



## Cellular Bioenergetics Masterclass, Buck Institute, April 23-26, 2018

### PROGRAM

#### Monday, APRIL 23<sup>RD</sup>, 2018.

- 9:00-9:15** Welcome.
- 9:15-10:15** L1 David Nicholls: The proton circuit, the central concept of cellular bioenergetics – volts, amps and ohms.
- 10:15-10:45** Coffee break.
- 10:45-11:45** L2 David Nicholls: Essential thermodynamics: driving forces.
- 11:45-12:45** Lunch in atrium.
- 12:45-1:45** L3 Martin Brand: Function and dysfunction: isolated mitochondria.
- 1:45-2:15** Coffee break.
- 2:15-4:15** P1 Martin Brand: The Seahorse respirometer: isolated mitochondria: problem solving.

#### Tuesday, APRIL 24<sup>TH</sup>.

- 9:00-10:00** L4 David Nicholls: Function and dysfunction in intact cells.
- 10:00-10:30** Coffee break.
- 10:30-12:15** P2 David Nicholls: The Seahorse respirometer: intact cells: problem solving.
- 12:15-1:15** Lunch in atrium.
- 1:15-2:45** P3 Shona Mookerjee: The Seahorse respirometer: quantifying glycolytic and oxidative phosphorylation.
- 2:45-3:15** Coffee break.
- 3:15-4:15** L5 David Nicholls: Using the proton circuit: adenine nucleotides and calcium.
- Return to hotels
- 7:00-10:00** Masterclass dinner.

#### Wednesday, APRIL 25<sup>TH</sup>.

- 9:00-10:00** L6 Martin Brand: reactive oxygen species.
- 10:00-10:30** Coffee break.
- 10:30-12:15** P4 David Nicholls: Monitoring plasma and mitochondrial potentials in intact cells – qualitative approaches.
- 12:15-1:15** Lunch in atrium.
- 1:15-2:45** P5 Akos Gerencser: Functional bioenergetic microscopy.
- 2:45-3:15** Coffee break.
- 3:15-4:15** L7 David Nicholls: Case study - the proton circuit in brown fat.

#### Thursday, APRIL 26<sup>TH</sup>.

- 9:00-10:15** L8 David Nicholls and Akos Gerencser: Case study: the pancreatic  $\beta$ -cell.
- 10:15-10:45** Coffee break.
- 10:45-12:15** Problem solving. We will pose bioenergetic problems and solicit your strategies for solving them/Question and answer session. An opportunity for lecturers to expand on topics covered. For best use of the time, we will need questions to be submitted in advance and we'll choose those of most general interest.
- 12:15-1:00** P6 David Nicholls: Spot the howlers: how to critically analyze the cellular physiology literature.
- 1:00** Wrap-up.
- 1:00** Sandwich Lunch, eat-in or take-out; depart.

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