

Microfluidic Single Cell Analytics

Abstract

As microfluidic dimensions approach the length scale of a single cell, flow becomes laminar and manipulations become deterministic to enable exquisite spatial and temporal control. This quality can be used to provide superior assay resolution and also to address previously intractable questions in cell biology.

Using examples from my research, I will show how microfabricated platforms afford the spatial precision to investigate neuronal and tumour systems, and then extend this principle to resolving cellular dynamics with millisecond resolution.

The presentation will conclude with a discussion on the importance of high throughput single cell analysis for understanding heterogeneity in cellular populations. This research involves the use of droplet microfluidics and microwell array principles to measure variations in gene expression and communication that drive tumour evolution and underpin stem cell differentiation.

We welcome all staff and students with relevant research interests to attend this event.

Event details

Date: Monday 7 December

Time: 12:30-13:30

Venue: B53 4025A/B

Admission: All staff & students welcome



Dr Jonathan West MRSC
Institute for Life Science Research Fellow,
University of Southampton

Jonathan West MRSC is an Institute for Life Sciences Research Lecturer with 18 years' experience from PhD ("microsystems for genetic diagnostics") to present working at the interface between microtechnology and biomedicine. This included three years industrial micro/nanotechnology commercialisation experience. In the last seven years, Jonathan has been developing microfluidic platforms for high throughput single cell biology. He has five patents, 32 peer-reviewed publications (>1700 citations; h-index 18), as well as two book chapters.

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UoS website: www.southampton.ac.uk/medicine/about/staff/jjw1a11.page