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Novel and innovative strategies for peptide based drug design against Alzheimer's disease

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Alzheimer's Disease (AD), a common amyloidosis, has no cure yet. Pathological investigations revealed existence of numerous plaques in the Alzheimer's patients' brain composed of Amyloid-β (Aβ) peptides, derived from Amyloid Precursor Proteins (APPs). Although the mechanism of plaque formation is unknown, AD is believed to be caused by the aggregation of misfolded Aβ peptides. β-breaker peptides have been developed that disrupt amyloid aggregates (plaques) *in vitro* as well as *in vivo*. We have developed two novel and innovative strategies for β-breaker peptide design. First one is based on the concept of β-sheet breaker α/β hybrid peptides (BSBHps); and the second one on the concept of β-Breaker Di-Peptides (BBDPs). We have demonstrated that such well designed peptides are capable of inhibition of amyloid formation of Aβ peptide. Also, they disrupt preformed toxic fibrillar aggregates into non toxic species *in vitro*. Such peptides may be useful for designing novel drugs against diverse amyloidoses including Alzheimer's disease, Parkinson's disease and diabetes type II. Recent advancements in this direction of research will be discussed in the Pharma Summit-2015.

Biography

Bhubaneswar Mandal has completed his PhD from EPFL, Lausanne, Switzerland under the supervision of Professor Manfred Mutter. Then he earned prestigious Marie Curie Fellowship and worked as a Post-Doctoral Fellow with Professor Herbert Waldmann and Professor Hans-Dieter Arndt, Max-Planck Institute for Molecular Physiology, Dortmund, Germany. Then he joined IIT Guwahati as an Assistant Professor. Presently, he is an Associate Professor there. He is working on novel strategy development for drug design against amyloidoses and industrially useful reagent development for various organic transformations. He has published 28 papers in reputed international journals.

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