Support information

Recapitulating the post-chemotherapy tumor microenvironment via biomimetic scaffolds to regulate MSC differentiation

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Figure S1. Fluorescence microscopic observation on the intracellular distribution of DOX in the MG63 cells after incubation with PLGA-ccollagen scaffold for 12 hours. Cell nucleus represented blue fluorescence; DOX represented red fluorescence; Actin cytoskeleton represented green fluorescence.

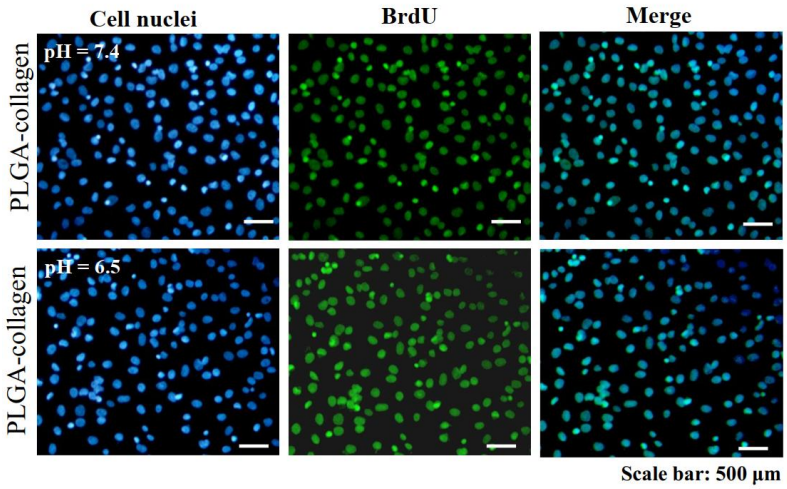

Figure S2. BrdU staining of MG63 upon treatment of PLGA-collagen at pH 7.4 or pH 6.5. Cell nucleus: blue fluorescence; Brdu: green fluorescence.

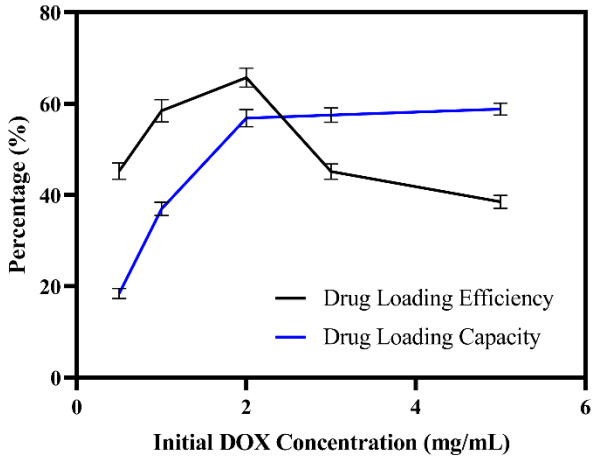

Figure S3. Optimization of doxorubicin (DOX) loading into mesoporous silica nanoparticles (MSNs). The quantitative curves depict the drug loading efficiency (DLE, black line) and drug loading capacity (DLC, blue line) at various initial DOX concentrations against a fixed MSN dispersion (1.0 mg/mL). Data are presented as mean ± SD (n = 3)

Table S1. Primers and probes for real-time PCR analysis.

mRNA	Description	Oligonucleotide
GAPDH	glyceraldehyde-3-phosphate dehydrogenase	Hs99999905_m1
RUNX2	Runt-related transcription factor-2	Hs00231692_m1
ALP	Alkaline phosphatase	Forward 5'-GACCCTTGACCCCCACAAT-3'
		Reverse 5'-GCTCGTACTGCATGTCCCCT-3'
		Probe 5'-TGGACTACCTATTGGGTCTCTTCGAGCCA-3'
IBSP	Bone sialoprotein 2	Forward 5'-TGCCTTGAGCCTGCTTCC-3'
		Reverse 5'-GCAAAATTAAAGCAGTCTTCATTTTG-3'
		Probe 5'-CTCCAGGACTGCCAGAGGAAGCAATCA-3'
SPP1	Secreted phosphoprotein 1	Forward 5'-CTCAGGCCAGTTGCAGCC-3'
		Reverse 5'-CAAAAGCAAATCACTGCAATTCTC -3'
		Probe 5'-AAACGCCGACCAAGGAAAACTCACTACC-3'

Table S2. Characterization of DOX loading capacity and efficiency in MSNs.

Initial DOX Concentration (mg/mL)	MSN Dispersion (mg/mL)	Weight of Loaded DOX (mg)	Drug Loading Efficiency (DLE, %)	Drug Loading Capacity (DLC, %)
0.5	1	0.2	45.2 ± 1.8	18.4 ± 1.1
1	1	0.6	58.4 ± 2.5	36.9 ± 1.5
2	1	1.3	65.7 ± 2.1	56.8 ± 1.9
3	1	1.4	45.1 ± 1.7	57.5 ± 1.6
5	1	1.4	38.5 ± 1.4	58.8 ± 1.3