

Figure S1. QNZ reversing the inhibition of fibroblasts in the BMP2-mediated osteoblast differentiation of MSCs.

(A) About 3,000 MSCs cultured in each well of 96 well plates with a control vehicle, 200 ng/mL of BMP2 or 10 μ M QNZ, for the indicated time. Relative cell viability (OD values at 450 nm of each group normalized to the vehicle treated group) was measured with a cell-counting kit. At least three experiments were conducted and analyzed (n=3). *: $P < 0.05$; **: $P < 0.01$

(B) Relative mRNA levels of *Runx2*, *Ocn* and *Osx* after MSCs were directly co-cultured with MEFs and treated with control vehicle, 200 ng/mL of BMP2 or 10 μ M QNZ. *: $P < 0.05$

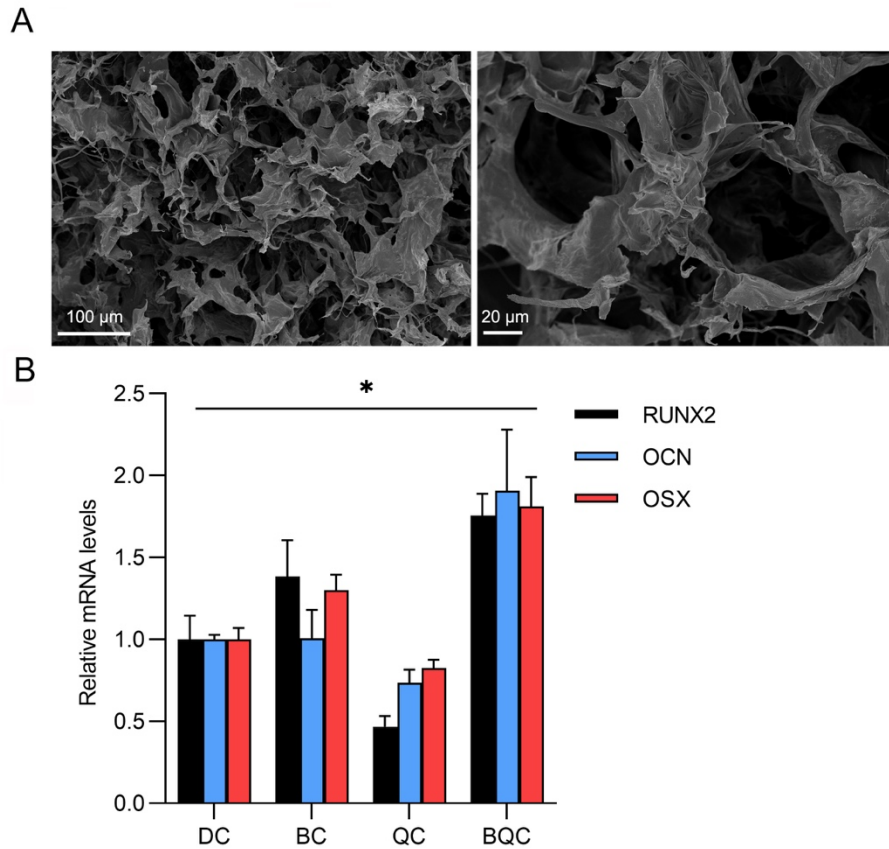


Figure S2. BMP2/QNZ/Collagen I biomaterials enhanced osteoblast differentiation of MSCs when MSCs co-cultured with MEFs.

(A) SEM observation illustrating that BMP2/QNZ/Collagen I biomaterials had several pores.

(B) Relative mRNA levels of *Runx2*, *Ocn* and *Osx* after MSCs were directly co-cultured with MEFs and treated with DC, BC, QC and BQC. *: $P < 0.05$