Synthesis of NIR light-responsive micro-drug carrier

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Light-responsive drug delivery system has been attracted as an external trigger due to its high spatiotemporal control of light dosage. Especially, near-infrared (NIR) light has deep tissue penetration due to minimizing absorption in biological systems which enables various clinical application such as light-responsive drug release. In the light-responsive drug release system, photothermal agent converts light to heat which triggers drug release of the drug carrier. However, most of the light-responsive drug carrier have been developed by nanosized particles which can be easily ejected from the injected area. Therefore, we developed implantable microparticle based of fatty alcohol, IR780, and Doxorubicin. This study showed that the fatty alcohol microparticles were melted under NIR exposure and released the drugs.