

Nanoscale Organisation and Dynamics Group

University of Western Sydney



Dynamics of an intracellular fatty acid carrier bound to membrane mimetics

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Abstract

Fatty-acid trafficking in cells is a complex and dynamic process that affects many aspects of cellular function. Intracellular lipid chaperones known as fatty acid binding proteins (FABPs) coordinate lipid responses in cells and are also strongly linked to metabolic and inflammatory pathways. Membrane binding by FABP appears to constitute a key step of intracellular lipid trafficking but remains poorly characterized. We have used phospholipid vesicles to mimic biomembranes and investigated their interaction with members of the FABP family under varying experimental conditions. In order to obtain residue-level information about the membrane-bound state of the investigated protein, we explored recently developed NMR methods. Under specific conditions we were able to exploit saturation transfer mechanisms to derive dynamic information about the NMR-invisible FABP bound to lipid vesicles. We believe that further studies in this direction will provide important insight into the mechanism of membrane-mediated ligand uptake and release.

Profile

Dr. Alberto Ceccon completed his PhD in Biotechnology in 2013 at the University of Verona (Italy) where he worked under the supervision of Prof. Henriette Molinari and Dr. Michael Assfalg. His research focus was on molecular recognition by lipid binding proteins using NMR spectroscopy methods. After he finished his PhD the National Magnetic Resonance Society awarded him the ‘Annalaura Segre’ fellowship, allowing him to continue his research work. He is currently interested in developing magnetic resonance approaches suitable for the characterization of protein-membrane exchange equilibria. Among these are the CEST (Chemical Exchange Saturation Transfer) and DEST (Dark exchange saturation transfer) methods, investigated in collaboration with the University of Torino (Italy) and the European NMR Facility in Lyon (CRMN_France).

Staff and students at all levels are welcome to attend.

Venue and Time:

This talk will be held on Wednesday April 30 at 2 pm at the Campbelltown Campus in Building 4, Lecture Theatre 3 (CA 04.G.14).

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