

A engineered DNA templated anticancer incorporated with gold nanorods as a novel cancer therapeutics

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Recent cancer therapy have sought to design multi-functional modulated medications with enhanced therapeutic efficacy and safety. Versatile modules should be considered once, which includes the selective reactivity and specific connectivity along with the target tumors. Here, we demonstrated a novel anti-cancer therapeutics capable of exhibiting a chemotherapy and a photothermal therapy at the same time, in which there were diversified medicinal subdivisions containing both DNA/RNA/doxorubicin cassettes and gold nanorods(AuNRs). Due to the synergic effects, improved therapeutic efficacy against prostate cancer as a proof-of-concept model, compared with conventional methods based on a singlet anti-cancer strategy, was observed in in vitro and even in vivo. The therapeutic efficacy was regulated depending on the numbers of DNA templated doxorubicins and incorporated-AuNRs. In addition, it was convinced that once with the preclinical sample studies, there were a dramatical regression of prostate tumors in athymic mice as compared with control groups including free AuNRs and doxorubicin alone.