



## Smart Matrix Materials for Encapsulation and Triggered Release of Drugs

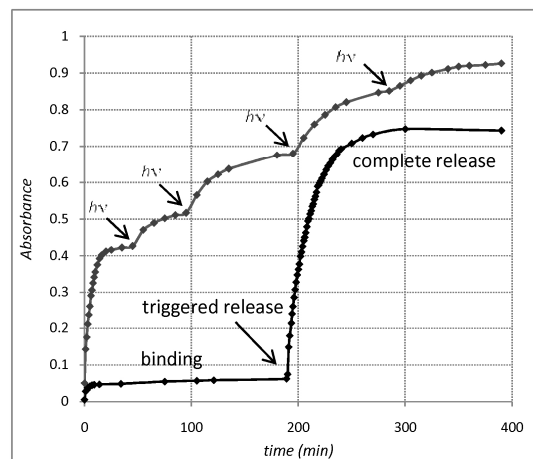
The invention relates to designed, biocompatible, stable, and transparent materials that can encapsulate active compounds such as drugs, and release them at will by chemical and/or photochemical triggering.

**Keywords** Designed synthesis, Drug (active compound) encapsulation, Triggered drug (active compound) release, Ophthalmology

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**Background** The capability to release encapsulated drugs at the site of disease, and at the time of choice through an external triggering mechanism would be beneficial for various medical indications. However, no commercially viable methods are available so far.

**Invention** A novel class of materials has been invented which can incorporate a broad range of guest molecules (organic, inorganic, biological) with various sizes and properties, retain them in their active state, and optionally deliver them at the required site at a selected, chosen time upon triggering by chemical and/or photochemical means. The guest molecules may be pharmacologically, nutritious, or cosmetically active substances. A significant and unique material property of this class of materials is its transparency, thereby making it an ideal candidate for ocular drug delivery. In addition, these novel materials are biocompatible, biodegradable, deformable, and stable in water or oil.



*Binding and triggered release of a guest molecule encapsulated in the novel material. Lower curve: triggered release by chemical means; Upper curve: stepwise sequential release by photochemical means.*

**Patent Status** Patent application filed

**Fields of Use** The combination of the properties of the materials is unique, and ensures application in a very broad spectrum of fields such as treatment of ophthalmic disorders, treatment of other medical disorders, cosmetics, and food industry.

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