

'Principles of Mitochondrial Biology, Metabolism and Bioenergetics in Health and Disease' – MiP Spring, London 2015

A workshop to be held at University College London, Medical Sciences Building, AV Hill Lecture Theatre, April 20th-24th.

	Monday April 20 th	Tuesday April 21 st	Wednesday April 22 nd	Thursday April 23 rd	Friday April 24 th	
	Introductory day	Free radical biology	Mitochondrial quality control pathways	Mitochondria and Disease	Mitochondria and Disease	
9:30-10:30		<i>Opening Guest lecture</i> Basic principles of free radical biology Barry Halliwell (Singapore)	Mitochondrial trafficking, fission and fusion. Josef Kittler (UCL)	Metabolomics and human disease Christian Frezza (Cambridge)	Disordered mitochondrial quality control and neurodegenerative disease Helene Plun Favreau (IoN)	
10.30-11.00		Measuring ROS I: EPR Chris Kay (UCL)	Maintenance of mtDNA Ian Holt (NIMR)	Mitochondria and Cancer Gyorgy Szabadkai (UCL)	Mitochondria in cardiac ischaemia and reperfusion injury Andrew Hall (UCL)	
		C O F F E E				
11.30-12.00		Measuring ROS II: fluorescence Andrey Abramov (UCL)	Mathematical approaches to mitochondrial physiology Nick Jones (Imperial College)	Exploring mitochondrial dysfunction in neuroinflammation Kenneth Smith (IoN)	Nuclear mutations of mitochondrial proteins and disease Shamima Rahman (ICH)	
12.00-12.30		Principles of respirometry Erich Gnaiger (Oroboros/Innsbruck)	Autophagy/mitophagy in health and disease Michelangelo Campanella (RVC)	Graduate talks x2	mTOR and NAD homeostasis as therapeutic targets for treating mitochondrial disease Matt Kaeberlein (UW)	
12.30-1.00		Graduate talks x2	Graduate talks x2	Poster session	Closing remarks Michael Duchon	

LUNCH					
2.00-4.00	<p>Open. Registration</p> <p>Introductory lectures:</p> <ul style="list-style-type: none"> Welcome; course overview Michael Duchen, Erich Gnaiger At the beginning: mitochondria and the origins of life Nick Lane (UCL) Overview: mitochondria in health and disease. Michael Duchen (UCL) 	<p>PRACTICAL SESSIONS</p> <ul style="list-style-type: none"> Detection of Free Radicals by EPR/ESR Spectroscopy Confocal Imaging (Basic Principles; Mitochondrial Membrane Potential, Autophagy and Mitophagy, Mitochondrial Dynamics, Redox FLIM) Luminescent Probes: Measuring [Ca²⁺] and [ATP] with targeted aequorin and luciferase probes Respirometry: Seahorse Respirometry: Oroboros. An introduction to high-resolution respirometry and O₂k-Fluorometry. High throughput imaging solutions: Molecular Devices UV/visible and FTIR spectroscopy Luxcel assays: Mix-and-measure Metabolism and Mitochondrial Function Assays (Oxygen Consumption & Acidification) on the BMG Labtech CLARIOstar plate reader 			
TEA/COFFEE					
4.30-5.30	<p>Chemiosmotic coupling; structures and mechanisms of the respiratory enzymes.</p> <p>Peter Rich (UCL)</p>	<p>Oxidative stress and human disease.</p> <p>Mike Murphy (MRC MBU Cambridge)</p>	<p>Clinical approaches to mitochondrial Disease</p> <p>Massimo Zeviani (MRC MBU Cambridge)</p>	<p>Mitochondria, telomeres and ageing</p> <p>Joao Passos (Newcastle)</p>	
5.30-7.30	<p>WELCOME MIXER/ DRINKS NIBBLES IN THE GRANT MUSEUM</p>	<p>POSTER SESSION</p> <p>FREE EVENING</p>		<p>COURSE DINNER (BY BOAT ON THE RIVER THAMES)</p>	