Parkinson's protein α-synuclein : membrane interactions and fibril structure

Kumar, P.

Curriculum Vitae

Pravin Kumar

Born on 12/02/1983 in Munger, Bihar, India.

Research Experience

June 2012 – April 2017 PhD student
Huygens-Kamerlingh Onnes Laboratory
Leiden Institute of Physics
Leiden University
Leiden, The Netherlands

Project: Parkinson's Protein α-Synuclein: Membrane Interactions and Fibril Structure
Supervisors: Dr. Martina Huber and Prof. dr. Edgar J.J. Groenen

July 2010 – Feb 2012 Junior research fellow
Biomolecular NMR facility
National Institute of Immunology
New Delhi, India

Project: Biophysical characterization of Aβ-42 peptide (associated with Alzheimer's disease) and PfACP protein (from Plasmodium falciparum associated with Malaria)
Supervisor: Dr. Monica Sundd

Education

July 2007 – July 2009 M. Sc. in Biotechnology
School of Biotechnology
Jawaharlal Nehru University
New Delhi, India

Project: Effect of polyamines on heat induced fibrillar aggregation using Lysozyme as a model protein.
Supervisor: Prof. Dr. Rajiv Bhat

June 2004- June 2007 B. Sc. in Biotechnology
C.C.S. University
Meerut, Uttar Pradesh, India

Research related experience:

Teaching assistant for the bachelor course of Physics B for Life science and technology students
Thesis supervisor of one bachelor student

Conferences and workshops

Oral presentation at Benelux EPR Society meeting 2016 in Liege, Belgium
Oral Presentation at Gorter symposium 2016 in Leiden, The Netherlands
Poster presentation at EFEPR conference 2016 in Turin, Italy
Oral presentation at CHAINS 2015, Dutch Chemical Conference in Veldhoven, The Netherlands
Poster presentation at EFEPR summer school 2015 in Berlin, Germany
Oral presentation at workshop "Amyloid Aggregation: Single molecule approach to a many molecule problem" Lorentz workshop 2015, Leiden University.
Poster presentations at Dutch Biophysics Conferences 2012-2016 in Veldhoven, The Netherlands

List of Publications

Published Articles

1. **Kumar P**, Bulk M, Webb A, Van der Weerd A, Oosterkamp T, Huber M, Bossoni L. A novel approach to quantify different iron forms in *ex-vivo* human brain tissue. *Scientific Reports*, 2016;6:1-11.
2. **Kumar P**, Schilderink N, Subramaniam V, Huber M. Membrane binding of Parkinson's protein α-Synuclein: Effect of phosphorylation at positions 87 and 129 by the S to D mutation approach. *Israel Journal of Chemistry*, 2016; DOI: 10.1002/ijch.201600083
3. Dimitrova A, Walko M, Hashemi Shabestari M, **Kumar P**, Huber M, Kocer A. In situ, reversible gating of a mechanosensitive ion channel through protein-lipid interactions. *Frontiers in Physiology*, 2016;21:1-9.
4. **Kumar P**, Segers-Nolten IMJ, Schilderink N, Subramaniam V, Huber M. Parkinson's protein α-Synuclein binds efficiently and with a novel conformation to two natural membrane mimics. *PLOS ONE*, 2015;10:1-11.
5. Hashemi Shabestari M, **Kumar P**, Segers-Nolten IMJ, Claessens MMAE, van Rooijen BD, Subramaniam V, Huber M. Three long-range distance constraints and an approach towards a model for the α-Synuclein-fibril fold. *Applied Magnetic Resonance*, 2015;46: 369–388.
6. Schilder J, Liu WM, **Kumar P**, Overhand M, Huber M, Ubbink M. Protein docking using an ensemble of spin labels optimized by intra-molecular paramagnetic relaxation enhancement. *Physical Chemistry Chemical Physics*, 2016;18:5729-5742.
7. Gloaguen Y, Rebreyend C, Lutz M, **Kumar P**, Huber M, van der Vlugt JI, Schneider S, de Bruin B. An isolated nitridyl radical-bridged {Rh(N·)Rh} complex. *Angewandte Chemie Internation Edition*, 2014;53:6814-6818.

In Preparation

1. **Kumar P**, Schilderink N, Subramaniam V, Huber M. Nanometer distance constraints for the fold of α-Synuclein in fibrils of single morphology.

2. **Kumar P,** van Son M, Zhang T, Raap J, Kros A, Huber M. Understanding the peptide-coiled-coil interaction of the membrane-fusion K/E peptides.

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