

Targeted Photoactivatable Multiagent Nanoconjugates for Imaging and Photodynamic Therapy

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Abstract : Nanoconjugates that integrate photo-based therapeutics and diagnostics within a single platform promise great advances in revolutionizing cancer treatments. However, to achieve high therapeutic efficacy, designing functionally efficacious nanocarriers to tightly retain the drug, promoting selective drug localization and release, and the validation of the efficacy of these nanoconjugates is a great challenge. Here we have designed smart multiagent, liposome based targeted photoactivatable multiagent nanoconjugates, doped with a photoactivatable chromophore benzoporphyrin derivative (BPD) labelled with an active targeting ligand cetuximab to target the EGFR receptor (over expressed in various cancer cells) to deliver a combination of therapeutic agents. This study establishes a tunable nanoplatform for the delivery of the photoactivatable multiagent nanoconjugates for tumor-specific accumulation and targeted destruction of cancer cells in complex cancer model to enhance the therapeutic index of the administered drugs.

Keywords : targeting, photodynamic therapy, photoactivatable, nanoconjugates

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