



**SUPPLEMENTARY FIG. S7.** Working model: nanopatterned scaffolds and HA synergistically functioned as topographical and chemical cues to induce chondrogenic differentiation through downregulation of *Twist*, *Snail*, and *Slug*. DPSCs after seeded on the nanopatterned scaffold were guided to align and form three-dimensional spheroid structures. Under specific conditions or appropriate stem cell niche, such as culturing in BMP-2 media, the combination between the topographical cue (the nanopatterned structure) and the chemical cue (HA) promoted DPSC capacity into chondrogenic differentiation by downregulating EMT genes (*Twist*, *Snail*, *Slug*) resulting in upregulation of specific chondrogenic markers (e.g., *Sox9*, *Aggrecan*, *Procollagen type II*) and morphological change (round chondrocyte-like cells). This tissue engineering model provides an *in vitro* system, in which topographical and chemical cues can be controlled to understand the molecular regulation of chondrogenesis and will facilitate the use of stem cells such as DPSCs in tissue engineering approaches for cartilage regeneration.