibition of oxygen-sensitive enzymes; 3) Consider the utility of harnessing these pathways in organ dysfunction, in regenerative medicine and to influence immune and inflammatory responses; and 4) Disseminate outcomes of ongoing clinical trials and enhance plans for future trials. The most important anticipated outcome from the conference is that, through sharing knowledge, enhancing collaborations and training participants from diverse backgrounds, the likelihood of successful manipulation of hypoxia pathways to produce clinical benefits in a variety of fields including, but not restricted to, renal anaemia will be significantly enhanced

Session Topics:

- Acute Oxygen-Sensing
- Hypoxia and Organ (dys)Function
- Hypoxia and Development
- Clinical Inhibitors of HIF Hydroxylases and HIFs
- Immune and Inflammatory Effects of Hypoxia
- Hypoxia and Stem Cell Function
- Tissue Degeneration, Regeneration and Programming
- Epigenetic and Pan-Genomic Effects of Hypoxia

Scholarship Application & Discounted Abstract Deadline: December 11, 2017

Abstract Deadline: January 10, 2018

Discounted Registration Deadline: February 13, 2018



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Upper image of tumor hypoxia courtesy of National Cancer Institute, NIH

Meeting Hashtag: #KShypoxia

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KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Therapeutic Targeting of Hypoxia-Sensitive Pathways (V1)

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TUESDAY, APRIL 10

Arrival and Registration

WEDNESDAY, APRIL 11

Welcome and Keynote Address

Peter J. Ratcliffe, University of Oxford, UK
New Horizons in Hypoxia Biology and Therapeutics

Acute Oxygen-Sensing

Mark A. Krasnow, Stanford University School of Medicine, USA
Acute Oxygen Sensing in the Lungs and Carotid Body

Francesco Licausi, Scuola Superiore Sant'Anna, Italy
Harnessing the Oxygen Sensing Mechanism of Plants

Betty A. Eipper, University of Connecticut Health Center, USA
Peptidylglycine alpha-Amidating Monooxygenase (PAM), a Conserved Secretory Pathway Enzyme, Is Sensitive to Physiologically Relevant Changes in Oxygen

Short Talk(s) Chosen from Abstracts

Workshop: New Techniques for Oxygen Measurement

Giovanni E. Mann, King's College London, UK

Penny Anne Gowland, University of Nottingham, UK
Assessing Oxygenation in vivo with MR

Christine Janz, ibidi GmbH, Germany
Intra- and Extracellular Oxygen Measurement on a Live Cell Imaging System using ibidi OPAL

Peter A. Robbins, University of Oxford, UK

Andrew Farmery, University of Oxford, UK
Polymer Fibre-Optic Oxygen Sensors

Hypoxia and Organ (dys)Function

Johanna Myllyharju, University of Oulu, Finland
Transmembrane Prolyl 4-Hydroxylase (P4H-TM/PHD4) – Further Light into the Roles of this Enigmatic Enzyme

Dörthe M. Katschinski, Georg August University, Germany
The HIF-PHD Pathway in the Cardiovascular System

Volker H. Haase, Vanderbilt University, USA
Oxygen sensing in the kidney

Short Talk Chosen from Abstracts

Poster Session 1

THURSDAY, APRIL 12

Hypoxia and Development

Dino A. Giussani, University of Cambridge, UK
Heart Disease Link to Fetal Hypoxia: An Intergenerational Perspective

Josh Bonkowski, University of Utah School of Medicine, USA
Hypoxia and Connectivity in the Developing Vertebrate Nervous System

Ernestina Schipani, University of Michigan, USA
Impairment of Mitochondrial Respiration Promotes Survival of HIF-1alpha Deficient Chondrocytes in vivo

Pablo Wappner, Fundacion Instituto Leloir, Argentina
Cellular and Developmental Adaptations to Hypoxia. Lessons from Drosophila melanogaster

Short Talk(s) Chosen from Abstracts

Clinical Inhibitors of HIF Hydroxylases and HIFs

Speaker to be Announced

Late Breaking Industrial Trial on Treatment of Anaemia

Christopher J. Schofield, University of Oxford, UK
Inhibiting 2-Oxoglutarate Oxygenases for Therapeutic Benefit

Chris W. Pugh, University of Oxford, UK
Review of Other Indications / Complications

Poster Session 2

FRIDAY, APRIL 13

Immune and Inflammatory Effects of Hypoxia

Moira K. Whyte, MRC/UoE Centre for Inflammation Research, University of Edinburgh, Queen's Medical Research Institute, UK
Hypoxia and Regulation of Inflammatory Cell Migration

Yun-Cai Liu, La Jolla Institute for Allergy and Immunology, USA
VHL-HIF-Glycolytic Pathway in Immune Regulation

Sarah R. Walmsley, University of Edinburgh, Queen's Medical Research Institute, UK

Hypoxia and Regulation of Inflammation and Anti-Microbial Responses

Randall S. Johnson, University of Cambridge, UK
Talk Title to be Announced

Short Talk(s) Chosen from Abstracts

Hypoxia and Stem Cell Function

Kamil R. Kranc, University of Edinburgh, UK
Hypoxia Signaling in Normal and Malignant Haematopoiesis

Paul R. Riley, University of Oxford, UK
The Role of Hypoxia and HIF-signalling in Epicardial Activation during Neonatal Cardiac Regeneration

Eduar Berra, CIC bioGUNE, Spain
Harnessing the Intricate Crosstalk in Hypoxia Signalling Pathways

Short Talk(s) Chosen from Abstracts

Poster Session 3

SATURDAY, APRIL 14

Tissue Degeneration, Regeneration and Programming

Peppi Koivunen, University of Oulu, Finland
HIF Prolyl 4-Hydroxylase Inhibition in Fatty Liver Diseases

Sean P. Colgan, University of Colorado Denver, USA
Hypoxia and HIF as Regulators of Barrier Function in the Mucosa

Hesham A. Sadek, University of Texas Southwestern Medical Center, USA
Heart Development

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Tracey A. Rouault, NICHD, National Institutes of Health, USA
Translational Regulation of HIF2 alpha and Erythropoiesis by the IRE-IRP System

Short Talk Chosen from Abstracts

Closing Keynote Address

William G. Kaelin, Jr., Dana-Farber Cancer Institute, USA
Do Histone Demethylases Directly Sense Oxygen to Control Chromatin Structure and Cell Fate?

Epigenetic and Pan-Genomic Effects of Hypoxia

Raul Mostoslavsky, Massachusetts General Hospital, Harvard Medical School, USA
Linking Epigenetics, Metabolism and Cancer: Lessons from SIRT6

Skirmantas Kriaucionis, University of Oxford, UK
TET Proteins and 5-Hydroxymethylcytosine in Transcription

Joaquin M. Espinosa, University of Colorado Boulder, USA
Mechanisms of Transcriptional Regulation during the Hypoxic Response

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

SUNDAY, APRIL 15

Departure