

Crossing Biological Membranes – Introduction to Industrial Biotechnology - Short Course – November 15th to 17th 2016

	Day One – Tuesday 15th November Centre for Process Innovation, Wilton	Day Two – Wednesday 16th November Centre for Process Innovation, Wilton	Day Three – Thursday 17th November Fujifilm, Billingham
08:30		Minibus to CPI	Minibus to FujiFilm
09:00		Coffee and registration	Introduction to FujiFilm Diosynth Biotechnologies, Dr Ian Hodgson
09:15	Minibus to CPI	Introduction to CPI	
09:30		Lecture 7 - Risk mitigated scale-up of Industrial Bioprocesses + questions - Robin Mitra, CPI	Site tour of FujiFilm Diosynth Biotechnologies Process Development and Manufacturing facilities
10:00	Coffee and Registration	Break	
10:20		Lecture 8 - Metabolic engineering for Industrial Biotechnology + questions - Adriana Botes, CPI	
10:40			
11:00	Course Introduction – Professor Jeff Green, CBMNet	Lunch and Tour of CPI facilities	Lunch
11:15	Introduction to IBBE in the UK; Key sectors, markets served by IBBE, followed by discussion – Adrian Higson, NNFC		
11:30			Lecture 11 – Challenges facing Fujifilm Diosynth Biotechnologies, in particularly relating to biological membranes, aspects of commercial manufacturing and IP, understanding of industrial processes and how they differ from lab scale, Dr Ian Hodgson
12:00	Lecture 1 – Biological membranes: the basics and why they are important in Industrial Biotechnology - Professor Jeff Green, CBMNet		
12:30	Lecture 2 – Getting things in and out - mechanisms of solute transport across membranes and their applications in IBBE – Dr Gavin Thomas, CBMNet	Lecture 9 - Scale up/scale down strategies and devices + questions - Valentina Mangiafridda, CPI	Lab demonstrations analysing subcellular location of products in fermentation samples and additional site tours.
13:00	Lunch		
13:30	Lecture 3 – Biophysical interactions of lipid membranes and biomanufactured chemicals –Dr Lars Jeuken, University of Leeds	Lecture 10 - High throughput Development of Bio-refinery Processes + questions - Tosin Doherty, CPI	
13:50			
14:00	Lecture 4 - Societal challenges, responsible research and innovation, and synthetic biology – Professor Philip Shapira, University of Manchester		
14:30	Coffee		
14:45	Lecture 5 – Consolidated Bioprocessing - Dr Gavin Thomas, CBMNet	Break	
15:15	Journal Club - Dr Gavin Thomas, CBMNet	Lab Demonstration (in two sub-groups) * How to set-up mixing characterisation in a Bioreactor: main factor, challenges and practical experiment * High throughput screening in Biolector: where Scale Down Model meet DoE approach.	Round up and questions
16:00	Lecture 6 - Molecular Biology Techniques Supporting IBBE– Dr Jared Cartwright, University of York		Minibus to Middlesbrough Train Station/Jury's Inn Middlesbrough
16:45	Questions, round up and close for day	Round up and close for day	
17:00	Minibus to Jury's Inn Middlesbrough	Minibus to Jury's Inn Middlesbrough	
18:30	Tour of Middlesbrough Football Club		
19:30	Networking Dinner at Middlesbrough Football Club	Networking Dinner at Al Forno, Middlesbrough	