

## Institute of Advanced Chemistry of Catalonia Seminars

Dr. Alex Perálvarez

*Departament de Bioquímica i de Biologia Molecular, Facultat de Medicina  
Universitat Autònoma de Barcelona*

### ***Peptide misfolding and neurodegeneration: structural and computational biology perspectives***

#### **Date**

10:00 am  
September 17<sup>th</sup> 2019

#### **Location**

“Sala de Actos” room  
Institute of Advanced Chemistry of Catalonia (IQAC-CSIC)  
C/Jordi Girona 18-26, 08034 Barcelona

#### **Abstract**

Short peptides with distinct membrane interacting properties are widely represented in nature. In human physiology, endogenous short peptides act as hormone-like molecules, metal chelators, secondary messengers, or metabolites. In addition, pathogen short peptides destabilize human cell membranes triggering undesired physiopathological situations. Biophysical characterization of the folding and/or structural conversions of such peptides is key to understand the molecular mechanism by which these physiological or physiopathological processes are triggered. Our research focus on the use of experimental and computational biophysics methods to characterize endogenous peptides, such as amyloid beta peptide, IAPP, serum albumin, enkephalins, tachyins, etc; and CPP/pathogen-derived peptides such as penetratin, virus and bacterial derived peptides. Our research aims at understanding these peptides towards defining therapeutic strategies against misfolding of such these peptides, which are related to several neurodegenerative amyloid diseases such as Alzheimer's disease, Parkinson's, etc.

#### **Biosketch**

Àlex Perálvarez- Marín Ph.D. is a faculty member of the Biophysics Unit of the Department of Biochemistry and Molecular Biology at the UAB, acting as Assistant Professor since September 2016. Àlex graduated in Biological Sciences in 1999 (UAB), and he finished his Ph.D. with Honors in 2005 (UAB). Alex did a first postdoctoral visit at Stockholm University (2005-2009) and then he was awarded a Marie Curie IOF Fellowship to continue his research at Harvard University (2009-2011). Back in 2012, Alex joined the Biophysics Unit at UAB, and since then he has been teaching undergraduate (B.Sc.) and graduate students (M.Sc.), besides supervising Ph.D. students at the School of Medicine and the School of Biosciences. At UAB you may find Àlex teaching Biomechanics, Thermodynamics, Membrane Biophysics, and other very interesting Biophysics-related subjects at the Biochemistry, Biomedicine, Medicine and Physical Therapy degrees

