Supplementary Information

Injectable, in-situ gelling, cyclodextrin-dextran hydrogels for the partitioning-driven release of hydrophobic drugs

Rabia Mateen¹ and Todd Hoare¹²

¹School of Biomedical Engineering, McMaster University
²Department of Chemical Engineering, McMaster University

Correspondence:

Todd Hoare

Department of Chemical Engineering, McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada L8S 4L7

e-mail: hoaretr@mcmaster.ca

phone: (905) 525-9140 ext. 24701
**Figure S1** Titration curve of the hydrazide functionalized βCD (3.1 hydrazides/βCD). The titration curves of the carboxymethylated βCD intermediate and unmodified βCD are also shown for comparison purposes.

**Figure S2** Titration curve of the hydrazide functionalized dextran used in the synthesis of Dex-βCD hydrogels. The titration curve of the carboxymethylated dextran intermediate is also shown for comparison purposes.
Figure S3 Cumulative release of dexamethasone from Dex-βCD hydrogels formed in the absence of the hydrazide modified dextran polymer. Gels were prepared using the highest injectable concentration of aldehyde functionalized dextran (8 wt%), but they degrade after one day when soaked in PBS at 37°C.

Figure S4 Comparison of cumulative dexamethasone release from 11βCD/2Dex-Hzd and 6.6βCD/2Dex-Hzd hydrogels in PBS at 37°C.
Figure S5 Comparison of cumulative dexamethasone release from 11βCD/2Dex-Hzd and 11βCD/4Dex-Hzd hydrogels in PBS at 37°C.
**Figure S6** $^1$H-NMR (600 MHz, Bruker) of the hydrazide-functionalized βCD precursor (βCD-Hzd) and the propionaldehyde-functionalized βCD product (βCD-Q). The disappearance of the terminal hydrazide proton doublet peak at $d = 6.1$-$6.4$ following propionaldehyde functionalization, indicates at least near-quantitative conversion of the reactive hydrazide groups to the capped, unreactive propyl end groups.