Supporting Information

Carboxylated phytosterol derivative-introduced liposomes for skin environment-responsive transdermal drug delivery system

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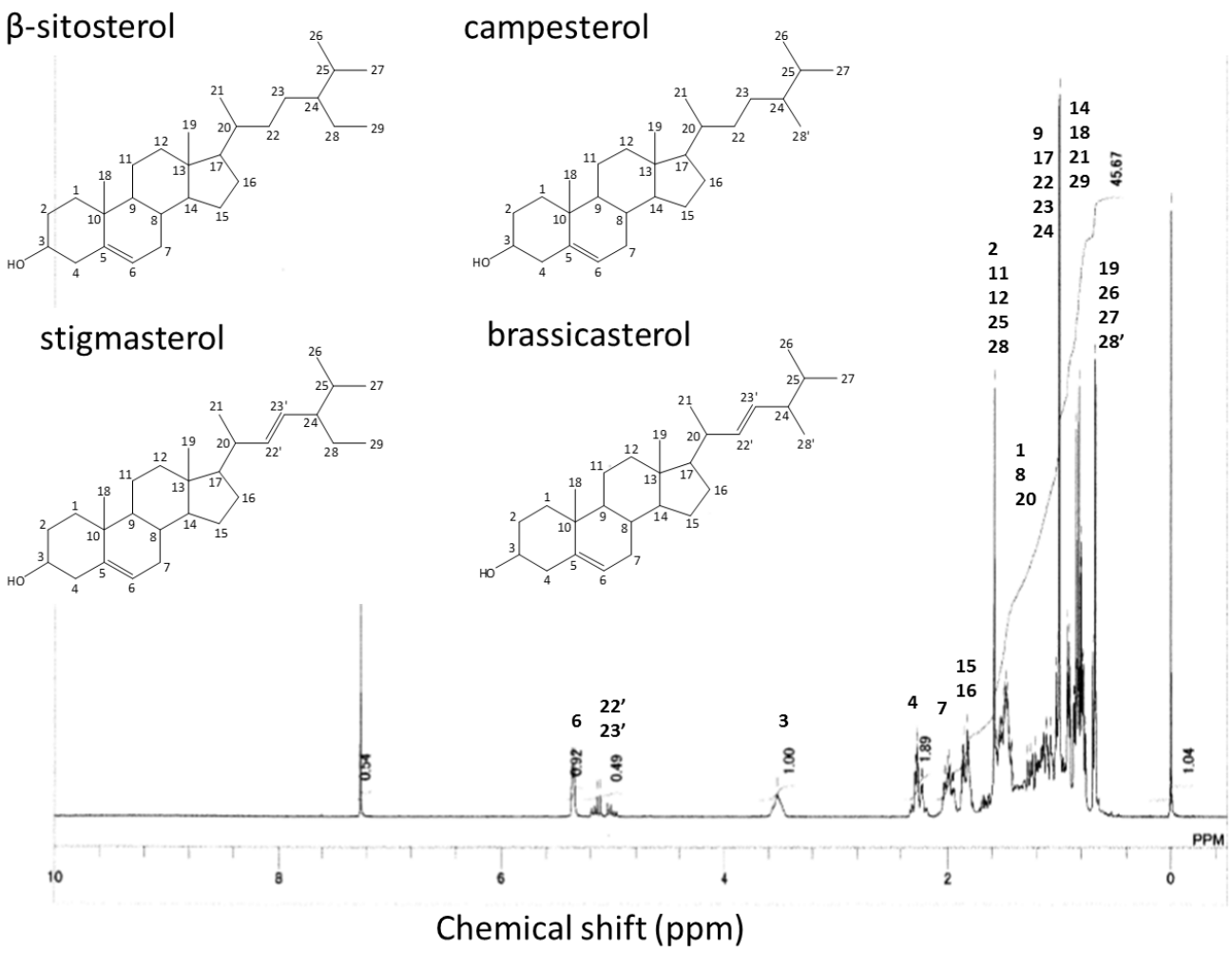

Fig. S1. ^{1}H NMR spectrum of phytosterol (300 MHz, $CDCl_3$).

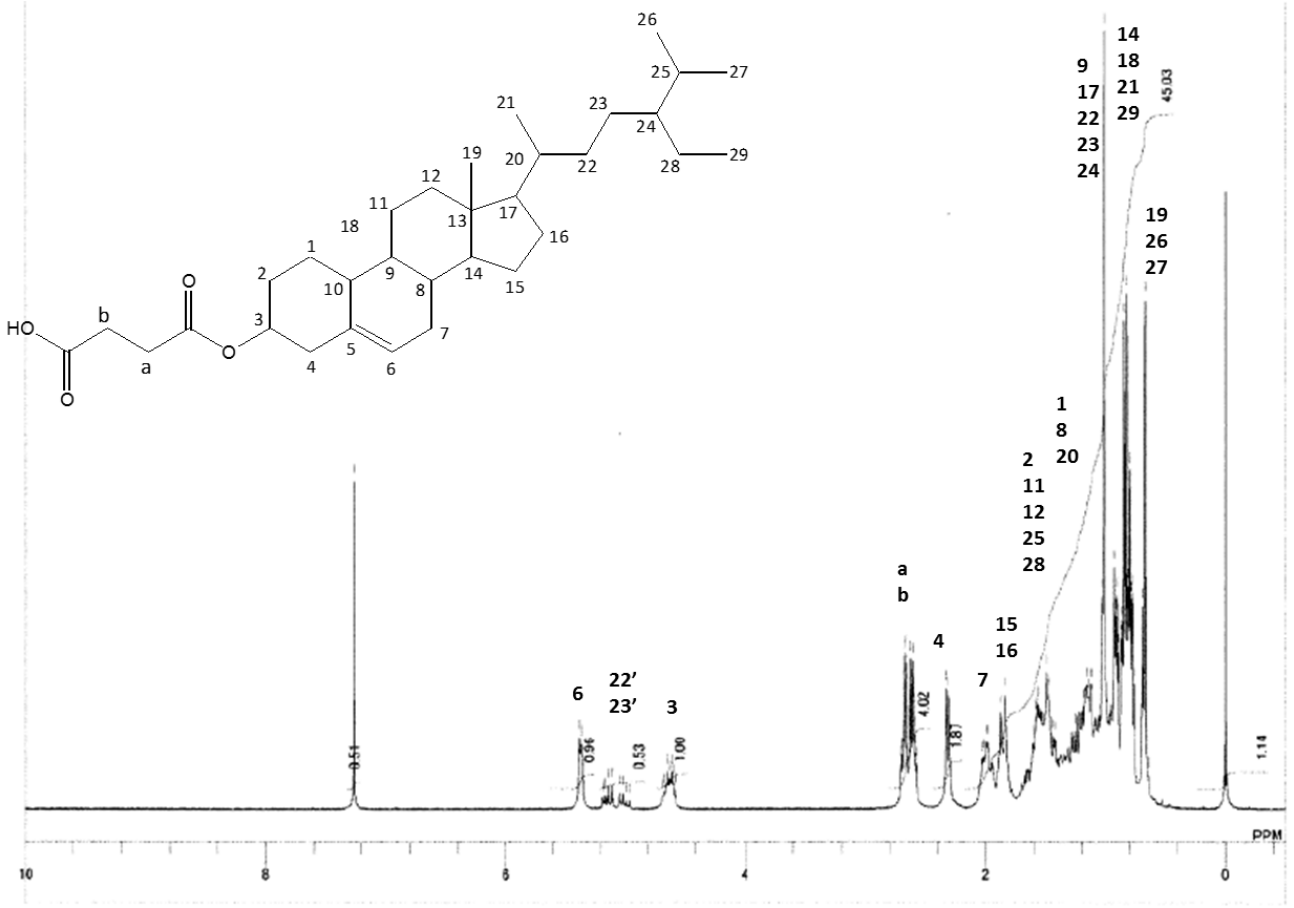

Fig. S2. ^{1}H NMR spectrum of Suc-phytosterol (300 MHz, $CDCl_3$).

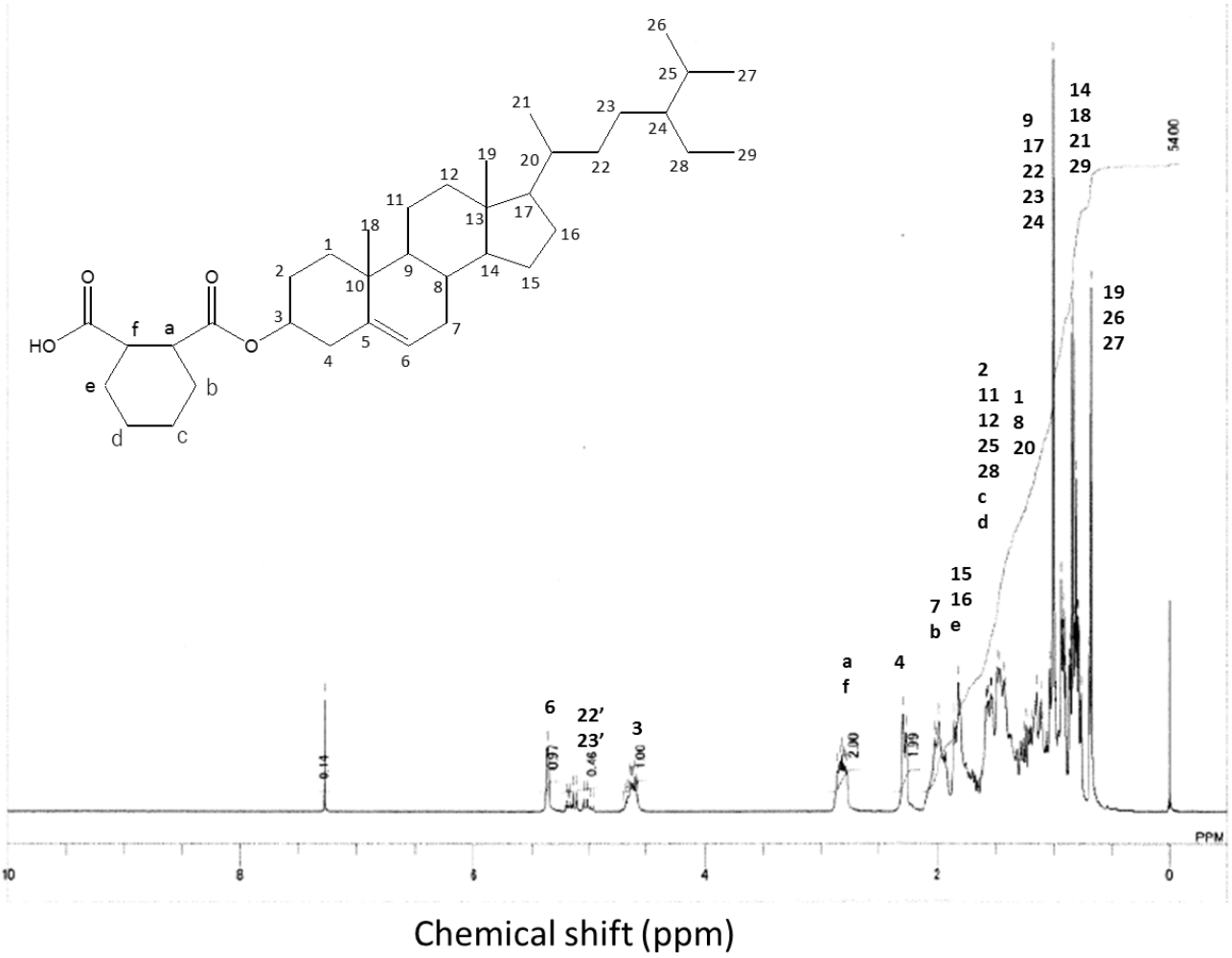

Fig. S3. ^{1}H NMR spectrum of CHex-phytosterol (300 MHz, $CDCl_3$).

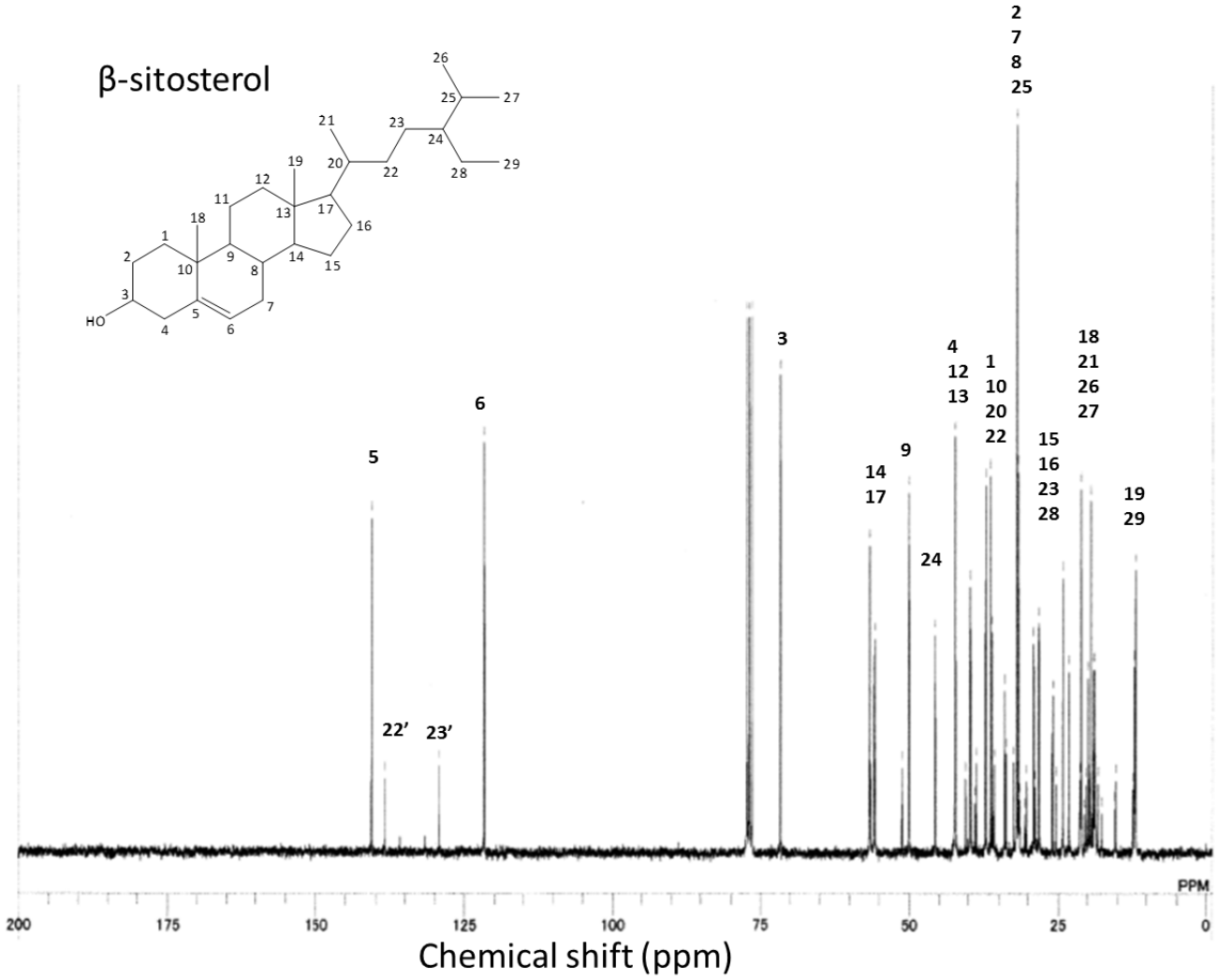

Fig. S4. ^{13}C NMR spectrum of Phytosterol (75.45 MHz, $CDCl_3$).

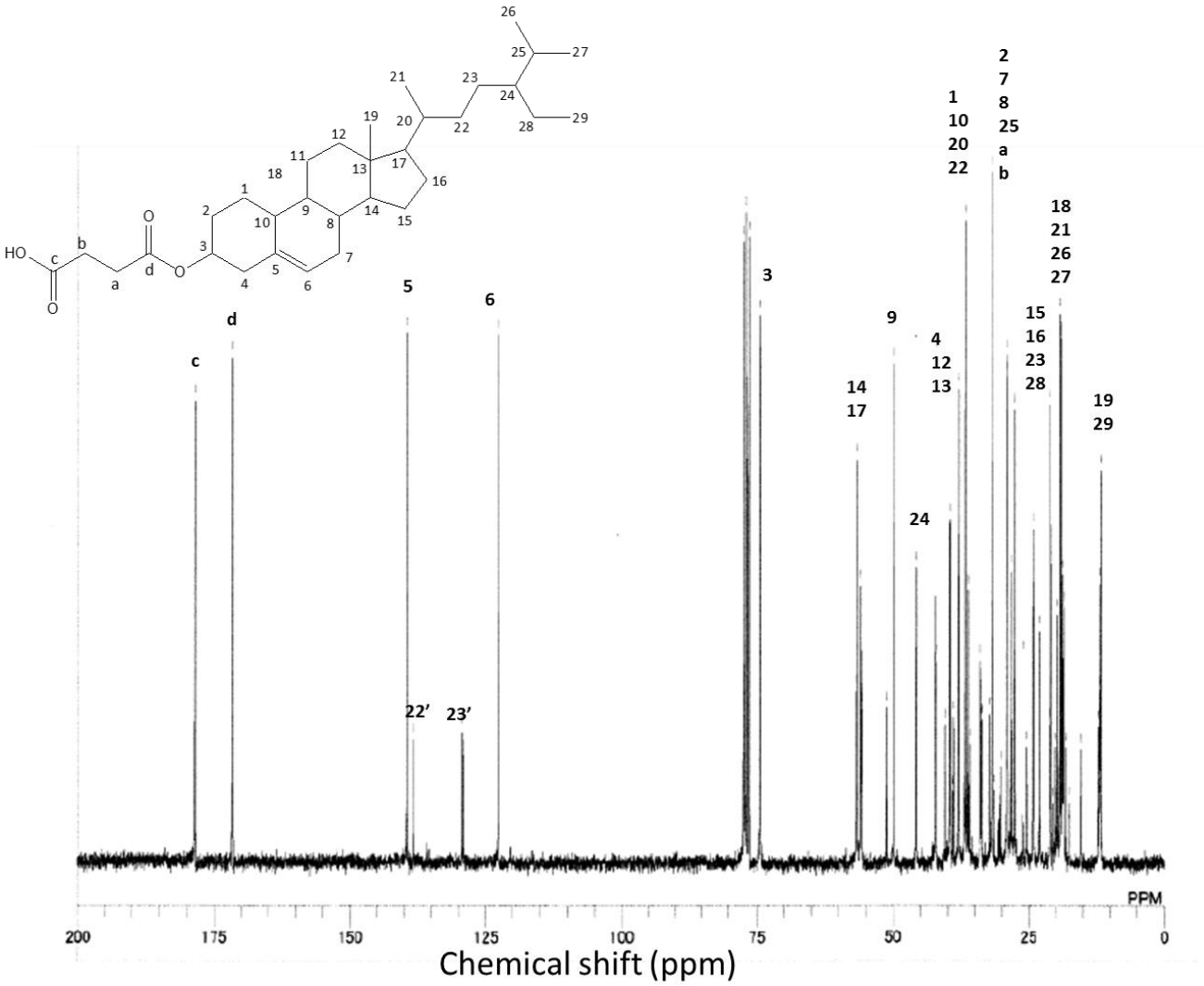

Fig. S5. ^{13}C NMR spectrum of Suc-phytosterol (75.45 MHz, $CDCl_3$).

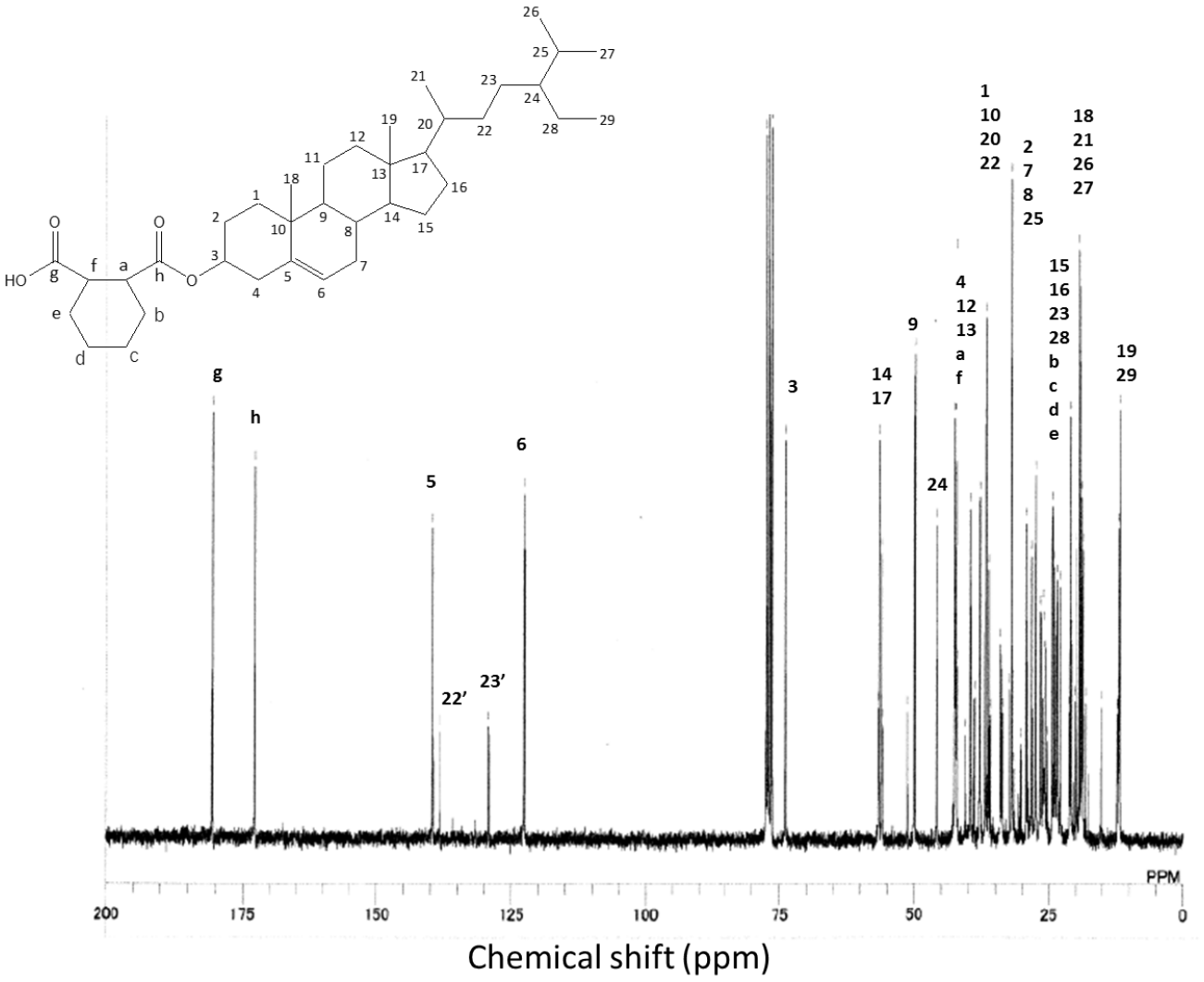

Fig. S6. ^{13}C NMR spectrum of CHex-phytosterol (75.45 MHz, $CDCl_3$).

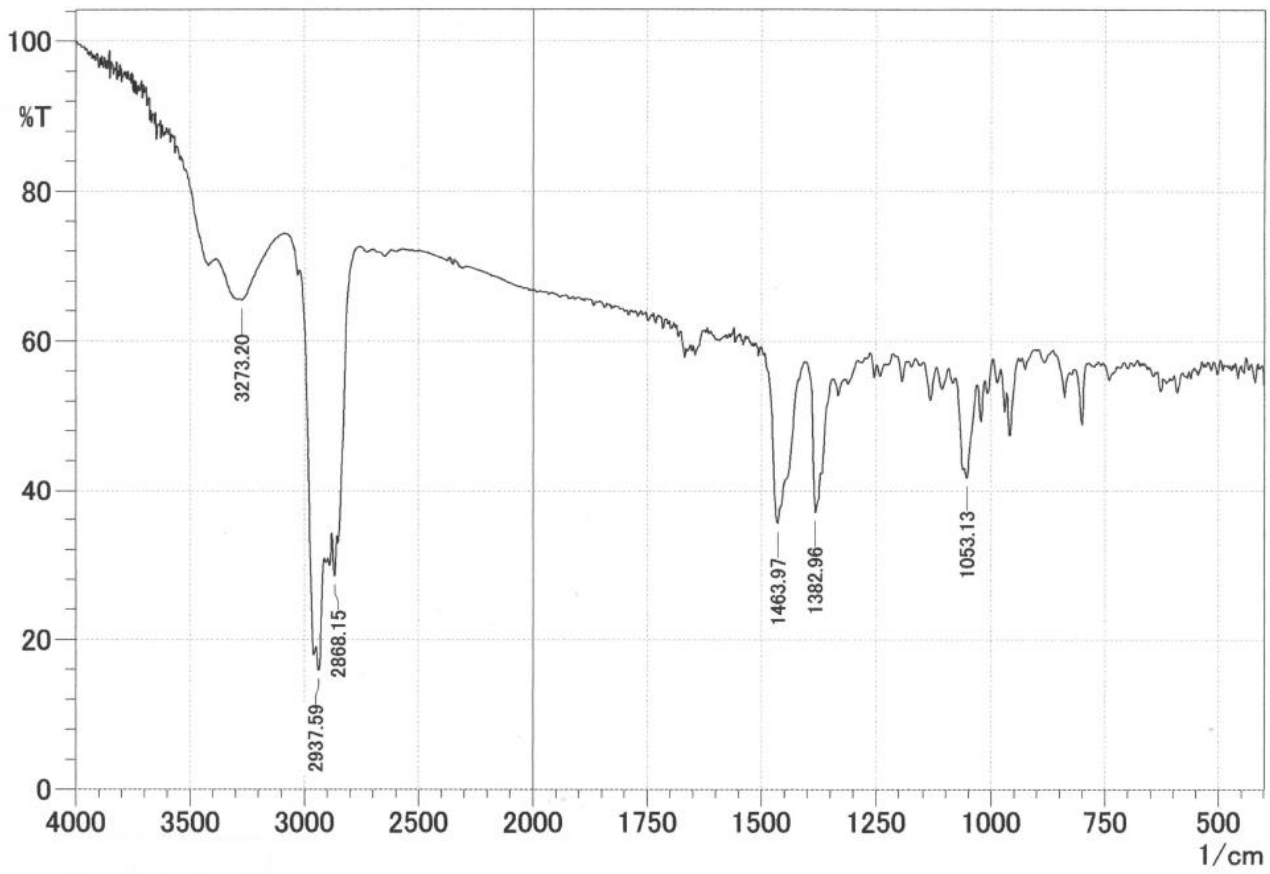

Fig. S7. IR spectrum of phytosterol. 1382 cm^{-1}: $\delta(CH_3)$, 1462 cm^{-1}: $\delta_{as}(CH_2, CH_3)$, 2868/2953 cm^{-1}: ν_{s+as} (CH_2, CH_3), 3273 cm^{-1}: ν(OH). ν, stretching mode; δ, bending in plane; s, symmetric vibration; as, asymmetric vibration.

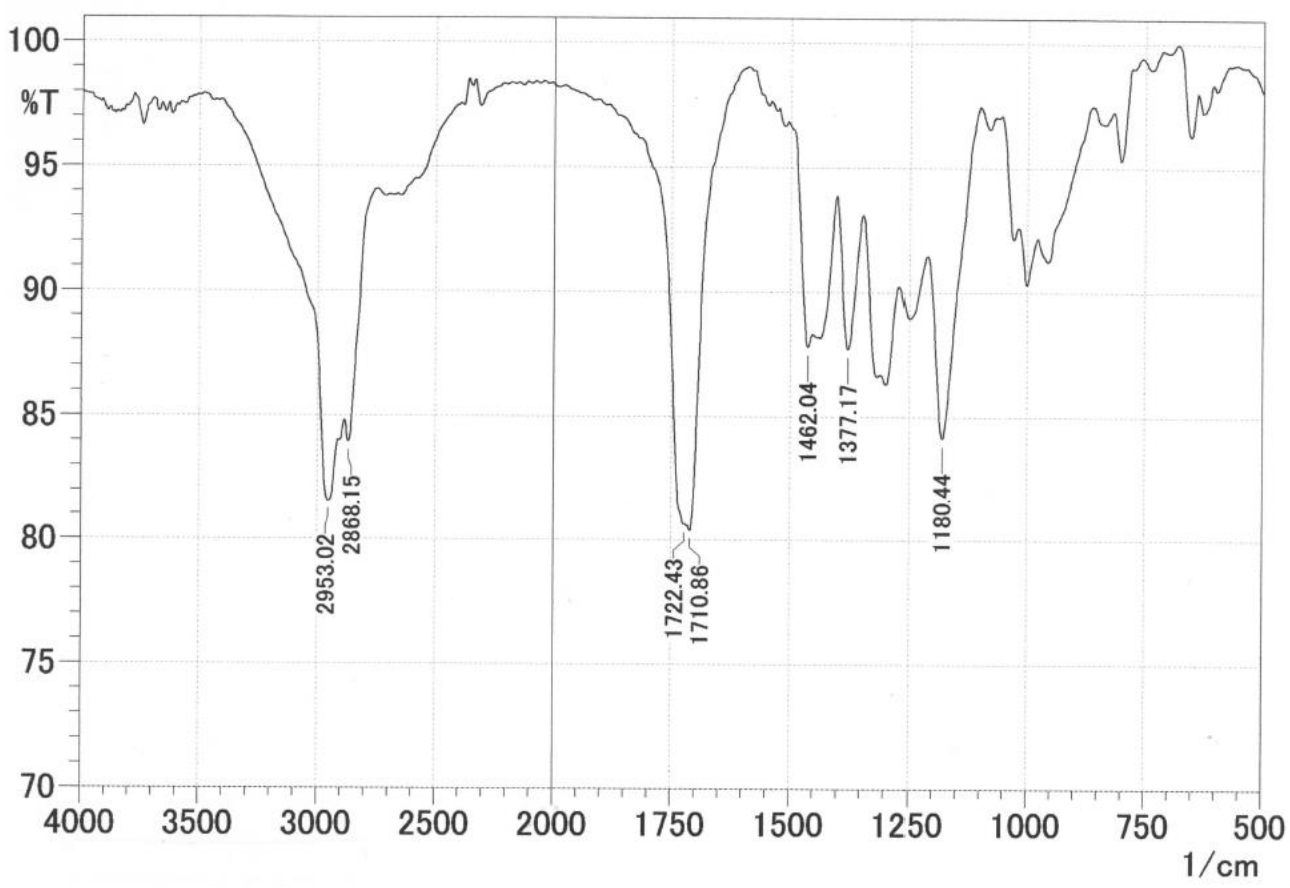

Fig. S8. IR spectrum of Suc-phytosterol. 1180 cm^{-1}: ν(C-O-C) for ester, 1377 cm^{-1}: $\delta(CH_3)$, 1462 cm^{-1}: $\delta_{as}(CH_2, CH_3)$, 1710/1722 cm^{-1}: $\nu_{as}(C=O)$ for ester, 2868/2953 cm^{-1}: ν_{s+as} (CH_2, CH_3). ν, stretching mode; δ, bending in plane; s, symmetric vibration; as, asymmetric vibration.

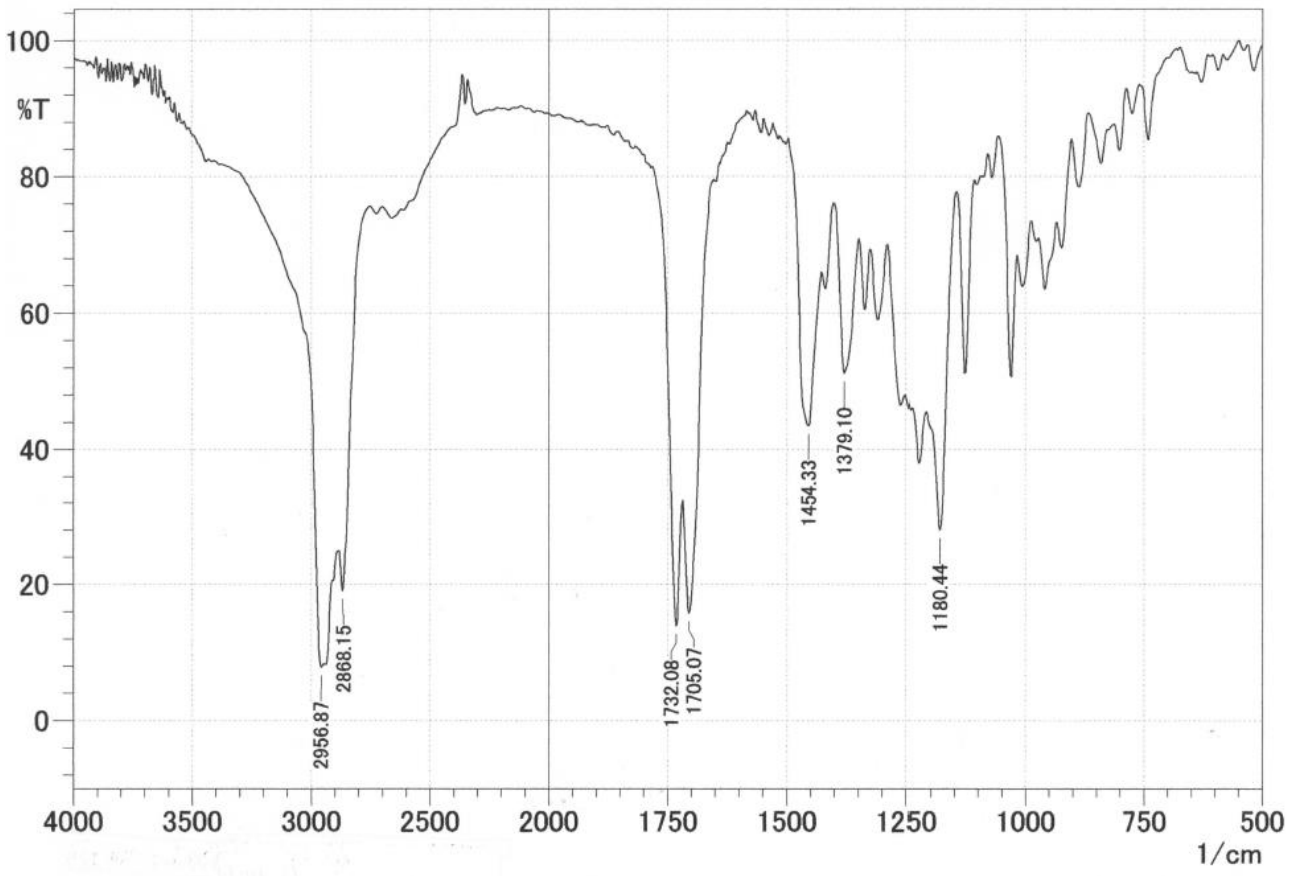

Fig. S9. IR spectrum of CHex-phytosterol. 1180 cm^{-1}: ν(C-O-C) for ester, 1379 cm^{-1}: $\delta(CH_3)$, 1454 cm^{-1}: $\delta_{as}(CH_2, CH_3)$, 1705/1732 cm^{-1}: $\nu_{as}(C=O)$ for ester, 2868/2958 cm^{-1}: ν_{s+as} (CH_2, CH_3). ν, stretching mode; δ, bending in plane; s, symmetric vibration; as, asymmetric vibration.

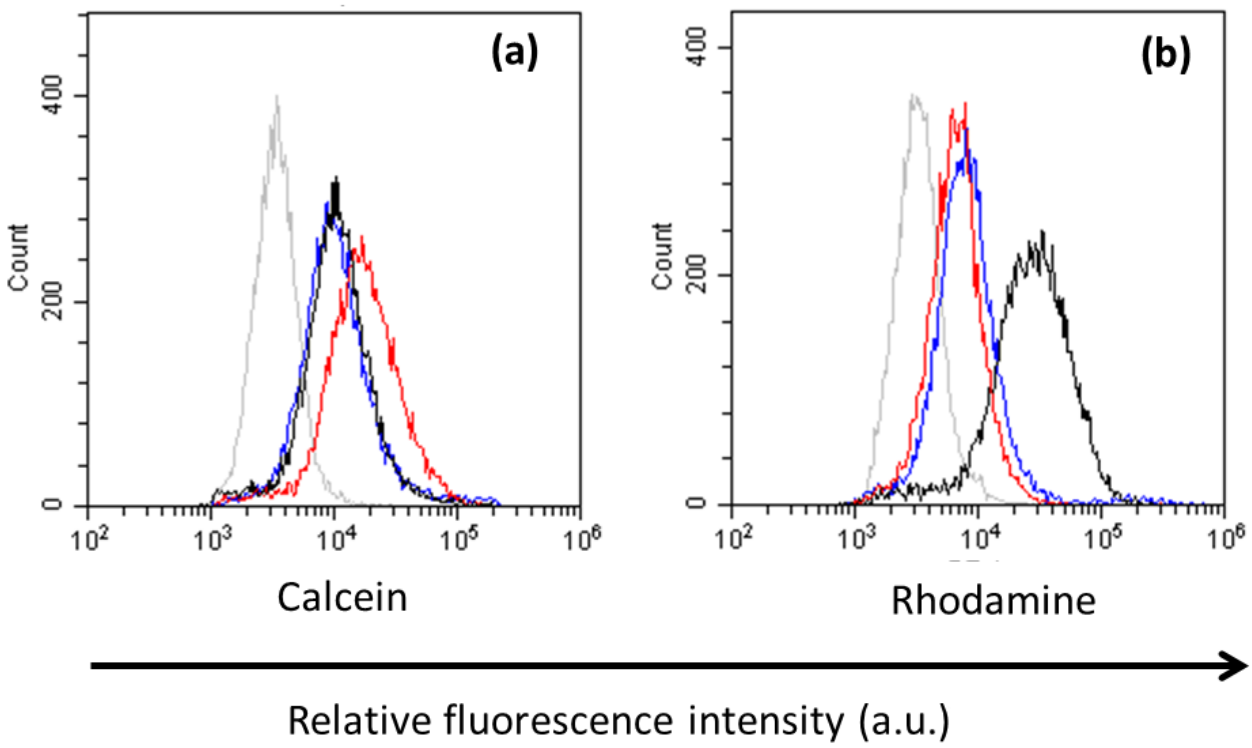

Fig. S10. Histograms of calcein (a) or rhodamine (b) fluorescence intensity for cells treated with calcein-loaded, Rh-PE-lipid-labeled liposomes containing PS (black lines), Suc-PS (blue lines), and CHex-PS (red lines) for 3 h. Fluorescence intensity for untreated cells (gray line) was also shown as a negative control.