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ARTICLE

Progesterone Binding Nano-Carriers Based on Hydrophobically Modified Hyperbranched Polyglycerols

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Supporting Information

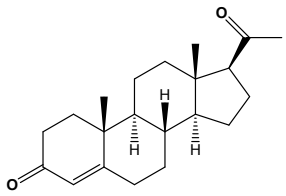

Figure S-1. Chemical structure of Progesterone (Pro)

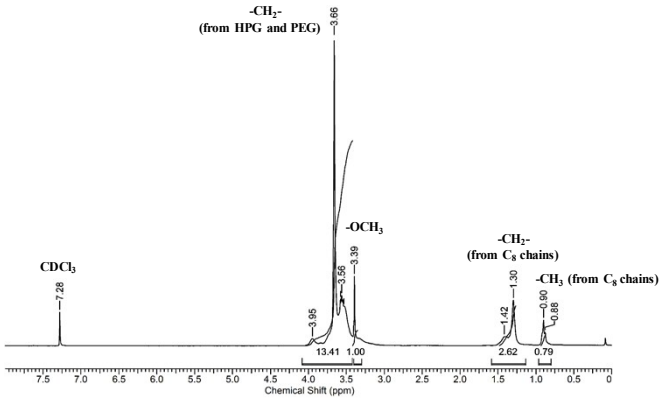

Figure S-2. ^{1}H NMR spectrum of HPG-C_8-MPEG in $CDCl_3$

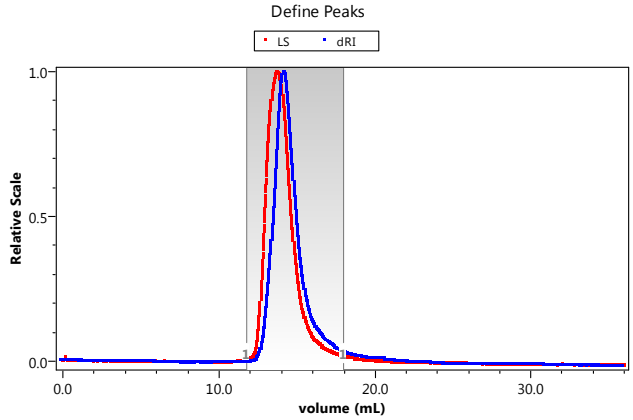

Figure S-3. GPC chromatogram of HPG-C_{12}-MPEG; Red line belongs to multi-angle light scattering detector and blue line belongs to refractive index detector

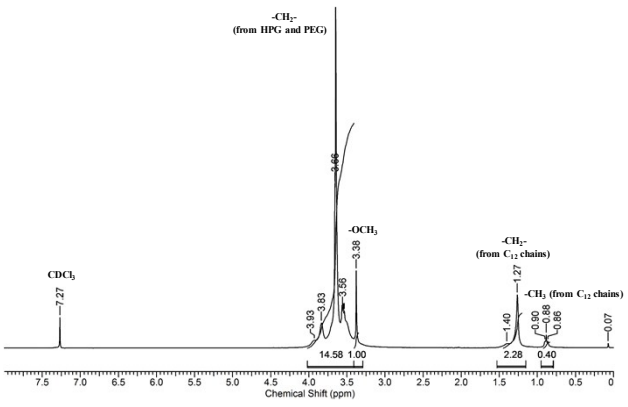

Figure S-4. ^{1}H NMR spectrum of HPG-C_{12}-MPEG in $CDCl_3$

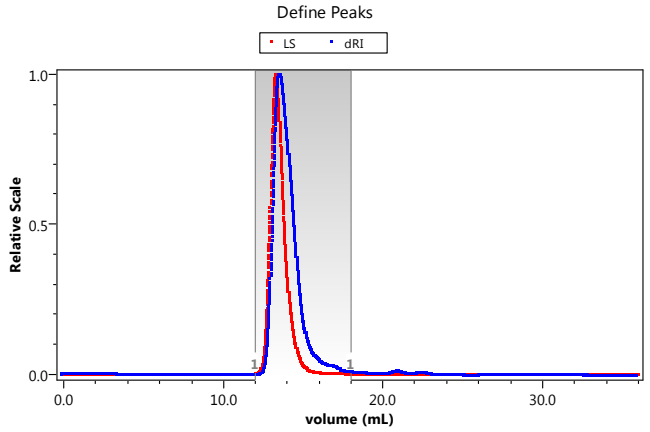

Figure S-5. GPC Chromatogram of HPG-C_{12}-MPEG

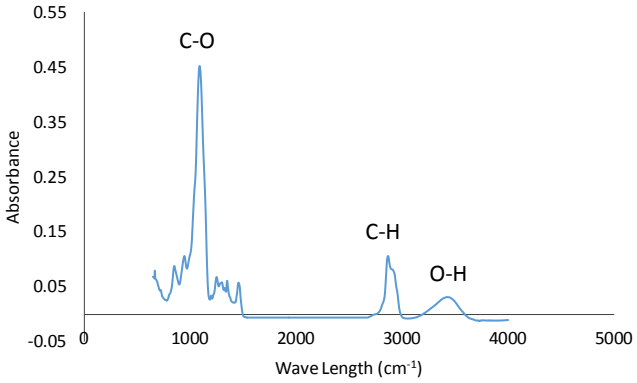

Figure S-6. FTIR spectrum of HPG-C_8-MPEG

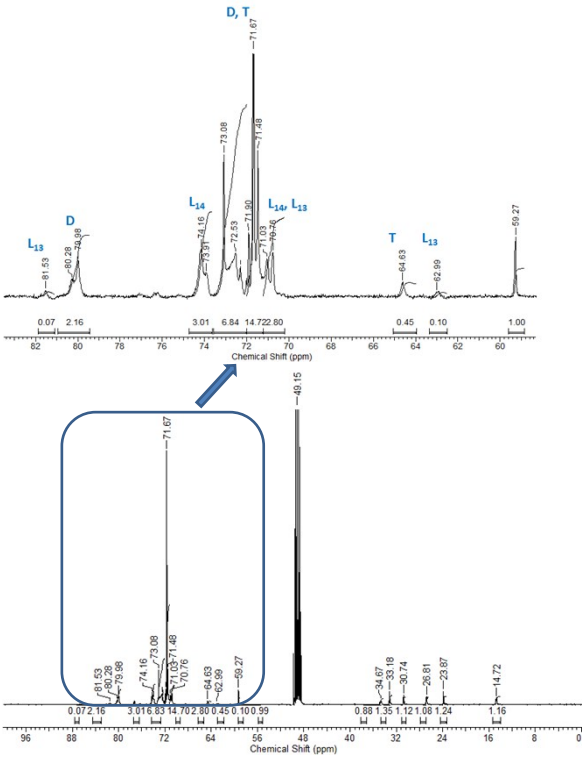

Figure S-7. Inverse-gated ^{13}C NMR spectrum of HPG-C_8-MPEG in methanol-d_4

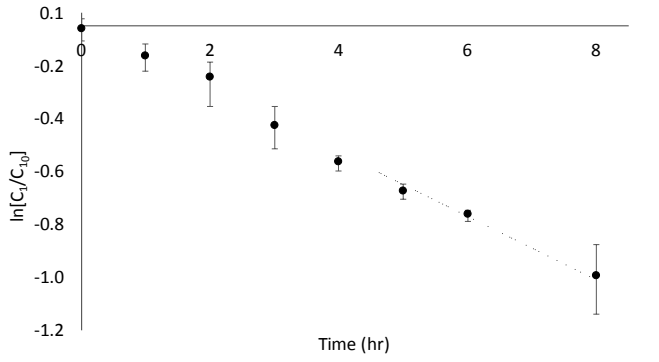

Figure S-8. Semi-log plot to determine initial rapid release kinetics for HPG-C_8-MPEG/Pro in PBS; $R^2 = 0.99$ and $p < 0.05$; rate constant k_1 is given in **Error! Reference source not found.**~~Table 3~~

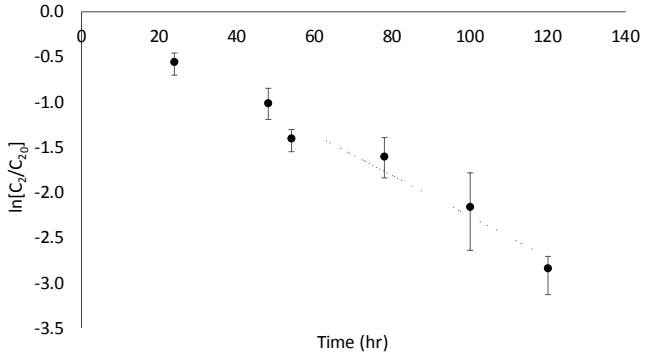

Figure S-9. Semi-log plot to determine secondary slow release kinetics for HPG-C_8-MPEG/Pro in PBS; $R^2 = 0.97$ and $p < 0.05$; rate constant k_2 is given in **Error! Reference source not found.**~~Table 3~~

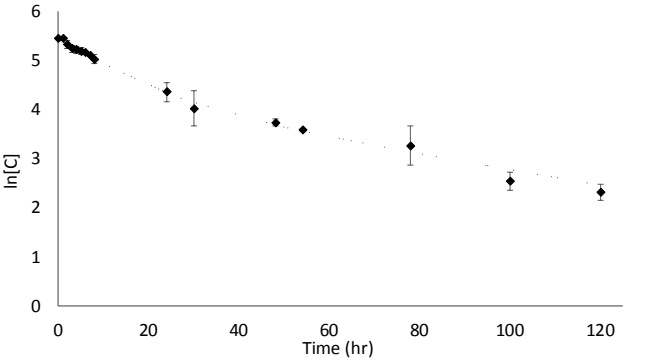

Figure S-10. Semi-log plot illustrating the kinetics of Pro release from HPG-C_8-MPEG/Pro in plasma

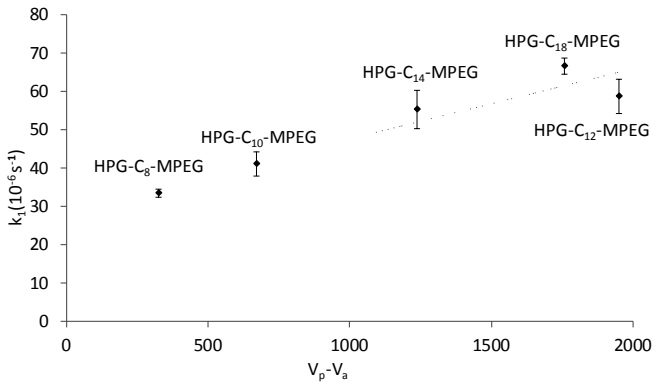

Figure S-11. Dependence of k_1 and V_p-V_a; $R^2 = 0.89$ and $p < 0.02$

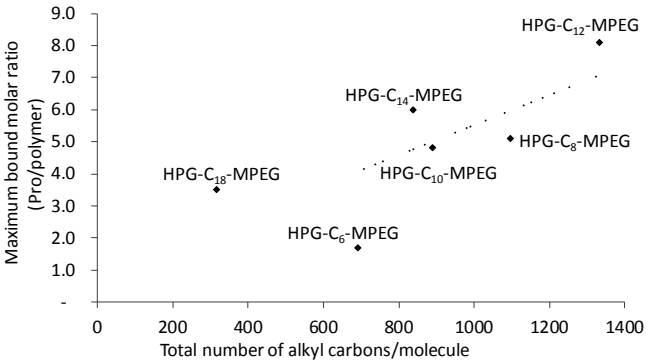

Figure S-12. Correlation between the maximum binding capacity of HPG-C_n-MPEG polymeric systems for binding Pro and their total mass of alkyl carbon external to the oxygen ($R^2 = 0.77$ and $p < 0.025$)

Table S-1. Effect of loaded Pro on HPG-C_n-MPEG size

Sample	Concentration (mg/ml)	R_h (nm)
HPG-C_{10}-MPEG	0.05	5.6 (±1.0 %)
HPG-C_{10}-MPEG/Pro	0.05	5.4 (±0.9 %)
HPG-C_{10}-MPEG	1	5.6 (±0.8 %)
HPG-C_{10}-MPEG/Pro	1	5.6 (±0.7 %)
HPG-C_{10}-MPEG	1.5	5.6 (±0.7 %)
HPG-C_{10}-MPEG/Pro	1.5	5.5 (±0.6 %)
HPG-C_{10}-MPEG	2	5.3 (±0.8 %)
HPG-C_{10}-MPEG/Pro	2	5.3 (±1.0 %)

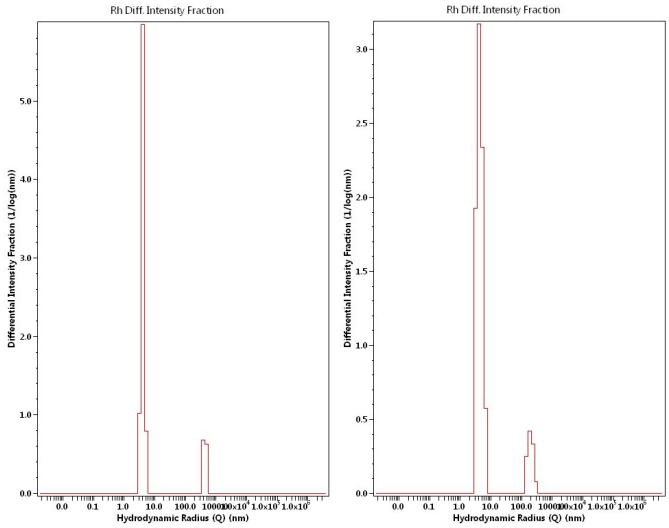

Figure S-13. DLS size determination of HPG-C_{10}-MPEG at 2 mg/ml (on the left) and HPG-C_{10}-MPEG/Pro at 2 mg/ml of polymer and 25 µg/ml of Pro (on the right). The minor population of larger particles was reduced in mean diameter by Pro binding, illustrated above, consistent with an earlier report[11]