

MMI Course: **DRUG DESIGN & DELIVERY**

Dates: 12-13 October 2009

Venue: Albert Lecture Theatre, the Royal College of Surgeons in Ireland

This course is designed to give clinicians and researchers from the life, chemical and physical sciences a broad overview of the concepts, strategies and research techniques used in drug design and delivery. Basic understanding of molecular structures would be an advantage but is not required and you should not need prior knowledge of the models and techniques covered in the course.

The objective for postgraduate teaching is to give students an overview and illustration of how the interaction of a drug target (generally a protein) with a small molecule or a macromolecule can be optimised (in silico or in vitro) to develop a pharmaceutical or bio-pharmaceutical agent. Besides the optimisation of the affinity and selectivity of these drug candidates for the therapeutic target, other key issues to be considered at the drug discovery & development stages, such as absorption, distribution, metabolism and excretion (ADME) properties, protection of the intellectual property and regulatory affairs will also be introduced.

Many promising and highly active new drugs never go beyond the laboratory because of problems associated with their formulation and delivery. A series of drug delivery lectures will highlight the impact of drug structure and design on a molecule's pharmaceutical and biopharmaceutical properties and ultimately on its' pharmaceutical development into a final product. Specific lectures will cover the challenges associated with the delivery of macromolecules.

Programme

Monday 12 October 2009

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| 0900 | Keynote: Chemistry and Pharmaceutical Industry, the new perspectives
Professor Bertrand Castro (Scientific Director Industrial Affairs, Sanofi-Aventis) |
| 0940 | Molecular basis of drug action: drug receptor interactions
Dr Isabel Rozas (TCD) |
| 1020 | Molecular basis of drug action: catalytic receptors, enzymes and their inhibition
Dr Ciaran Carolan (European Molecular Biology Laboratory Hamburg) |
| 1100 | <i>Coffee/Tea</i> |
| 1130 | Natural products as leads in drug design
Dr James Barlow (RCSI) |
| 1210 | The concept of pharmacophore: informatics perspective
Prof Denis Shields (UCD) |
| 1250 | <i>Lunch</i> |
| 1330 | The concept of pharmacophore: biological perspective
Prof Niamh Moran (RCSI) |
| 1410 | Rational drug design: structure/activity relationships
Dr Isabel Rozas (TCD) |
| 1450 | <i>Coffee/Tea</i> |
| 1520 | Rational computer-aided drug design
Dr Darren Fayne (TCD) |
| 1600 | Techniques in rational drug design: X-ray crystallography & NMR
Dr Amir Khan (TCD) |
| 1640 | Gene Delivery: from molecular packaging to targeting
Prof Caitriona O'Driscoll (UCC) |

Tuesday 13 October 2009

- 0900 The role of drug delivery in drug design and development
Dr Sally-Ann Cryan (RCSI)
- 0940 Oral delivery of macromolecules: challenges and opportunities
Prof David Brayden (UCD)
- 1020 Patient Oriented Drug Delivery
Dr John Fox (Merrion Pharmaceuticals)
Ms Bozena Adamczyk (Merrion Pharmaceuticals)
- 1100 *Coffee/Tea*
- 1130 Lead optimisation: from active molecule to clinical candidate
Prof Mary Meegan (TCD)
- 1210 The clinical trials process
Siobhan Gaynor (Irish Clinical Research Infrastructure Network)
- 1250 *Lunch*
- 1330 Case studies in drug design and development
Prof Mary Meegan (TCD)
- 1400 The impact of regulatory affairs in drug discovery
Dr Chantal Le Floch (Servier Research Group)
- 1440 Drug development: the industry perspective
Dr Damian O'Connell (Pfizer)
- 1510 *Coffee/Tea*
- 1540 IP issues in drug development
Dr Richie Paul (Elan)
- 1610 Commercialisation
Colin Sainsbury (BCM Hanby Wallace)
- 1640 Concluding remarks
Dr Marc Devocelle (RCSI)