# Near Infrared-Triggered Macroscale Delivery System

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When drugs are delivered directly to cancer site without controlling amount, high doses beyond need may cause toxicity or side effects to normal tissues. To reduce these limitations, localization near cancer region can reduce undesired amount of dose and side effects. The macroscale delivery system can induce spatiotemporal control of therapeutic agents in a local tissue over a longer time period compared to the systemic delivery. The stimuli-triggered release concept can be applied to macroscale delivery system based on diverse physiological signals, such as pH, ATP, enzyme, and blood glucose or external stimulus, such as light, temperature, ultrasound, and magnetic field. The controlled drug release system based on physiological signals has a problem of poor release control due to intricate physiological interaction. Here, we propose a NIR-responsive macroscale delivery system for anti-cancer drug based on porous alginate hydrogel. The alginate hydrogel acted as macroscale delivery system containing cancer drug, and gold nanorods (GNRs) that respond to near infrared (NIR) irradiation to produce heat. The release could be triggered on demand by irradiating NIR. These findings may effectively act as a potential platform for chemotherapy.