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Sodium deoxycholate/TRIS-based hydrogels for multipurpose solute delivery vehicles: Ambient release, drug release, and enantiopreferential release

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1. Abstract:

Herein, we report the investigation of sodium deoxycholate (NaDC)/TRIS-based hydrogels as delivery vehicles for a broad range of applications. Three hydrogel formulations were chosen for unique rheological behaviors that suggest a change in internal hydrogel structure with the application of a shear force. In this work, we compare solute release from sheared and non-sheared hydrogels in order to explore the effect of shear force on structure and release kinetics. It was found that the application of a shear force, in addition to changes in temperature, drug solubility, drug concentration, and hydrogel formulation each affected the amount of solute ultimately released from a hydrogel system. Moreover, the use of the inherent chirality of the hydrogel network for enantiopreferential drug release was also explored. We show significant enantiopreference in the release of model drugs tryptophan and ibuprofen from the hydrogel network. Furthermore, hydrophobic domains within the hydrogel

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