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Implantable Biomaterial Based on Click Chemistry for Targeting Small Molecules

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Abstract

Specific and targeted delivery of medical therapies continues to be a challenge for the optimal treatment of multiple medical conditions. Technological advances permit physicians to target most sites of the body. However, after the intervention, physicians rely on systemic medications that need frequent dosing and may have noxious side effects. A novel system combining the temporal flexibility of systemic drug delivery and the spatial control of injectable biomaterials would improve the spatiotemporal control of medical therapies. Here we present an implantable biomaterial that harnesses *in-vivo* click chemistry to enhance the delivery of suitable small molecules by an order of magnitude. The results demonstrate a simple and modular method to modify a biomaterial with small molecules *in-vitro* and present an example of a polysaccharide modified hours after *in-vivo* implantation. This approach provides the ability to precisely control

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