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## Functionalization of the dendron-based carrier system with ApoE-derived peptide for enhancing blood-brain barrier targeting and permeability of drug used in the treatment of Alzheimer's disease

S Al-azzawi, A Guildford, G Phillips and M Santin  
University of Brighton, UK

Alzheimer's disease (AD) is a neurodegenerative disease caused by plaque accumulation of abnormal deposits of Amyloid- $\beta$  ( $A\beta$ ) in the brain. AD is considered epidemic with 33.9 million people worldwide suffering from it. The development of drugs to combat AD is hampered due to the presence of the Blood-Brain Barrier (BBB). Receptor mediated transcytosis is one of the promising strategies to deliver molecules with low BBB permeability by utilizing natural transport route. This project focuses on the innovative combination of ApoE-derived peptide integrated to a dendronized -drug conjugate which has the potential for improved brain endothelial uptake and targeting. ApoE-derived peptide was found to act as a ligand that can be recognized by lipoprotein receptors which are widely expressed in brain endothelium. ApoE-derived peptide and dendron-based carrier system were synthesized using solid phase peptide method by microwave peptide synthesizer. This carrier system was loaded chemically with Flurbiprofen which is one of poorly permeable AD drugs that decrease  $A\beta$ . Immortalized brain endothelial cell has been used as a model for BBB. This study has demonstrated the successful designing, synthesis and functionalization of a biocompatible drug carrier system with the potential to act as novel carrier for improved targeting and crossing the BBB.

### Biography

S Al-azzawi is 3<sup>rd</sup> PhD Student from School of Pharmacy and Bimolecular Sciences at University of Brighton, UK

[S.alazzawi@brighton.ac.uk](mailto:S.alazzawi@brighton.ac.uk)

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