

Pint of knowledge – Albert Isidro Llobet “The Chemistry of Peptides: small proteins fighting big diseases”

On the 9th of April, Albert Isidro Llobet, medicinal chemist at the Pharmaceutical Industry and former post-doctoral researcher at the University of Cambridge, brought SRUK/CERU researchers and public together to discuss the Chemistry of Peptides at the Panton Arms in Cambridge. This event was organized by the SRUK Cambridge Constituency.

Peptides are short chains of amino acids that can be found in places as far apart as the depths of the Caribbean Sea, the African and Asian deserts and our body. Peptides have great potential as medicines, having the same components as proteins they can selectively interact with the protein causing a disease or modulate protein-protein interactions. Historically, the major limitations of peptides have been the poor stability in our body and the lack of cell permeability which prevented them from reaching their target proteins and have a therapeutic effect. Recently, chemists have found ways of obtaining peptides that are stable and cell permeable and the approvals of new peptidic medicines are increasing year after year.

Albert Isidro Llobet gave an enjoyable talk about what peptides are, how they can be prepared and what properties make them interesting to the pharmaceutical industry.

He covered the history of peptide synthesis and the different methods that can be used to obtain them: liquid-phase synthesis and solid-phase synthesis (SPPS). He explained in detail the advantages and disadvantages of the SPPS, pioneered by R. B. Merrifield, and which resulted in a paradigm shift within the peptide synthesis community, being now the accepted method for creating peptides in a synthetic manner.

Furthermore, he described the modifications in the peptides that will not occur naturally (such as altered backbones and the incorporation of non-natural amino acids), to advantageously adjust the molecular properties such as stability or biological activity.

Albert Isidro obtained his PhD from the University of Barcelona and joined David Spring group at the University of Cambridge with a Marie Curie fellowship. He is currently working at the pharmaceutical industry in the development of novel peptide therapeutics.