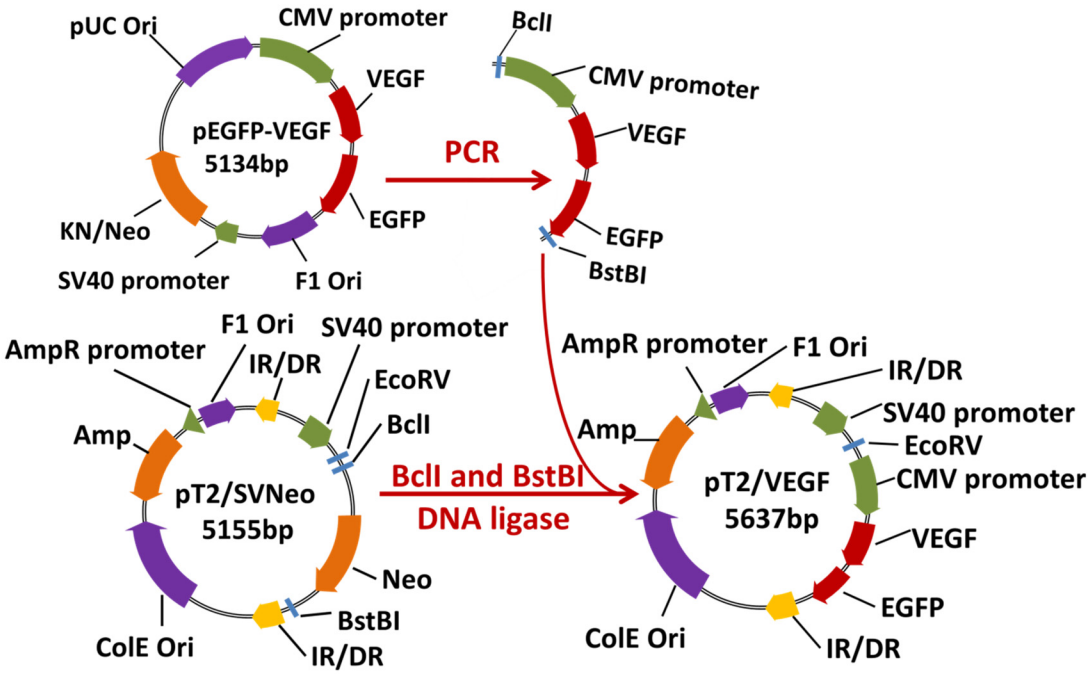
**Supporting Information**

## Materials and Methods




Scheme S1. Construction of EGFP-VEGF SB transposon system.

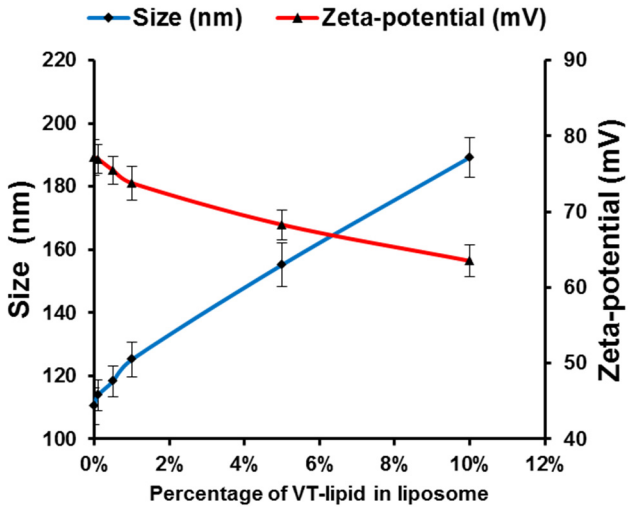



Figure S1. Particle size and zeta potential comparison of different percentages of VT-peptide-lipid in liposome. Data are shown as mean ± standard deviation (n = 3).

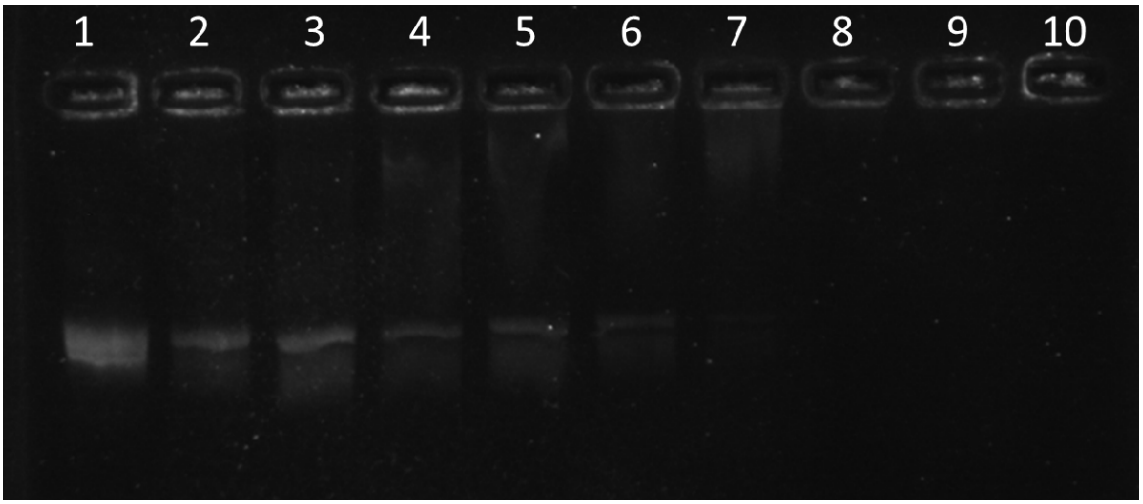



Figure S2. The DNA retardation assay to determine the DNA loading in protamine at various weight ratios of Protamine/DNA: (1) 0:1, (2) 0.0625:1, (3) 0.125:1, (4) 0.25:1, (5) 0.5:1, (6) 1:1, (7) 2:1, (8) 4:1, (9) 8:1 and (10) 16:1 respectively. Gel retardation result indicates DNA is completely encapsulated when Protamine/DNA ratio reaches 4:1 on lane 8.

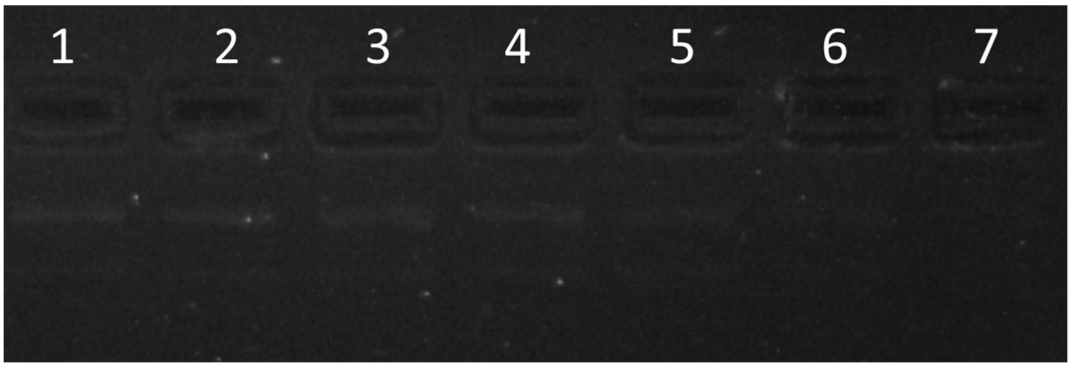



Figure S3. Gel retardation assay of LBN at various liposome/DNA mass ratios (1) 0:1, (2) 0.1875:1, (3) 0.375:1, (4) 0.75:1, (5) 1.5:1, (6) 3:1, and (7) 6:1. Gel retardation result indicated DNA was completely encapsulated when Liposome/DNA ratio reaches 3:1 on lane 6. The mass of liposomes was denoted by the mass of DOTAP in LBN.

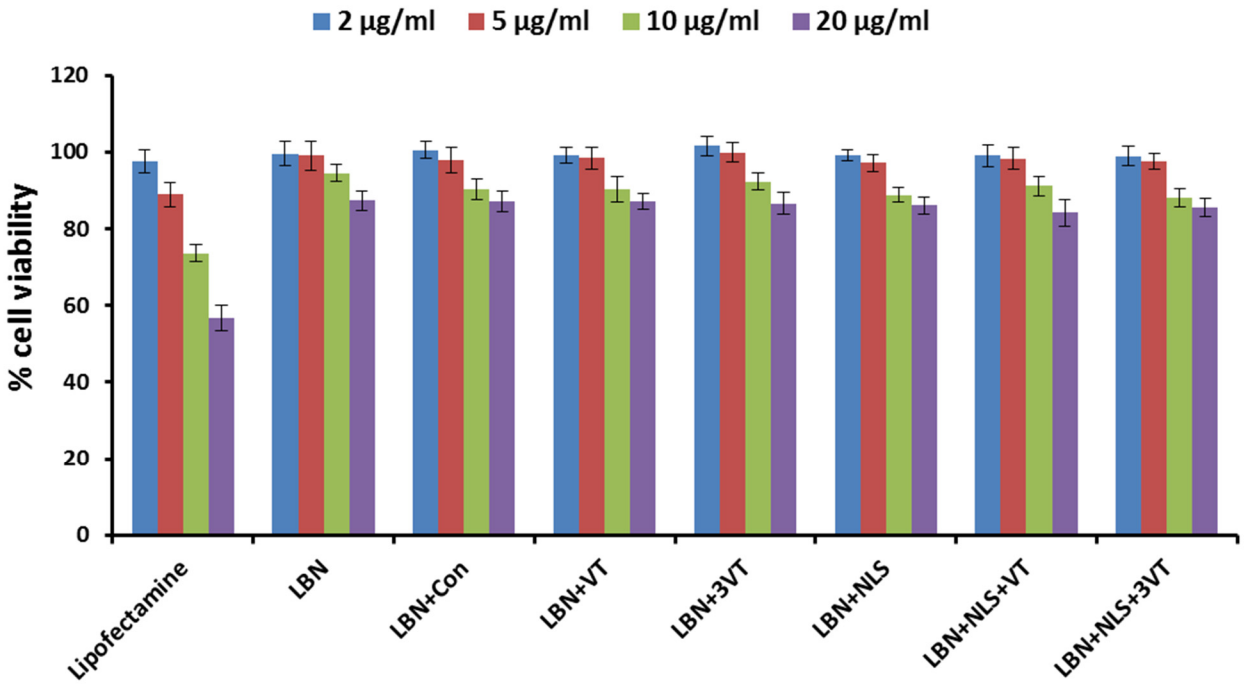



Figure S4. MTT assay of MSCs at different concentrations of LBN particles and Lipofectamine 2000. Data are shown as mean ± standard deviation (n = 3).

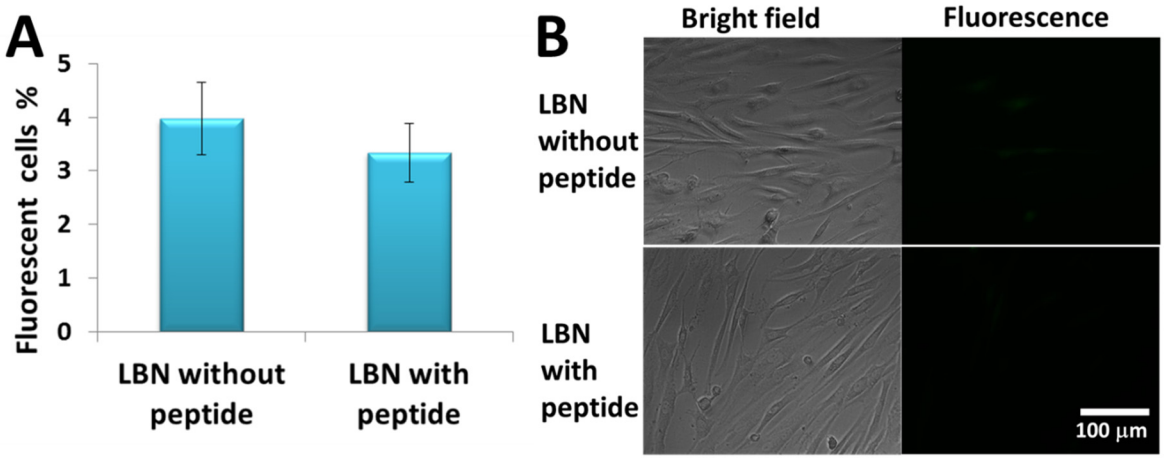



Figure S5. Transfection efficiencies of LBN with and without 3VT-peptide on rat dermal fibroblasts were evaluated with flow cytometry (A) and fluorescence microscopy (B). Data are shown as mean ± standard deviation (n = 3).