Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary information

Stability of biodegradable microcarriers' surface: physically adsorbed *versus* chemically linked shells.

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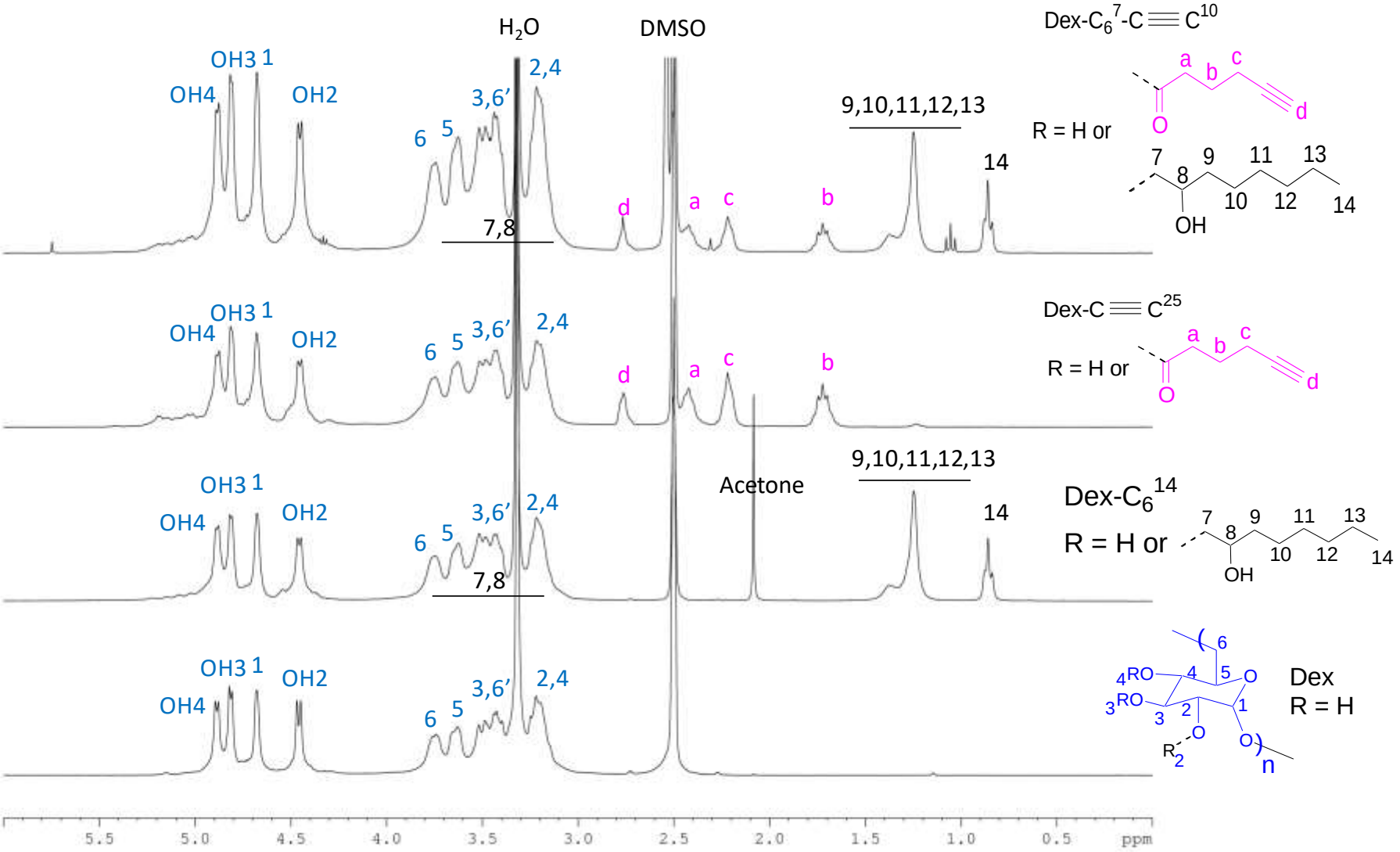

Figure S1. ^{1}H NMR spectra in DMSO-d_6 of dextran, Dex-C_6^{14}, Dex-C≡C^{27} and Dex-C_6^{7}-C≡C^{10}

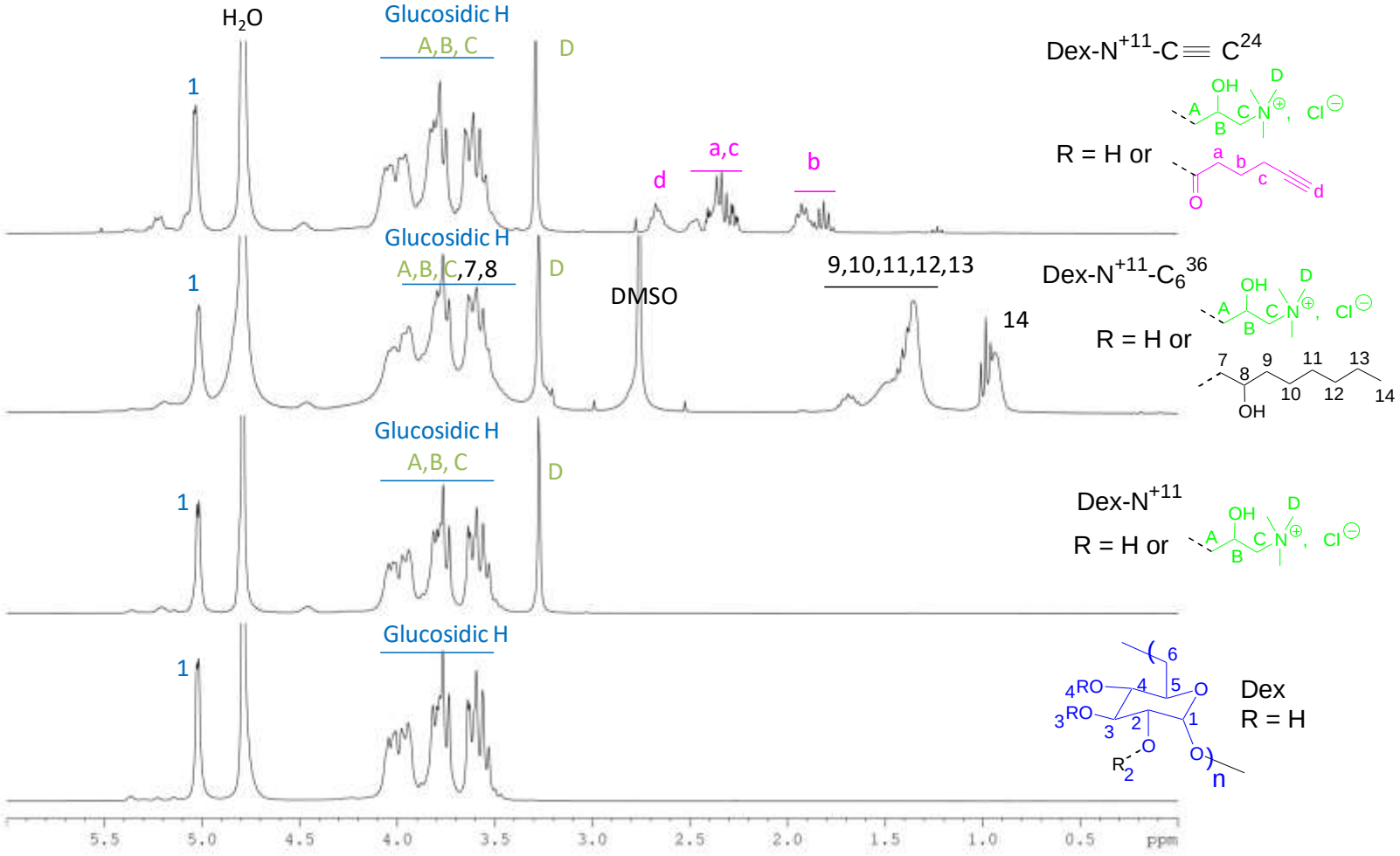

Figure S2. ^{1}H NMR spectra in D_2O of dextran, Dex-N^{+11}, Dex-N^{+11}-C_6^{36} and Dex-N^{+11}-C≡C^{24}

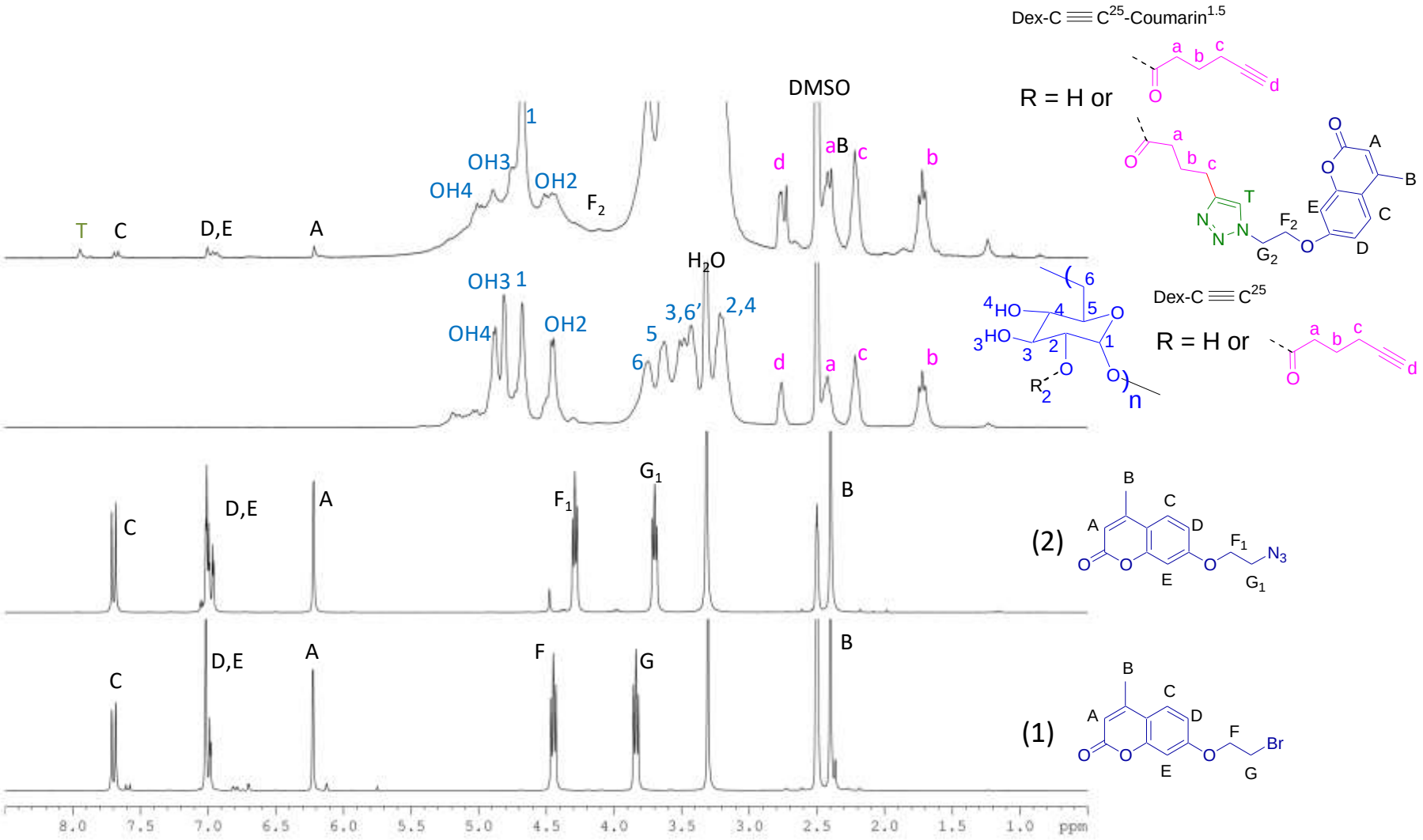

Figure S3. ^{1}H NMR spectra in DMSO-d_6 of coumarin derivatives (1) and (2), Dex-C≡C^{25} and Dex-C≡C^{25}-Coumarin$^{1.5}$

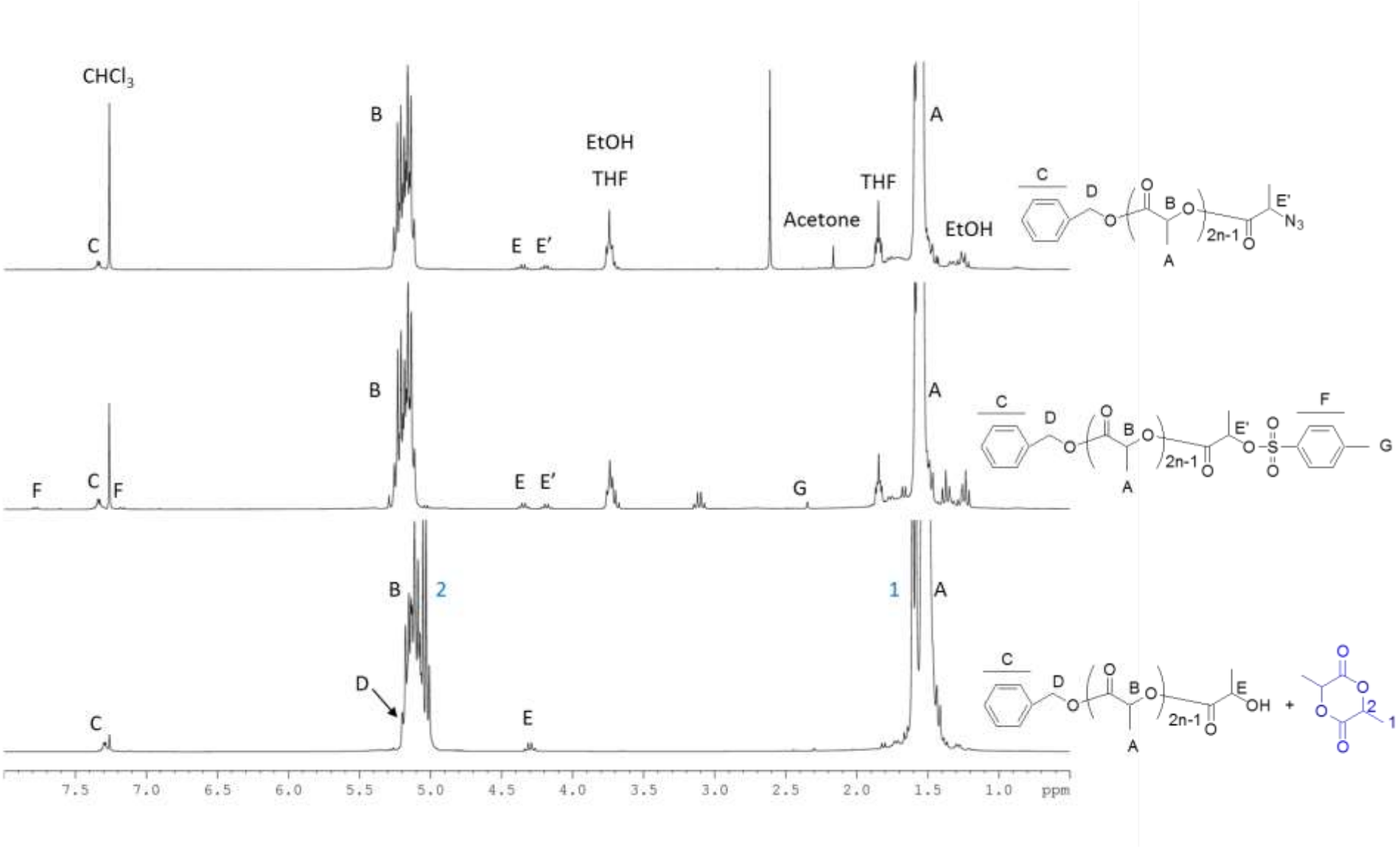

Figure S4. ^{1}H NMR spectra in $CDCl_3$ of PLA derivatives (crude PLA, Tosylated PLA, then PLA-N_3)

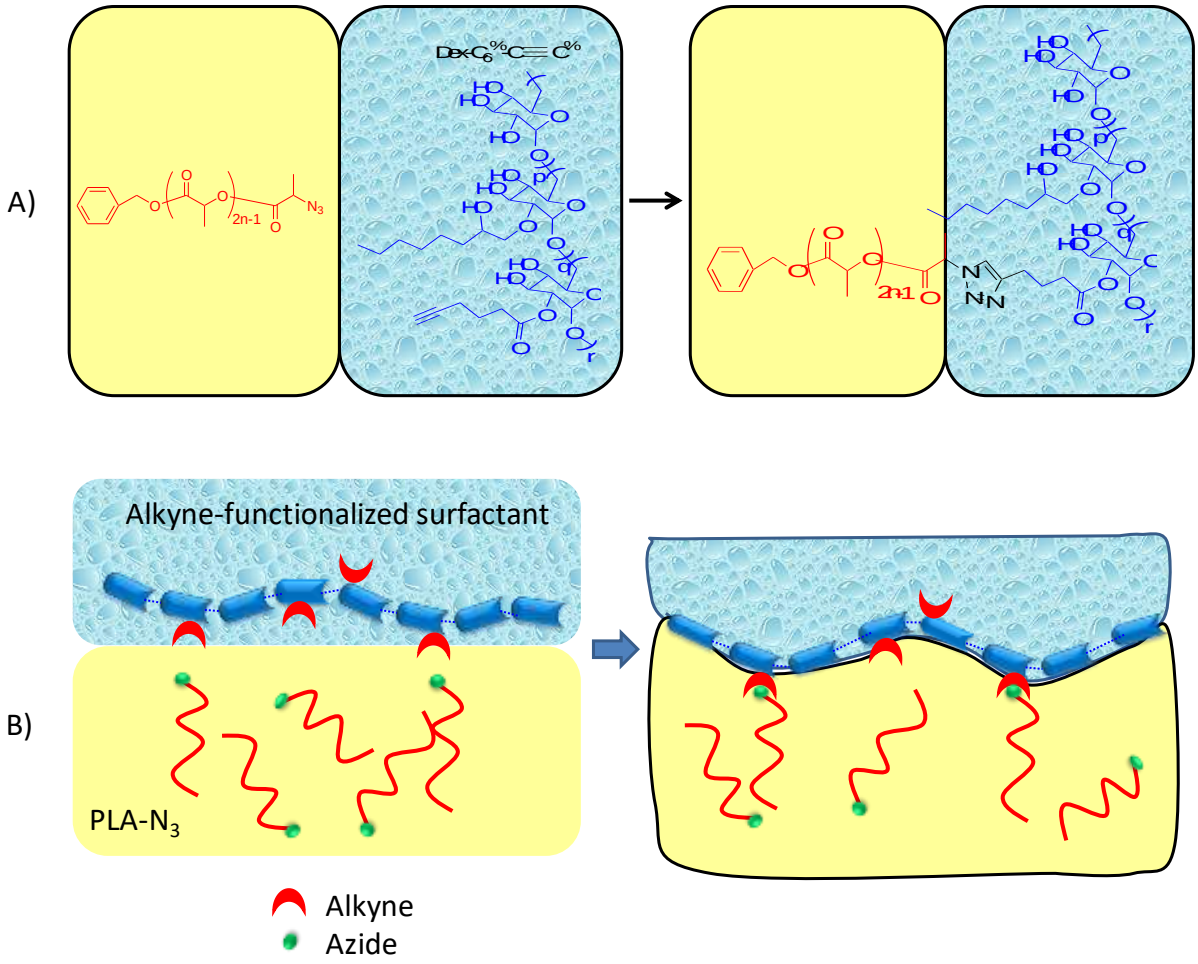

Figure S5: A) *In situ* interfacial CuAAC click chemistry occurring between PLA-N_3 and Dex-C_6^7-C≡C^{10}. B) Schematic representation of the interface deformation during the *In situ* interfacial CuAAC.

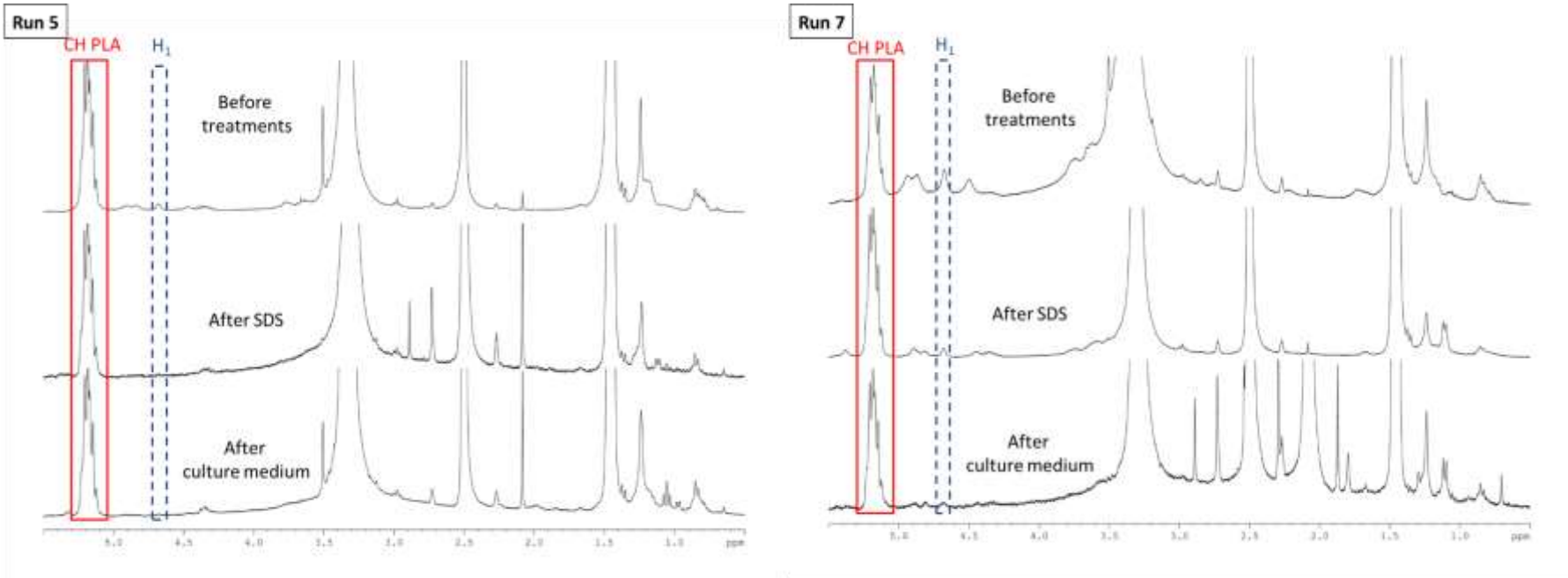

Figure S6: ^{1}H NMR spectra (DMSO-$_{d6}$) of NPs produced without (Run 5, Table 1) or with (Run 7, Table 1) *in situ* CuAAC. Spectra are given before treatments, after SDS and culture medium treatments.

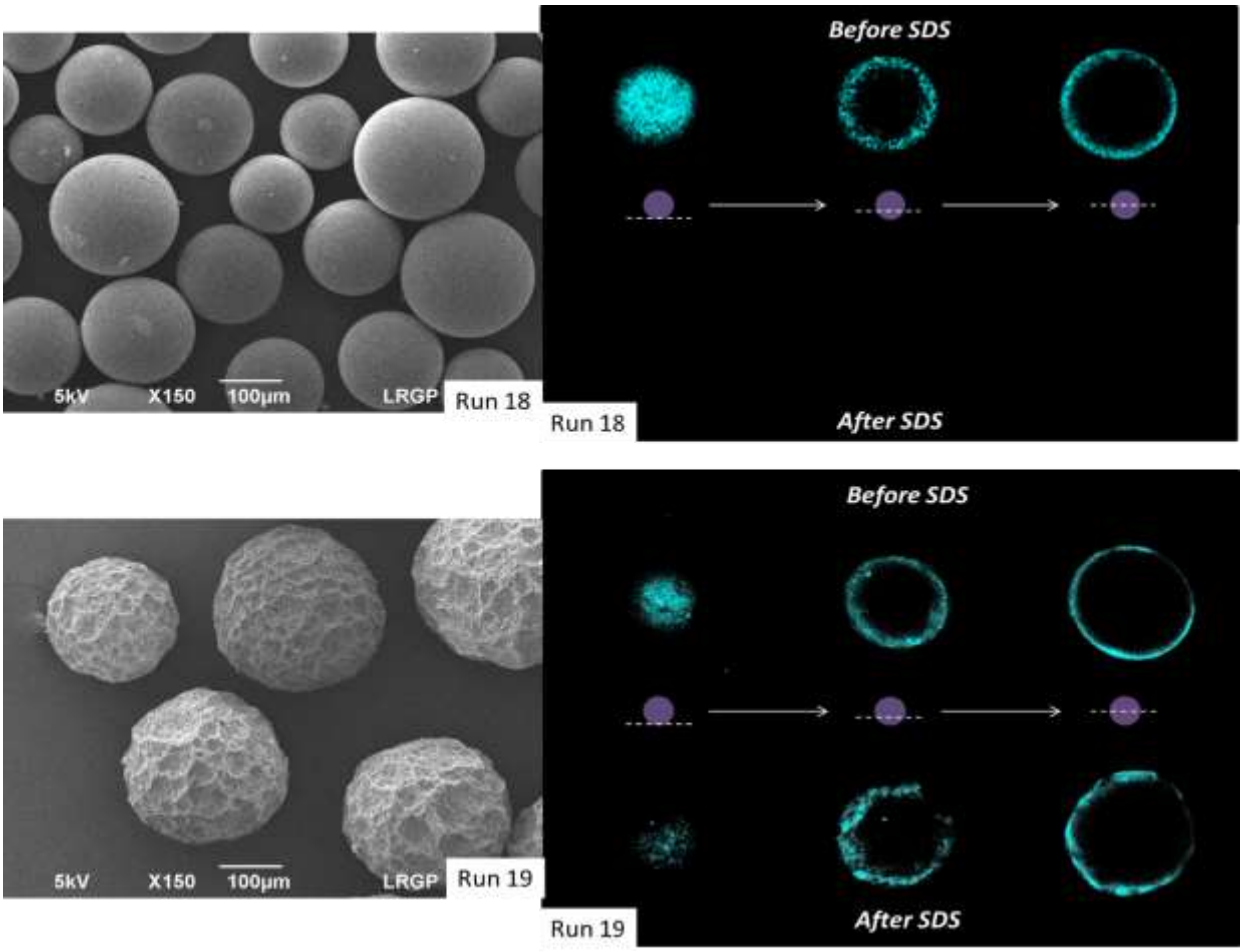

Fig. S7: Left: Scanning electronic microscopy pictures of fluorescent MCS (Entries 18 and 18, Table 2). Magnification and scale bar are done on the pictures. Right: Confocal laser scanning microscopy of the same MCs, before and after the SDS treatment. A schematic representation of the observation height is drawn.