Supplementary data

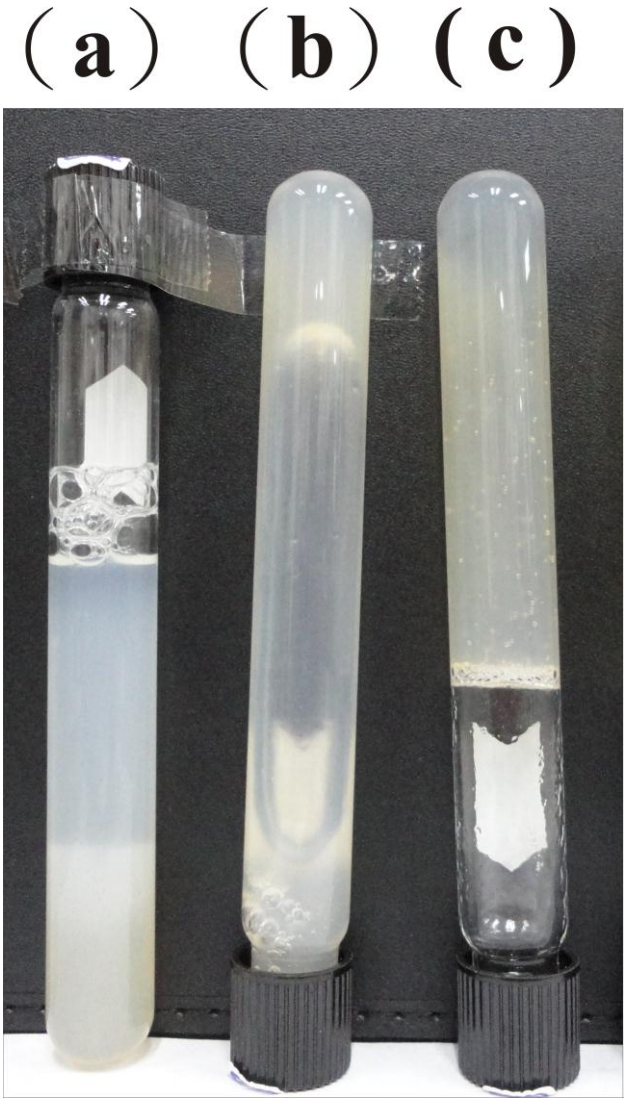

Fig. S1 Typical phases of ethosome-like catanionic vesicle/polymer mixtures identified by tube inversion method. (a) phase separation (HMP^+, 2wt%), (b) viscous liquid (HMP^+, 3wt%), (c) gel (HMP^+, 4wt%). The ethosome-like catanionic vesicles with X_{CHOL} = 0.3 were formed in 20 vol% EtOH/15 mM Tris buffer solution.

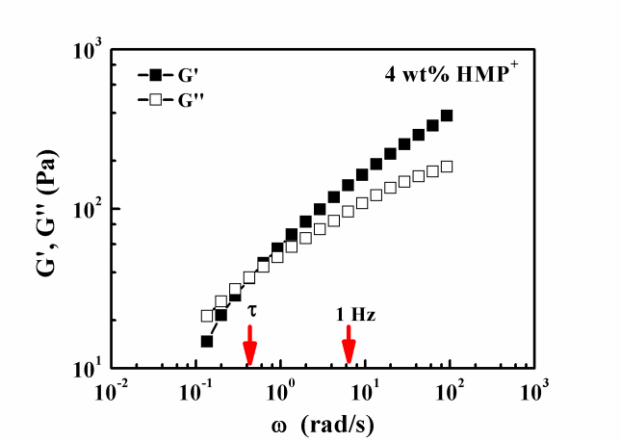

Fig. S2 Storage, G' (■), and loss, G'' (□), moduli as a function of frequency, ω, for catanionic vesicle with 4 wt% LM200 (HMP^+). The ethosome-like catanionic vesicle with X_{CHOL} = 0.5was formed in 20 vol% EtOH/15 mM Tris buffer solution.

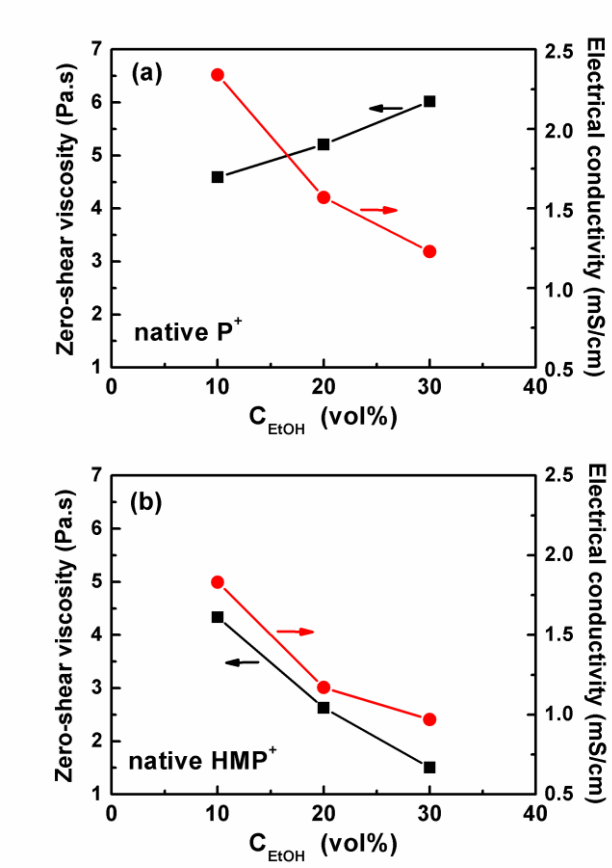

Fig. S3 Ethanol effects on the zero-shear viscosity and electrical conductivity of native polymer solutions (a) P^+ and (b) HMP^+ in 15 mM Tris buffer solution. The polymer concentrations for zero-shear viscosity and electric conductivity measurements were 4 wt% and 1 wt%, respectively.

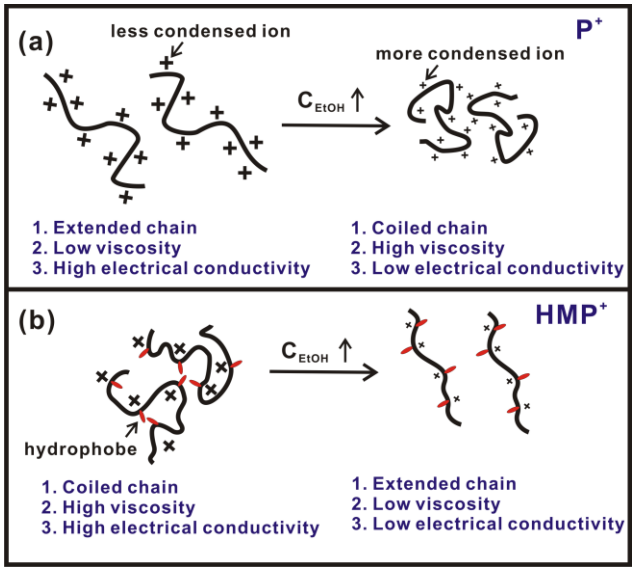

Fig. S4 Schematic of ethanol effects on the polymer chain configuration of native polymers P^+ and HMP^+. (a) For polymer P^+, the counterion condensation leads to formation of coiled backbone with increasing ethanol concentration. (b) Conversely, for polymer HMP^+, strong hydrophobe-solvent interaction privileges high solvation of macromolecular chains rather than polymer-polymer interaction with increasing ethanol concentration.

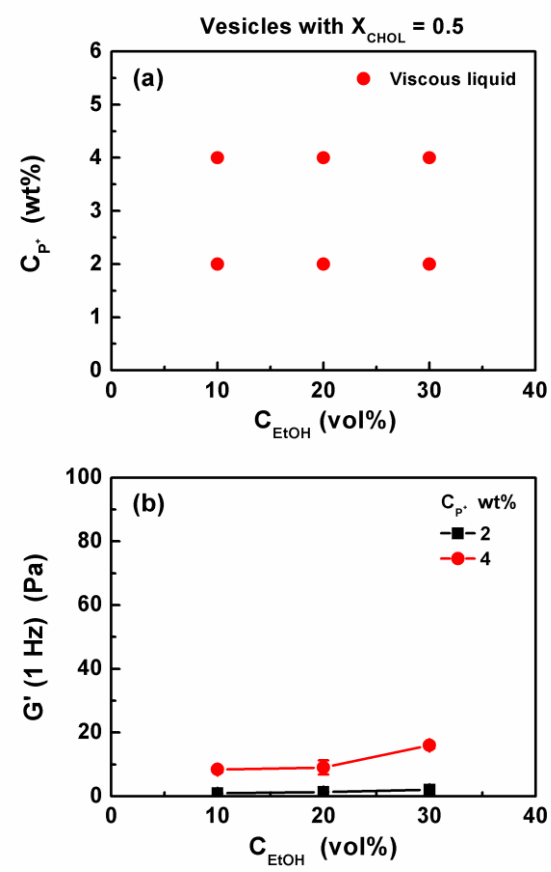

Fig. S5 Ethanol concentration effects on (a) phase map and (b) storage modulus, G'(1 Hz) of mixtures of ethosome-like catanionic vesicle and polymer P^+. The ethosome-like catanionic vesicles at X_{CHOL} = 0.5 with various EtOH concentrations.

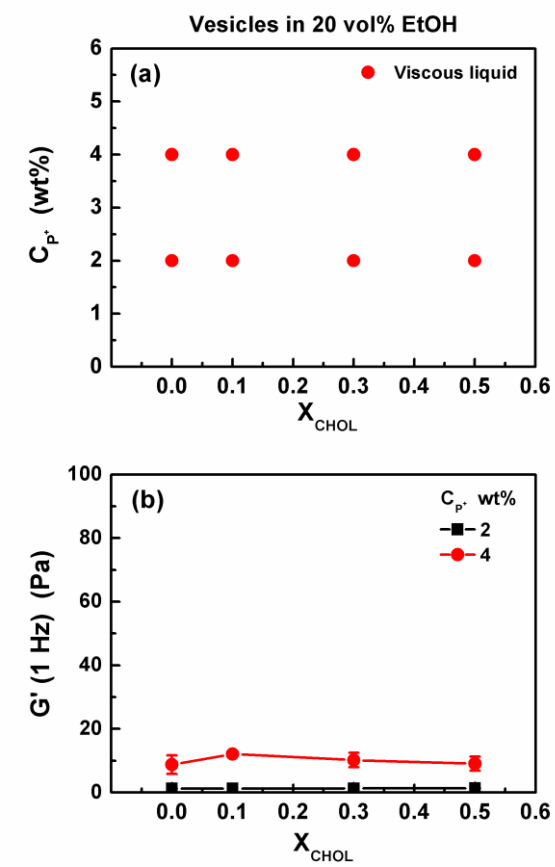

Fig. S6 Cholesterol content effects on (a) phase map and (b) storage modulus, G'(1 Hz) of mixtures of ethosome-like catanionic vesicle and polymer P^+. The ethosome-like catanionic vesicles were prepared from DeTMA-DS with various molar fractions of cholesterol in 20 vol% EtOH.