

Table S1 Primer sequences for Q-PCR analysis

Gene	Primer sequence (5'→3')
<i>GAPDH</i>	Forward: AGACAGCCGCATCTTCTTGT Reverse: TGATGGCAACAATGTCCACT
<i>Runx2</i>	Forward: CCTGAACTCAGCACCAAGTCCT Reverse: TCATCTGGCTCAGATAAGAGGG
<i>OSX</i>	Forward: GGCTTTTCTGTGGCAAGAGGTT Reverse: CGCTGATGTTTGCTCAAGTGGTC
<i>ALP</i>	Forward: CCAGAAAGACACGTTGACTGTGG TCTTGTCCGTGTCGCTCACCAT
<i>BMP2</i>	Forward: AACACCGTGCTCAGCTTCCATC Reverse: CGAAAAATCTGGAGCTCTGCAG
<i>OCN</i>	Forward: AGCTCAACCCCAATTGTGAC TCCTGGAGAGTAGCCAAAGC
<i>OPN</i>	Forward: GCTAAGCCTCAGCATCCTTG Reverse: AAGCAAACCACTGCCAGTCT
<i>Col I</i>	Forward: TGAACGTGACCAAAAACCAA Reverse: AAGGAACAGAAAAGGCAGCA
<i>Col III</i>	Forward: AGCTGGACCAAAAAGGTGATG Reverse: GACCTCGTGCTCCAGTTAGC
<i>PPARγ2</i>	Forward: CATTTTTCAAGGGTGCCAGT Reverse: GAGGCCAGCATGGTGTAGAT
<i>TWIST</i>	Forward: CCCTCACACCTCTGCATTCT Reverse: CAGTTTGATCCCAGCGTTTT

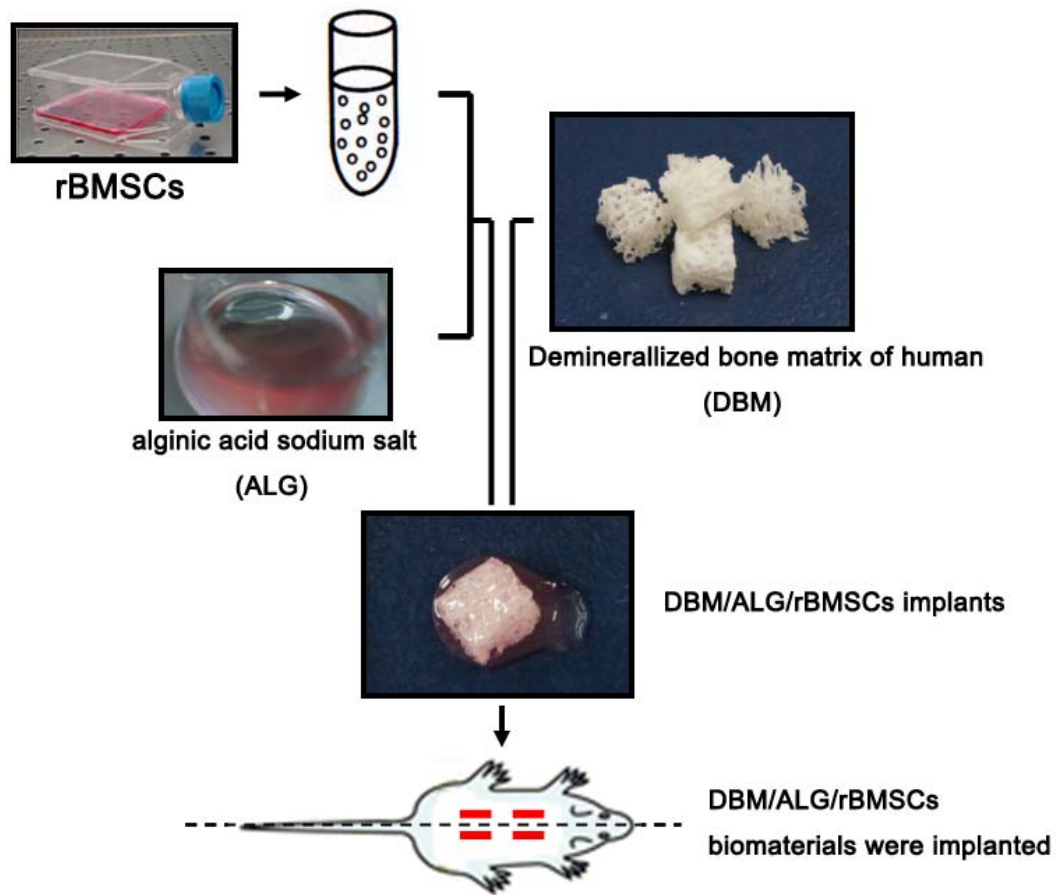


Fig. S1 Ectopic bone formation test

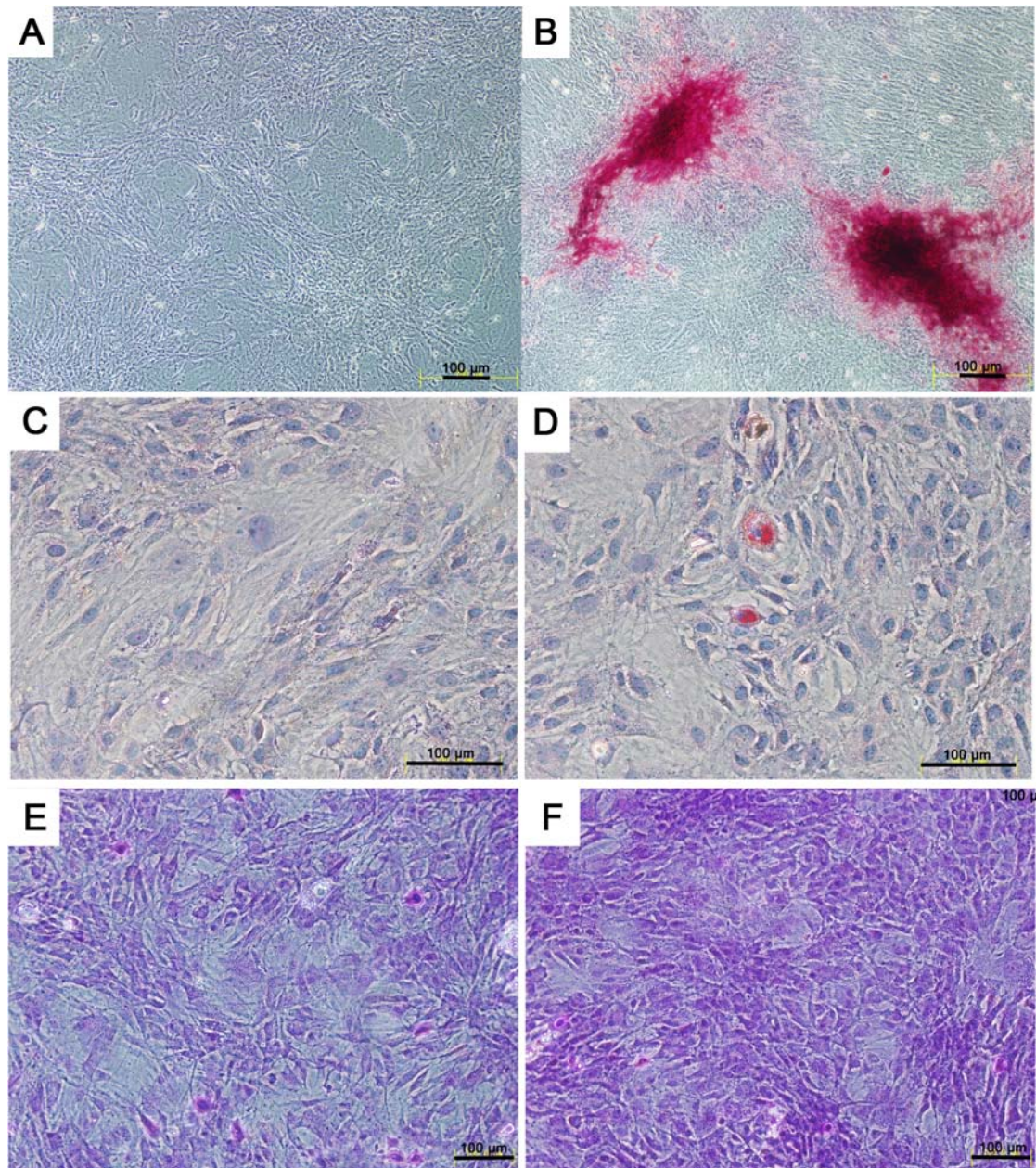


Fig. S2 Osteogenic, adipogenic and chondrogenic differentiation of rBMSCs
Alizarin red staining after 21 days culture (A) control group and (B) osteogenesis induce group; Oil red staining after 10 days culture (C) control group and (D) adipogenesis induce group; toluidine blue staining after 21 days culture (E) control group and (F) chondrogenesis induce group. Scale bars represent 100 μm.

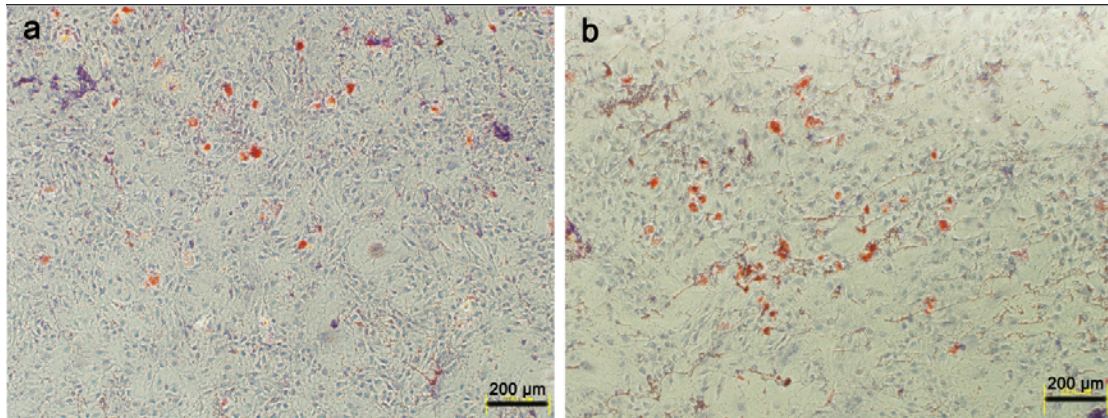


Fig. S3 Effect of Cu on lipid droplet accumulation during adipogenic differentiation lipid droplets of Control group (a) and Cu group (b) were visualized by Oil red staining. Scale bars represent 200 μm , original magnification, $\times 100$.