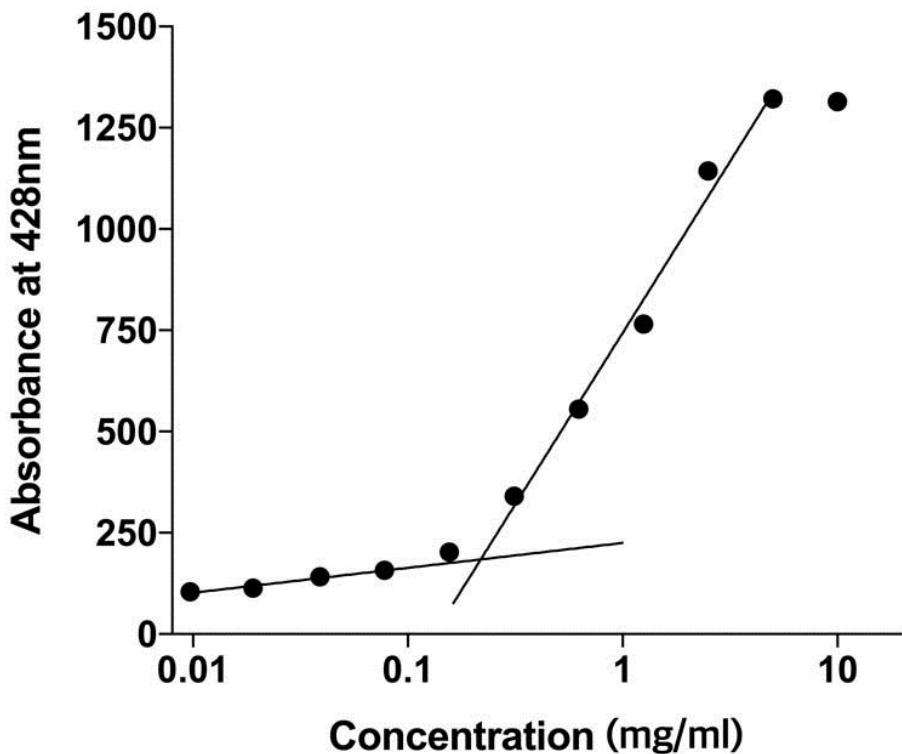


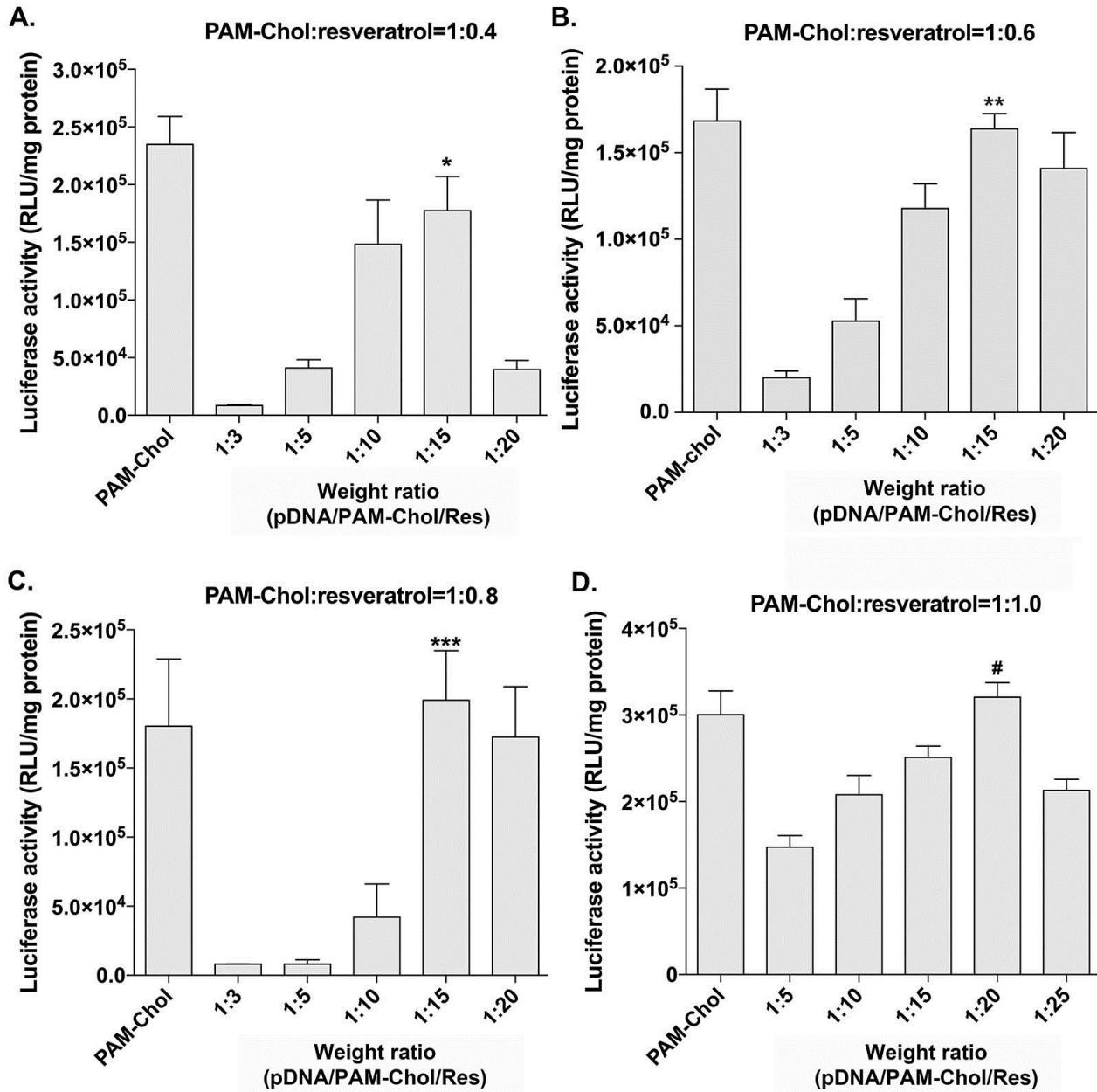
**Supplementary Fig. 1.  $^1\text{H}$  NMR analysis**

Synthesis was confirmed by  $^1\text{H}$  NMR. The molar ratio between the PAMAM G2 and cholesterol was calculated using an integral value. The ratio of PAMAM G2 and cholesterol was 1:1.5.



**Supplementary Fig. 2 Determination of critical micelle concentration by dye solubilization method**

Various amounts of PAM-Chol were incubated with fixed amount of DPH and the absorbance was measured at 428 nm. The CMC of PAM-Chol was 0.22 mg/ml.



**Supplementary Fig. 3. Transfection assays for optimizing the weight ratios of the pDNA/PAM-Chol/Res complexes**

PAM-Chol/Res micelles were prepared at 1:0.4 (A), 1:0.6 (B), 1:0.8 (C), and 1:1.0 (D). p $\beta$ -Luc/PAM-Chol/Res complexes were prepared at various weight ratios and transfected into L2 cells. The cells were incubated at 37°C for 24 h. The transfection efficiency was measured using luciferase assays. \*P<0.05 compared with 1:3, 1:5, and 1:20, but no statistical significance compared with PAM-Chol and 1:10. \*\*, \*\*\*P<0.05 compared with 1:3, 1:5, and 1:10, but no statistical significance compared with PAM-Chol and 1:20. #P<0.05 compared with 1:5, 1:10, 1:15, and 1:25, but no statistical significance compared with PAM-Chol.