

# 'Principles of Mitochondrial Physiology, Metabolism and Bioenergetics in health and disease'

MiPschool London 2015, UCL, April 20<sup>th</sup>-25<sup>th</sup>

	Monday April 20 <sup>th</sup>	Tuesday April 21 <sup>st</sup>	Wednesday April 22 <sup>nd</sup>	Thursday April 23 <sup>rd</sup>	Friday April 24 <sup>th</sup>
	Introductory day	Free radical biology	Mitochondrial quality control pathways	Mitochondria and Disease	Drug Discovery
9:30-10:30		<i>Opening Guest lecture</i> Basic principles of free radical biology  <b>Barry Halliwell (Singapore)</b>	Mitochondrial trafficking, fission and fusion.  <b>Josef Kittler (UCL)</b>	Metabolomics and human disease  <b>Christian Frezza (Cambridge)</b>	Mitochondria as drug targets – the industrial pipeline  <b>Jim Staddon (Eisai)</b>
10:30-11:00		Measuring ROS I: EPR  <b>Chris Kay (UCL)</b>	Maintenance of mtDNA  <b>Ian Holt (NIMR)</b>	Mitochondria and Cancer  <b>Gyorgy Szabadkai</b>	Mitochondria in cardiac ischaemia and reperfusion injury  <b>Andrew Hall</b>
	<b>C O F F E E</b>				
11:30-12:00		<b>Measuring ROS II: fluorescence</b>  <b>Andrey Abramov(UCL)</b>	Can Mathematical Modelling give us new insights into mitochondrial biology  <b>Nick Jones (Imperial)</b>	Exploring mitochondrial dysfunction in neuroinflammation  <b>Kenneth Smith (IoN)</b>	Nuclear mutations of mitochondrial proteins and disease  <b>Shamima Rahman (ICH)</b>
12:00-12:30		Principles of respirometry  <b>Erich Gnaiger (OROBOROS/ Innsbruck)</b>	Autophagy/mitophagy in health and disease <b>Michelangelo Campanella (RVC)</b>	Graduate talks x4	Disordered mitochondrial quality control and neurodegenerative disease  <b>Helene Plun Favreau (IoN)</b>
12:30-1:00		Graduate talks x2	Graduate talks x2		

LUNCH					Close
2.00-4.00	<b>Open. Registration orientation Introductory lectures:</b> <ul style="list-style-type: none"> <li>• Welcome MD;</li> <li>• Welcome MiPsociety</li> <li>• <b>Nick Lane</b> – at the beginning: mitochondria and the origins of life</li> <li>• <b>Peter Rich</b> - 'Chemiosmotic coupling and structures and mechanisms of the respiratory enzymes</li> <li>• Mitochondria in health and disease – an overview <b>Michael Duchen</b></li> </ul>	<b>DEMONSTRATIONS</b> <ul style="list-style-type: none"> <li>• EPR/ESR</li> <li>• Confocal imaging (x2)</li> <li>• Luminescence</li> <li>• <b>Respirometry: Seahorse</b></li> <li>• <b>High-resolution respirometry: OROBOROS Oxygraph-2k</b></li> <li>• <b>High throughput imaging solutions (Mol Dev)</b></li> <li>• Spectroscopy (PRR)</li> <li>• Luxcel</li> </ul>			
<b>TEA/COFFEE</b>					
4.30-5.30	<b>WELCOME MIXER/ DRINKS NIBBLES IN THE GRANT MUSEUM</b>	Oxidative stress and human disease.  <b>Mike Murphy (MRC MBU Cambridge)</b>	Clinical approaches to mitochondrial Disease  <b>Massimo Zeviani (MRC MBU Cambridge)</b>	Mitochondria, telomeres and ageing  <b>Joao Passos (Newcastle)</b>	
			<b>COURSE DINNER</b>		

All lectures to be held in the Cruciform building (WIBR) Lecture theatre 2.