Supporting Information

Table S1. Quantitative analysis of elements contained in Mo-BGC scaffolds

Element \ Sample	Mo (at%)	Ca (at%)	Si (at%)	P (at%)
BGC	0	28.41	68.03	3.56
2Mo-BGC	1.83	24.79	69.31	4.07
5Mo-BGC	5.07	21.92	68.78	4.23
7.5Mo-BGC	7.43	18.99	69.36	4.22

Table S2. The concentration (mg/L) of elements in diluted solutions of BGC and 7.5Mo-BGC powder extracts (200 mg/mL) in DMEM (a) and HBMSCs basal medium (b)

a	BGC 1	BGC 1/2	BGC 1/8	BGC 1/64	7.5Mo-BGC 1	7.5Mo-BGC 1/2	7.5Mo-BGC 1/8	7.5Mo-BGC 1/64
Mo	0.01	0.01	0.01	0.01	47.83	23.86	5.93	0.82
Ca	71.95	189.30	277.30	302.97	30.87	168.76	272.17	302.33
P	9.5	68.02	111.90	124.72	1.53	64.04	110.91	124.57
Si	121.78	60.97	15.24	1.90	58.29	29.23	7.31	0.91
b	BGC 1	BGC 1/2	BGC 1/8	BGC 1/64	7.5Mo-BGC 1	7.5Mo-BGC 1/2	7.5Mo-BGC 1/8	7.5Mo-BGC 1/64
Mo	0.02	0.01	0.02	0.01	25.80	12.85	3.23	0.46
Ca	147.67	250.36	327.37	349.83	116.38	234.71	323.46	349.34
P	13.50	92.76	152.24	169.54	2.02	87.02	150.77	169.36
Si	158.68	79.47	20.07	2.74	47.37	23.82	6.15	1.00

Table S3. Primer sequences of gene used for quantitative PCR

| Gene name	sequences
SOX9 (rabbit)	5'-GGTGCTCAAGGGCTACGACT-3' 5'-GGGTGGTCTTTCTTGTGCTG-3'
COL II (rabbit)	5'-AACACTGCCAACGTCCAGAT-3' 5'-CTGCAGCACGGTATAGGTGA-3'
ACAN (rabbit)	5'-AGGTCGTGGTGAAAGGTGTTG-3' 5'-GTAGGTTCTCACGCCAGGGA-3'
N-cadh (rabbit)	5'-TCATCTTCGTTTCCATTGGA-3' 5'-TAAGAACTCTGTAAGTTTTGGCAGC-3'
COL I (human being)	5'-GAGGGCCAAGACGAAGACATC-3' 5'-CAGATCACGTCATCGCACAAC-3'
OCN (human being)	5'-CACTCCTCGCCCTATTGGC-3' 5'-CCCTCCTGCTTGGACACAAAG-3'
BMP2 (human being)	5'-TTCGGCCTGAAACAGAGACC-3' 5'-CCTGAGTGCCTGCGATACAG-3'
RUNX2 (human being)	5'-TGGTTACTGTCATGGCGGGTA-3' 5'-TCTCAGATCGTTGAACCTTGCTA-3'
HIF-1α (rabbit)	5'-CCATGTGACCATGAGGAAAT-3' 5'-CGGCTAGTTAGGGTACACTT-3'
HIF-1α (human being)	'5-ATCCATGTGACCATGAGGAAAT-3' '5-CTCGGCTAGTTAGGGTACACTT-3'
SOX9 (human being)	5'-CTTTGGTTTGTGTTCGTGTTTTG-3' 5'-AGAGAAAGAAAAAGGGAAAGGTAAGTTT-3'
COL II (human being)	5'-CCGAATAGCAGGTTCACGTACA-3' 5'-CGATAACAGTCTTGCCCCACTT-3'
ACAN (human being)	5'-TTCAGTGGCCTACCAAGTGG-3' 5'-AGCCTGGGTTACAGATTCCA-3'
HIF-2α (rabbit)	5'-TCATCTACAACCCGCGCAAC-3' 5'-ATCAGGTGCGGCTTGAACAG-3'
HIF-2α (human being)	5'-ACCTGAAGATTGAAGTGATTGAG-3' 5'-GTGGCTGGAAGATGTTTGTC-3'
TIMP3 (rabbit)	5'-CATCCACACGGAAGCCTCTGA-3' 5'-TTACAGCCCAGGTGGTAGCG-3'
TIMP3 (human being)	5'-GTCGCGTCTATGATGGCAAG-3' 5'-ATTCTTTCTGGCATGGCACC-3'
MMP13 (rabbit)	5'-AGGAGCATGGCGACTTCTAC-3' 5'-TAAAAACAGCTCCGCATCAA-3'
MMP13 (human being)	5'-AGGAGCATGGCGACTTCTACCC-3' 5'-TTTGTCTGGCGTTTTTGGATGTTT-3'
ADAMTS5 (rabbit)	5'-TGTCCTGCCAGCGGATGT-3' 5'-ACGGAATTACTGTACGGCCTACA-3'
ADAMTS5 (human being)	5'-GTCCAAATGCACTTCAGCCA-3' 5'-GGTGGCATCGTAGGTCTGTC-3'
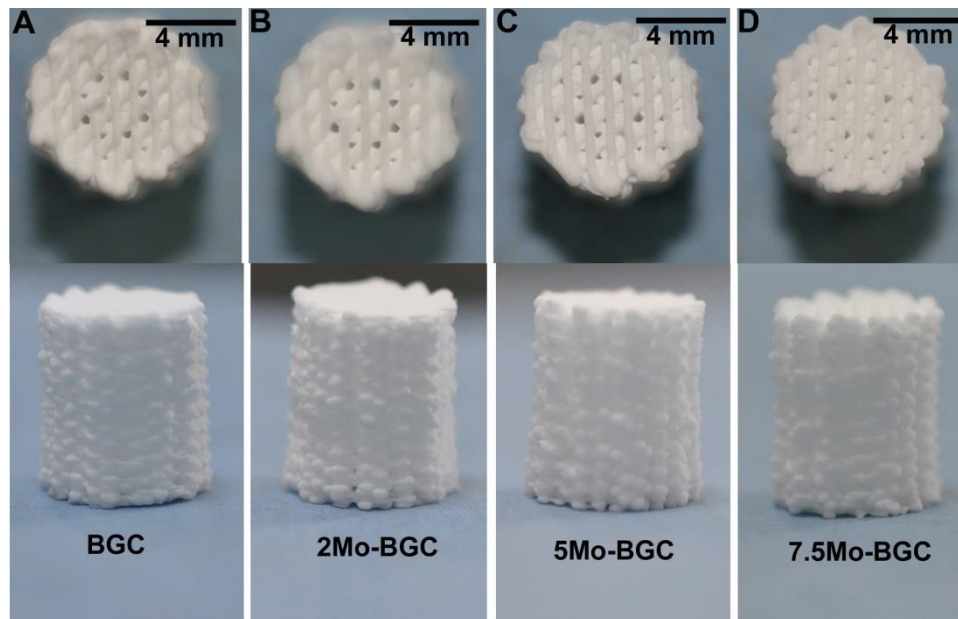
Figure S1. Representative photographs of BGC (A), 2Mo-BGC (B), 5Mo-BGC (C) and 7.5Mo-BGC (D) scaffolds used for compressive strength test.
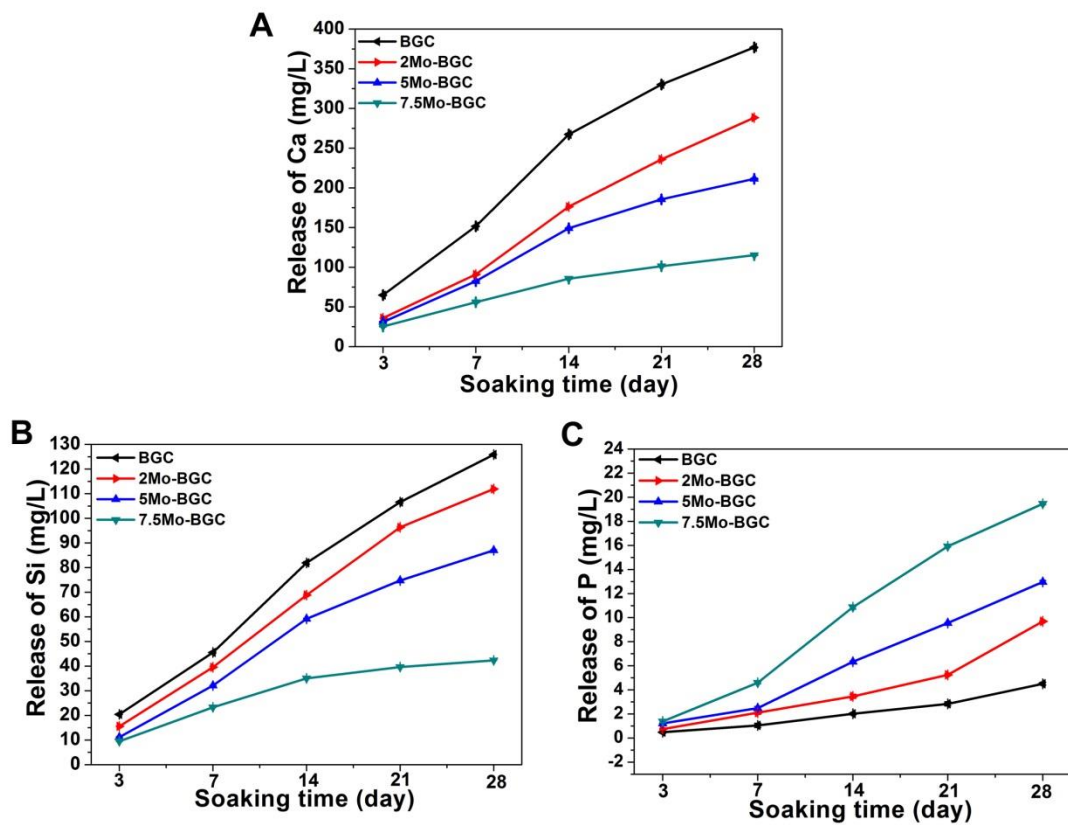
Figure S2. The average release rates of Ca (A), Si (B) and P (C) from scaffolds in tris-HCl solution at each time point (n=3). It showed that Ca, Si and P from scaffolds could be released into tris-HCl solution continuously.