Supporting Information

for

Synthesis and physicochemical evaluation of fluorinated lipopeptide precursors of ligands for microbubble targeting

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**Instrumentation:**

Mass spectra (MS) and HRMS were performed using a JMS-700 spectrometer (JEOL, Japan). RP-HPLC chromatograms were recorded on a Prominence system (Shimadzu, Japan). FTIR spectra were recorded on IRAffinity-1 (Shimadzu, Japan).

**Figure S1:** Mass spectrometry data of (SG)$_5$-KSS-K(C$_2$H$_{14}$-C$_6$F$_{13}$)$_2$ 1. Exact mass of the (SG)$_5$-KSS-K(C$_2$H$_{14}$-C$_6$F$_{13}$)$_2$ [M + H]$^+$ was calculated 1916.5511 and found 1916.5509.
**Figure S2**: RP-HPLC chromatogram of (SG)$_5$-KSS-$K(C_2H_4-C_6F_{13})_2$ 1. HPLC conditions: the column was a COSMOSIL 5C18-AR-II 4.6 mm × 250 mm, flow rate was 0.5 mL/min, UV excitation at 220 nm, mobile phase systems were CH$_3$CN/H$_2$O 80:20.

**Figure S3**: FTIR spectrum of (SG)$_5$-KSS-$K(C_2H_4-C_6F_{13})_2$ 1.
Figure S4: Mass spectrometry data of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_7$F$_{15}$)$_2$ 2. Exact mass of the (SG)$_5$-KSS-K(C$_2$H$_4$-C$_7$F$_{15}$)$_2$ [M + H]$^+$ was calculated 2016.5447 and found 2016.5448.

Figure S5: RP-HPLC chromatogram of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_7$F$_{15}$)$_2$ 2. HPLC conditions: the column was a COSMOSIL SC18-AR-II 4.6 mm × 250 mm, flow rate was 0.5 mL/min, UV excitation at 220 nm, mobile phase systems were CH$_3$CN/H$_2$O 80:20.
Figure S6: FTIR spectrum of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_7$F$_{15}$)$_2$ 2.

Figure S7: Mass spectrometry data of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_8$F$_{17}$)$_2$ 3. Exact mass of the (SG)$_5$-KSS-K(C$_2$H$_4$-C$_8$F$_{17}$)$_2$ [M + H]$^+$ was calculated 2116.5383 and found 2116.5381.
**Figure S8:** RP-HPLC chromatogram of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_8$F$_{17}$)$_2$ 3. HPLC conditions: the column was a COSMOSIL 5C18-AR-II 4.6 mm × 250 mm, flow rate was 0.5 mL/min, UV excitation at 220 nm, mobile phase systems were CH$_3$CN/H$_2$O 80:20.

**Figure S9:** FTIR spectrum of (SG)$_5$-KSS-K(C$_2$H$_4$-C$_8$F$_{17}$)$_2$ 3.
Figure S10: Mass spectrometry data of (SG)$_5$-KSS-K(C$_{10}$H$_{21}$)$_2$. Exact mass of the (SG)$_5$-KSS-K(C$_{10}$H$_{21}$)$_2$ [M + H]$^+$ was calculated 1504.8586 and found 1504.8585.

Figure S11: RP-HPLC chromatogram of (SG)$_5$-KSS-K(C$_{10}$H$_{21}$)$_2$. HPLC conditions: the column was a COSMOSIL 5C18-AR-II 4.6 mm × 250 mm, flow rate was 0.5 mL/min, UV excitation at 220 nm, mobile phase systems were CH$_3$CN/H$_2$O 80:20.
**Figure S12**: FTIR spectrum of (SG)$_5$-KSS-K(C$_{10}$H$_{21}$)$_2$ 4.