

NIR-Induced Payload Release from Polymeric Carriers and Applications Thereof

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BACKGROUND

Light-triggered release from polymeric carriers enables precise spatial and temporal control; carriers responsive to near-infrared (NIR) light are particularly relevant for biomedical applications, as tissue absorption and scattering of light are considerably lower in the NIR window. Existing mechanisms for NIR-triggered release are limited in their application, requiring custom synthesis of designer polymers, high powered lasers to drive inefficient two-photon processes and/or co-encapsulation of bulky inorganic particles.

TECHNOLOGY DESCRIPTION

University researchers have developed a technique based on a simple mechanism that provides a highly universal strategy enabling instantaneous and controlled release of material from non-light-sensitive polymer carriers using low-power pulsed or continuous-wave NIR. Applications include light-activated self-healing capsules, extracellular scaffolds (nano-fibers, hydrogels) capable of providing on-demand delivery of cues for cell proliferation, differentiation, or migration, activatable fluorescent particles based on thermo-chromic dyes, and light-triggered drug delivery systems.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,700,620	07/11/2017	2013-037

Additional Patent Pending

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OTHER INFORMATION

KEYWORDS

triggered-release, polymeric carriers,
drug delivery

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Devices
 - ▶ Diagnostics
- ▶ **Nanotechnology**
 - ▶ Tools and Devices

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