

Gene name	Forward primer	Reverse primer
<i>GAPDH</i>	5'-CTCTGCTCCTCCTGTTGAC-3'	3'-GTTTCTCTCCGCCGTCTTC-5'
<i>Runx2</i>	5'-ATGCTTCATTGCTCAC-3'	3'-ACTGCTTGACGCTTAAAT-5'
<i>Collagen I</i>	5'-GGTCCCAACGAGATCGAGATCCG-3'	3'-TACAGGAAGCAGACAGGGCCAACGTCG-5'
<i>Osteocalcin</i>	5'-ATGAGAGCCCTCACACTCCTCG-3'	3'-GTCAGCCAACCTCGTCACAGTCC-5'
<i>EGF</i>	5'-TGGTTCCTTCTGTGTCAATCC-3'	3'-GTACTCTCGCAGGAAATGGG-5'
<i>VEGF</i>	5'-CTGCTGTCTTGGGTGCATTG3'	5'-GGCACGACCGCTTACCTT-3'
<i>Angiogenin</i>	5'-GCAGCGAATAAGTAC TG GC-3'	5'-CAG AGA CTA CCC CTG GCT GA-3'

Table S1. Sequences of primers used for RT-PCR.

Supplementary figures

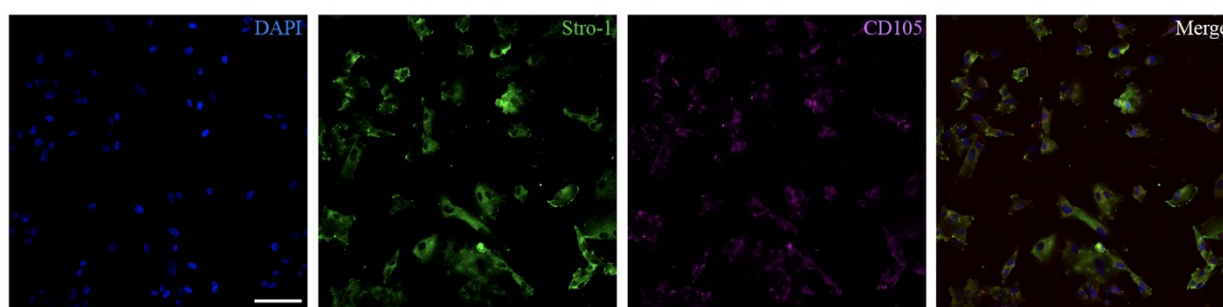


Figure S1. Immunofluorescence staining image of BM-MSCs expressing Stro-1 (green) and CD105 (purple). Scale bar = 100 μ m.

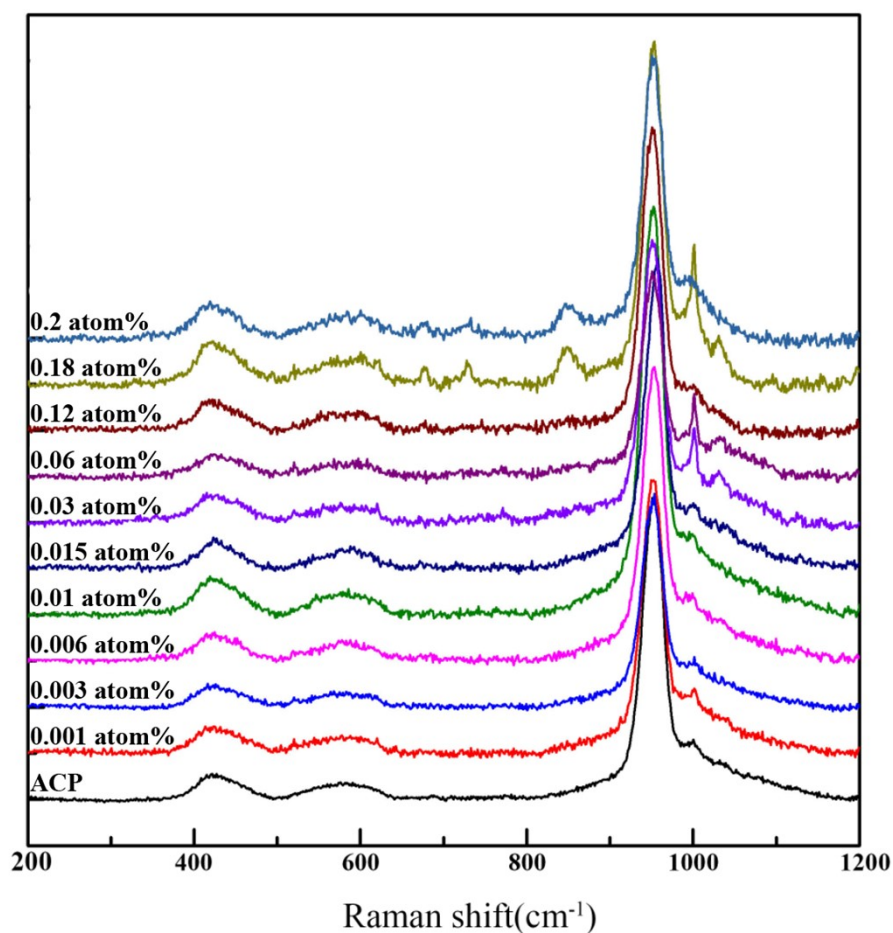


Figure S2. Raman spectra of ACP and ACP doped with different concentrations of lithium.

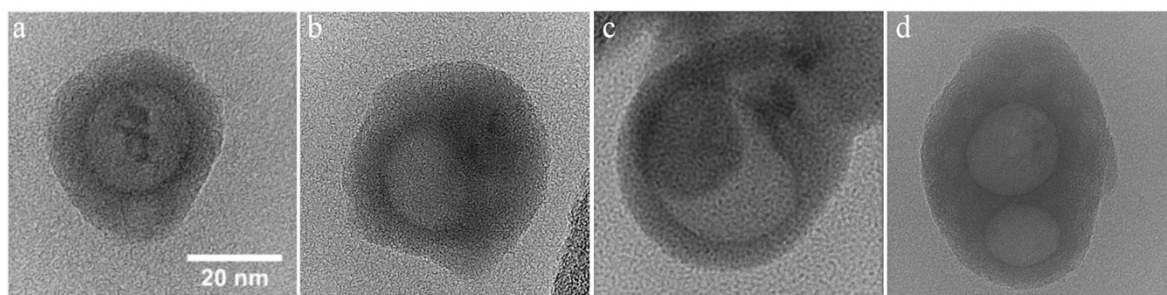


Figure S3 - TEM micrograph of (a) LiCP (ACP-0.2 atom% Li), (b) ACP- 0.12 atom% Li, (c) ACP-0.03 atom% Li , and (d) ACP, demonstrating noticeable size differences by addition of lithium into the structure of ACP.

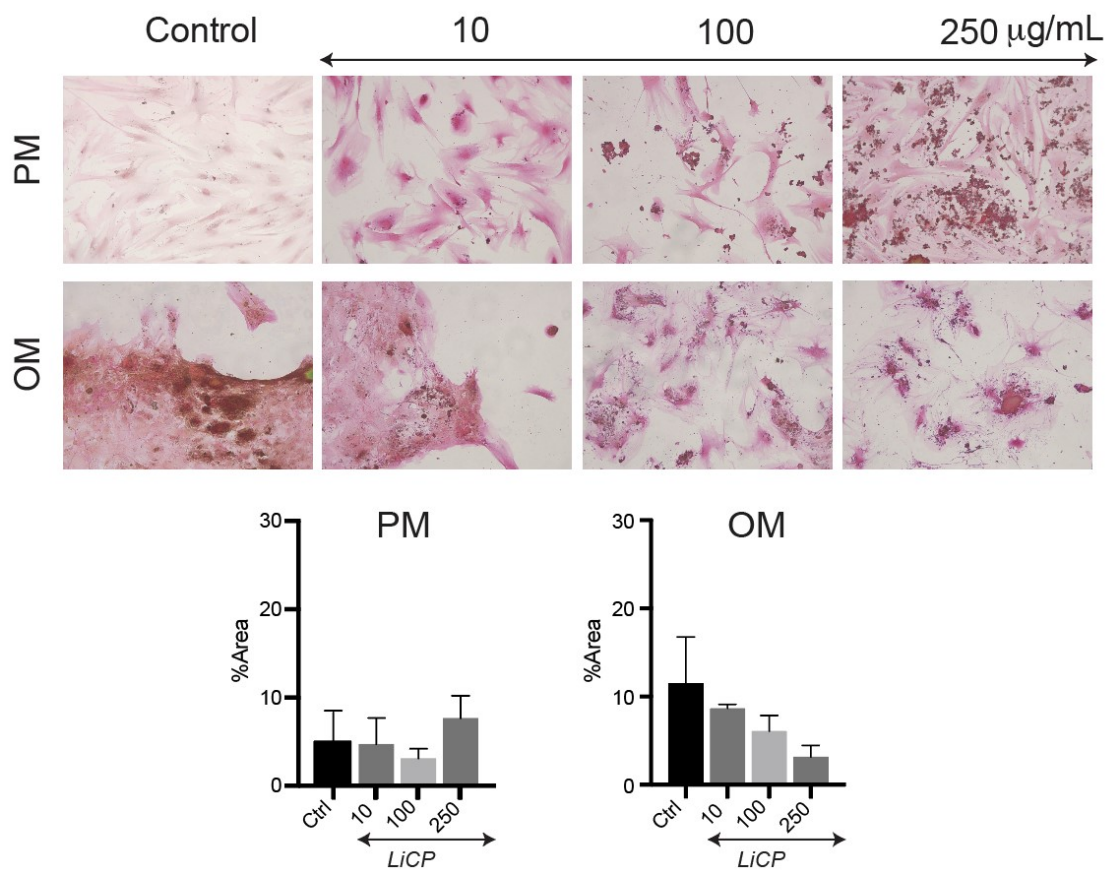


Figure S4. Picrosirius staining for total collagen detection at day 7 in proliferation (PM) or osteogenic (OM) medium, either in absence (Control) or presence (10, 100, 250 $\mu\text{g}/\text{mL}$) of LiCP nanoparticles, and relative quantification.

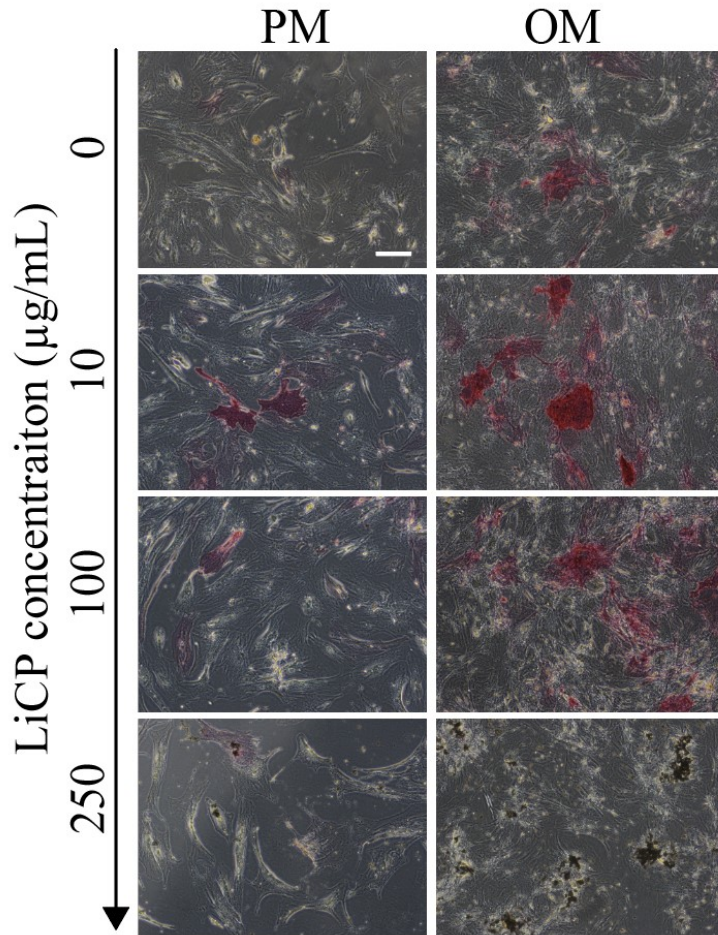


Figure S5. ALP staining at day 14, either in proliferation medium (PM) or osteogenic medium (OM). Scale bar: 100 µm.

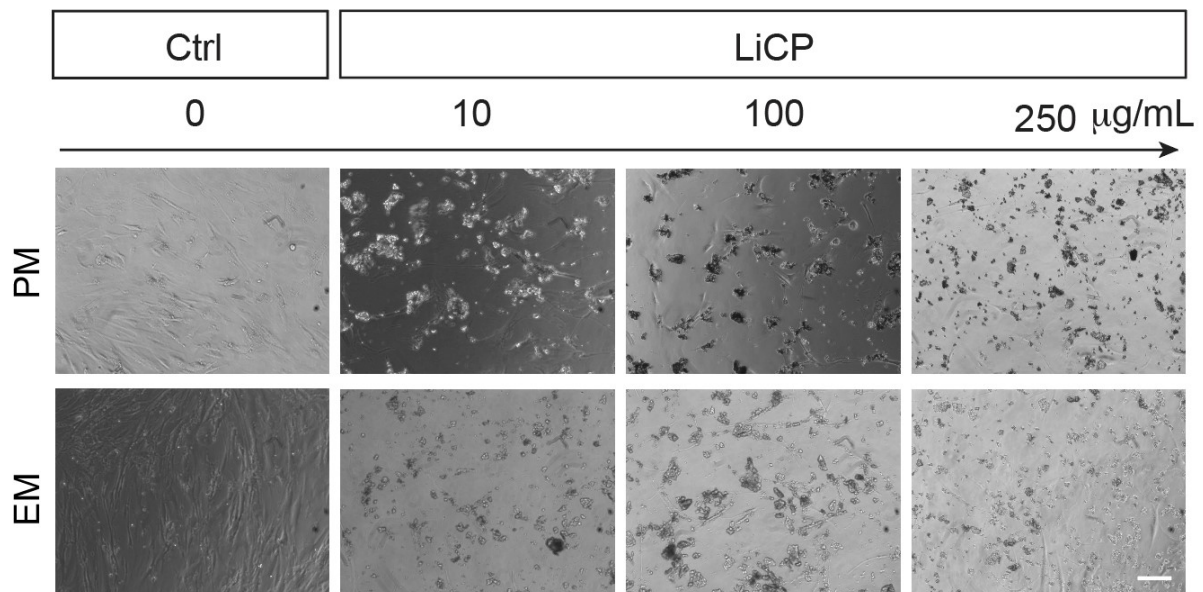


Figure S6. BM-MSCs morphology in proliferation medium (PM) and endothelial medium (EM) medium in combination with LiCP at different concentrations. Scale bar: 100 µm.

