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Design a benzotriazole linker for solid-phase synthesis of peptide decorated dendrimer conjugate as drug carrier

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Peptide decorated dendrimers have been found as an efficient drug delivery vehicle. However, tedious preparation prevents their further development. One synthetic difficulty is the low conjugated efficiency, which is associated with the high steric hindrance of dendrimers. Herein, we describe a new efficient approach for the synthesis of peptide-functionalized dendrimers using 4-amino-3-nitrobenzoic acid (ANB) resin. This approach involves the direct solid phase synthesis of the peptide on a 3, 4-diaminobenzoic acid (Dbz) unit as a linker attached to Rink-amide resin. Mild cyclization of *o*-aminoanilide with treatment of isoamylnitrite yields a highly active benzotriazole that efficiently reacts with nucleophile to give corresponding adducts. In this investigation, dendrimers as nucleophile directly reacted with on-resin peptide to generate peptide-functionalized dendrimers in a short timeframe. The obtained peptide-decorated dendrimers were encapsulated with anti-cancer drugs and dye. In this study, we develop an enzyme responsive peptide-dendrimer-drug complex based nanomaterial as a potential drug delivery vehicle for cancer chemotherapy.

Biography

Anand Selvaraj has received his Master's degree from VIT University, India in 2008. He has then worked at Syngene International Ltd, Bangalore, India, for two years and worked on the small molecules. He has completed his PhD studies under the guidance of Dr. Chai-Lin Kao at the Kaohsiung Medical University in 2018. His research involves designing an efficient linker for C-terminal modification and On Resin Ligation (ORL): Synthesis of various peptide analogues such as peptide thioester, branched and cyclic peptide and also peptide decorated dendrimer for drug delivery strategies.

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