Supporting Information

Tripeptide-based macroporous hydrogel improves the osteogenic microenvironment of stem cells

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In vitro degradation of gelatin microspheres

The degradation properties of the cross-linked microspheres were determined by immersing dried test samples in PBS (5mg/mL). Incubate the cross-linked GMs in a 37°C incubator for 1, 3, 5, and 7 days. The weight loss of test microspheres due to degradation was quantified as follows:

$$Weight\ loss\ (\%) = \frac{W_1 - W_2}{W_1} \times 100\%$$

where, W_2 is the weight of degraded test microspheres lyophilized for 24 h.

Figure S1. Degradation curves of GMs with different cross-linking time.

Figure S2. The effect of different concentrations of QK/GM encapsulated in RA (1, 5, 10 mg/mL) on HUVECs proliferation.

Figure S3. Survival and proliferation of hMSCs encapsulated in hydrogel. (A) Live cell staining images of hMSCs cultured in hydrogel for 3 days. (B) In situ immunofluorescence staining for F-actin of hMSCs cultured in hydrogel for 7 days.

Figure S4. In situ immunofluorescence staining of hMSCs cultured in UGM for 7 days.

Table S1. Presenting the primer used for qRT-PCR

Primers	**Forward (5' - 3') (bp)**	**Reverse (5' - 3') (bp)**
28S rRNA	CCCAGTGCTCTGAATGTCAA (20)	AGTGGGAATCTCGTTCATCC (20)

ALP	CAACCCTGGGGAGGAGAC (18)	GCATTGGTGTTGTACGTCTTG (21)
Col1a1	AGACACTGGTGCTAAGGGAG AG (22)	GACCAGCAACACCATCTGCG (20)
Runx2	CCGCCTCAGTGATTTAGGGC (20)	GGGTCTGTAATCTGACTCTGT CC (23)
OCN	CCTGAAAGCCGATGTGGT (18)	AGGGCAGCGAGGTAGTGA (18)
OPN	CTGGAACCCCAGAGCGAAAT (21)	GCCTCCTCACACAGGGTAAC (20)

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