**Supplementary Data**

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**Supplementary Figure 1. Schematic diagram of vitamin D nanoparticle delivery system.** The liposome-based nanoparticles constructed from vitamin D3, L-a-phosphatidylcholine (PC), and 1,2-Distearoyl-sn-glycero-3-phosphoethanolamine-N-[amino-(polyethylene glycol)2000] (DSPE-PEG) at a 5 :10 :1 weight ratio.

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| --- |
| **A** |
| **B** |

**Supplementary Figure 2. Control nanoliposomes do not attenuate transforming growth factor** 𝛽 **(TGF-** 𝛽**）effect *in vitro*.** (A) The western blot analysis showed that nanoliposomes (NPs only) didn’t induced EMT process of MCs. (B) Normalized data of protein levels of E-cadherin and Snail (mean ± SD, n=3).