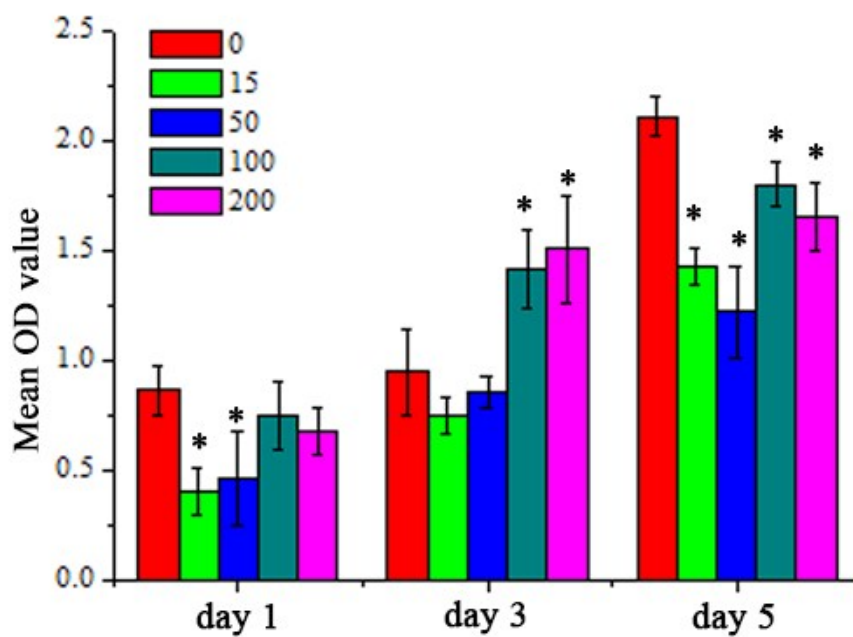
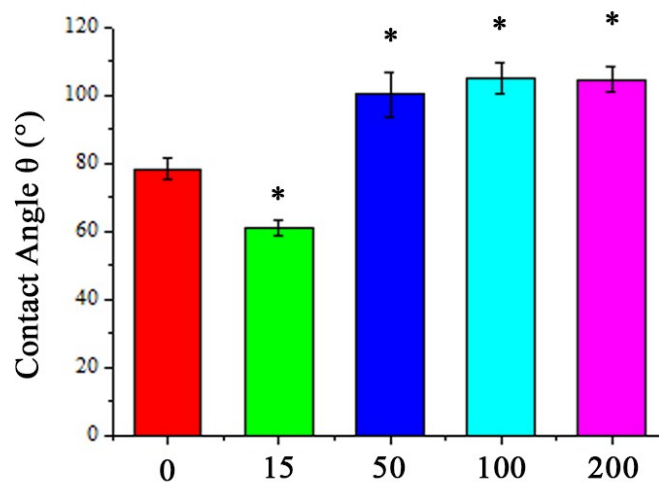


Supplementary Table 1 RNA Primers applied in this study

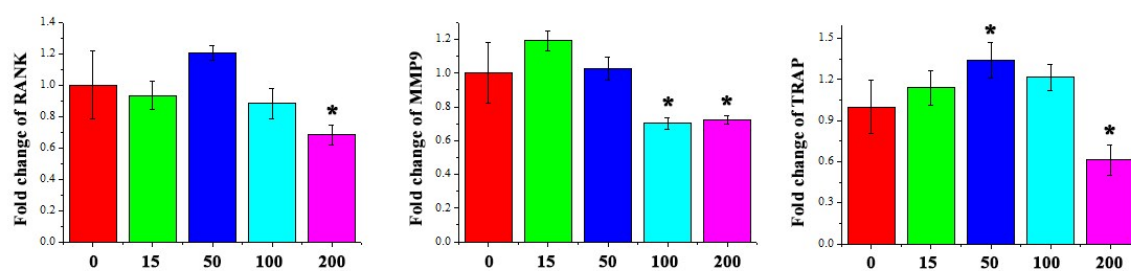
Genes	Primer sequences
TNF α	Forward: 5'-CTGAACTTCGGGGTGATCGG-3' Reverse: 5'-GGCTTGCTCACTCGAATTTTGAGA-3'
IL-18	Forward: 5'-TGGCCGACTTCACTGTACAAC-3' Reverse: 5'-TGGGGTTCCTGGCACTTTG-3'
IL1 β	Forward: 5'-TGGAGAGTGTGGATCCCAAG-3' Reverse: 5'-GGTGCTGATGTACCAGTTGG-3'
OSM	Forward: 5'-ACGGTCCACTACAACACCAG-3' Reverse: 5'-CCATCGTCCCATTCCCTGAAG-3'
IL6	Forward: 5'-ATAGTCCTTCTACCCAATTTCC-3' Reverse: 5'-GATGAATTGGATGGTCTTGGTCC-3'
CD86	Forward: 5'-CTGCTCATCATTGTATGTCAC-3' Reverse: 5'-ACTGCCTTCACTCTGCATTTG-3'
CD11c	Forward: 5'-ACTTCACGGCCTCTCTCC-3' Reverse: 5'-CACCAGGGTCTTCAAGTCTG-3'
iNOS	Forward: 5'-CAGAAGTGCAAAGTCTCAGACAT-3' Reverse: 5'-GTCATCTTGATTGTTGGGCT-3'
CCR7	Forward: 5'-ATGACGTCACCTACAGCCTG-3' Reverse: 5'-CAGCCCAAGTCCTTGAAGAG-3'
CD206	Forward: 5'-AGACGAAATCCCTGCTACTG-3' Reverse: 5'-CACCCATTGGAAGGCATTC-3'
BMP2	Forward: 5'-GCTCCACAAACGAGAAAAGC-3' Reverse: 5'-AGCAAGGGGAAAAGGACACT-3'
BMP6	Forward: 5'-TGGCAGGACTGGATCATTGC-3' Reverse: 5'-ACCAAGGTCTGTACAATGGCG-3'
WNT10b	Forward: 5'-CCAGGTGGTAACGGAAAACC-3' Reverse: 5'-TGCCCTCCAACAGGTCTTG-3'
TGF β 1	Forward: 5'-CAGTACAGCAAGTCCTTGC-3' Reverse: 5'-ACGTAGTAGACGATGGGCAG-3'
VEGF α	Forward: 5'-GTCCCATGAAGTGATCAAGTTC-3' Reverse: 5'-TCTGCATGGTGTGTTGCTCTCTG-3'
TRAP	Forward: 5'-CACTCCCACCCTGAGATTTGT-3' Reverse: 5'-CATCGTCTGCACGGTTCTG-3'
RANK	Forward: 5'-GCAGCTCAACAAGGATACGG-3' Reverse: 5'-GGTGCAGTTGGTCCAAGTT-3'
MMP9	Forward: 5'-GGGCGTGTCTGGAGATTCG-3' Reverse: 5'-CACCTGGTTCACCTCATGGTC-3'
SMAD1	Forward: 5'-GAGATCAATAGAGGAGATGTTCC-3' Reverse: 5'-TCGGTCTTATTGTTGGAAG-3'
SMAD4	Forward: 5'-TACCACCATAACAGCACTAC-3' Reverse: 5'-GAACACCAATATTCAGGAGC-3'
SMAD5	Forward: 5'-GTACTATGAACTGAACAACGG-3' Reverse: 5'-TATAGATGGACACCTTTCCC-3'
BMPR2	Forward: 5'-CATTTGAGGATATGCAGGTTCC-3' Reverse: 5'-CTGCCAGGCTATTTTCTTTC-3'
BMPR1a	Forward: 5'-GACACGTGCGAATTGGACAATG-3' Reverse: 5'-CGTCTGATTTTATACCAGTAC-3'
BMPR1b	Forward: 5'-GAAGCTTATGACAGAGTGCTG-3' Reverse: 5'-CTGACGTCAGAGTTTAATGTC-3'
18S	Forward: 5'-CGGAACTGAGGCCATGATTAAG-3' Reverse: 5'-GTATCTGATCGTCTTCGAACCTCC-3'



Supplementary Figure 1. Proliferation rates of macrophages grown on different alumina surfaces at day 1, 3 and 5 of culture, determined using the MTT assay; *Significant difference ($P < 0.05$) compared to the 0 group.



Supplementary Figure 2. Contact angle θ (°) of different nanoporous structures. The nanoporous structures significantly affected hydrophilicity. 15nm nanoporous surface decreased contact angle while the other surfaces increased the contact angle. *Significant difference ($P < 0.05$) compared to the 0 group.



Supplementary Figure 3. Osteoclastic activities of macrophages on grown on different nanoporous surfaces. The expression levels of osteoclastic activity marker genes (RANK, MMP9, and TRAP) were determined using RT-qPCR. *Significant difference ($P < 0.05$) compared to the 0 group.