

Navigating the Cell: How Motors Function *in vivo*

Wiston House • West Sussex • 23 – 26 March 2014

Programme

Sunday 23 March 2014

- 12:30 – 14:00 **Lunch**
- 14:00 – 14.15 **Introductions:**
Claire Moulton
Who are **The Company of Biologists?**
Margaret A. Titus and **Vladimir Gelfand**
Workshop Introduction
Chair – Margaret A. Titus
- 14:15 – 14:55 **Enrique M. De La Cruz**
Actin filament severing by vertebrate cofilin
is driven by linked cation release
- 14:55 – 15:35 **Marileen Dogterom**
Positioning of microtubule asters by cortical
dynein in artificial confinement
- 15:35 – 16:15 **Tea break**
- 16:15 – 16:55 **Fred MacKintosh**
Active diffusion and stress stabilization by motors
- 16:55 – 17:05 **Ewa Bielska**
Hook mediates bi-directional early endosomes
motility by controlling kinesin-3 and dynein attachment
- 17:05 – 17:15 **Marco Fritzsche**
Actin filament length-distribution in living cells
- 18:00 – 19:30 **Early career scientists' posters**
Pre-dinner drinks
- 19:30 – 21:00 **Dinner**
- 21:00 – 22:00 **Introduction slide presentations**
- 22:00 – 23:30 **Bar open**

All meals will be served in **The Great Hall**

Programme

Monday 24 March 2014

- 08:00 – 09:00 **Breakfast**
Chair – Samara Reck-Peterson
- 09:00 – 09:40 **Vladimir Gelfand**
How microtubules and kinesin generate cell polarity
- 09:40 – 10:20 **Erika Holzbaur**
Coordinate regulation of opposing kinesin and dynein motors by scaffolding proteins
- 10:20 – 11:00 **Group photo**
Tea break
- 11:00 – 11:40 **Jonathon Howard**
Motors, microtubules and morphogenesis
- 11:40 – 11:50 **Emma Gleave**
The structure and mechanism of dynein
- 11:50 – 12:00 **Ha Thi Hoang**
In vitro reconstitution of active RNA–motor complexes using *Drosophila* tissue culture cells for the study of dynein behaviour and regulation
- 12:00 – 13:00 **Lunch**
- 13:00 – 15:00 **Walk (meet at Reception)**
- 15:00 – 15:30 **Tea break**
Chair – Thomas Surrey
- 15:30 – 16:10 **Gijsje Koenderink**
Motor-driven contractility of the actin cytoskeleton
- 16:10 – 16:50 **Margaret Gardel**
Building active materials for cytoskeletal functionality
- 16:50 – 17:30 **Alex Mogilner**
Computational modeling of mitotic spindle self-assembly in health and disease
- 17:30 – 17:40 **Melike Lakadamyali**
Probing cargo transport with correlative live-cell and super-resolution microscopy
- 18:00 – 18:45 **Pre-dinner drinks**
- 18:45 – 19:30 **History talk on Wiston House**
- 19:30 – 21:00 **Dinner**
- 22:00 – 23:30 **Bar open**

All meals will be served in **The Great Hall**

Programme

Tuesday 25 March 2014

08:00 – 09:00	Breakfast
	Chair – Jonathon Howard
09:00 – 09:40	Justin Molloy How myosin 10 finds its way to the filopodial tip
09:40 – 10:20	Samara Reck-Peterson Regulation of cytoplasmic dynein
10:20 – 11:00	Tea break
11:00 – 11:40	Matthias Rief Dynamic force sensing of filamin
11:40 – 11:50	Roop Mallik The journey of the phagosome
11:50 – 12:00	Gulcin Pekkurnaz Glucose regulates mitochondrial motility via miltion modification by O-GlcNAc transferase
12:00 – 13:30	Lunch
	Chair – Margaret Gardel
13:30 – 14:10	Christoph Schmidt Probing single-motor dynamics <i>in vivo</i> on time scales between milliseconds and hours with fluorescent carbon nanotubes
14:10 – 14:50	Thomas Surrey Motors at microtubule ends – <i>in vitro</i> reconstitutions
14:50 – 15:30	Tea break
15:30 – 16:10	Cécile Sykes Acto-myosin contractility and shape changes reproduced on a cell-sized liposome
16:10 – 16:50	Margaret A. Titus Conserved roles for MyTH-FERM myosins in filopod formation and cell signaling
16:50 – 17:00	Natalia Sanchez-Soriano Modelling axonopathies: Tau and Shot cooperate in microtubule bundle organisation, transport and synapse formation and maintenance
17:00 – 17:10	George Shubeita Cytoplasmic dynein and kinesin-1 respond differently to cytosolic drag forces
17:10 – 18:30	Break
18:30 – 19:30	Pre-dinner drinks
19:30 – 21:30	Dinner
21:30 – 00:00	Bar open

All meals will be served in **The Great Hall**

Programme

Wednesday 26 March 2014

- 07:30 – 08:30 **Breakfast**
Chair – Erika Holzbaur
- 08:30 – 09:10 **Iva Tolić-Nørrelykke**
Paradox of force balance in the mitotic spindle
- 09:10 – 09:50 **Claudia Veigel**
Mechanics of myosins in parasites:
Leishmania myosin XXI
- 09:50 – 10:15 **Tea break**
- 10:15 – 10:55 **David Weitz**
Force spectrum of motor activity in cells
- 10:55 – 11:05 **Julie Welburn**
Regulation of MCAK function through a
conformational switch induced by phosphorylation
- 11:05 – 11:15 **Diana Zala**
Vesicular glycolysis provides on-board
energy for fast axonal transport
- 11:15 – 11:30 **Margaret A. Titus and Vladimir Gelfand**
Overview of meeting
- 11:45 – 13:00 **Lunch**
Depart



All meals will be served in **The Great Hall**