Electronic Supplementary information

**One-pot and gram-scale synthesis of biodegradable polyglycerol at ambient conditions; nanocarriers for intradermal drug delivery**

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Experimental

Methods

Nuclear magnetic resonance (NMR). NMR spectra were performed on a Brucker AMX 500 spectrometer. Inverse-gated $^{13}$C NMR was performed on Brucker Avance 400 or Brucker Avance 500 spectrometers. For internal calibration tetramethylsilane was used at 12 MHz with complete proton decoupling. The degree of branching was calculated according to the inverse-gated $^{13}$C NMR data using an equation from Frey et al.\textsuperscript{1}

\[
DB = \frac{2D}{2D + L_{1,3} + L_{1,4}}
\]

Where D, L13, and L14 represent the parts corresponding to dendritic, linear 1,3- (repeating unit with one primary hydroxyl group) and 1,4-(repeating unit with one secondary hydroxyl group) units, respectively.
Figure S1. 1HNMR spectrum of hPGOC41-50 recorded in DMF-d7 solvent.
Figure S2. 1HNMR spectrum of hPGOC41-50 recorded in DMSO-d6 solvent.
Figure S3. Diffusion coefficient of caprolactone and glycerol blocks of hPGOC41-50 in DMSO solvent measured by DOSY NMR.
Figure S4. TGA diagrams of hPGOCs.
**Figure S5.** $^1$HNMR spectra of hPGOC41-50 before and after incubation with Novozyme 435, acidic (pH 5.0) and neutral condition (pH 7.4).
Figure S6. The CLSM images of hPGOC41-50 loaded with Nile red after incubation with living HaCaT cells for 8 h and 24 h.
Figure S7. $^1$HNMR (top) and fluorescent emission (down) spectra of FITC conjugated hPGOC41-50.
References