

PgC₃Mg metal-organic cages functionalized hydrogel with enhanced bioactive and ROS scavenging capabilities for accelerated bone regeneration

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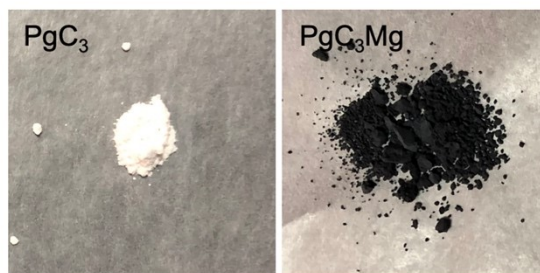


Fig. S1. Optical images of PgC_3 and PgC_3Mg powders.

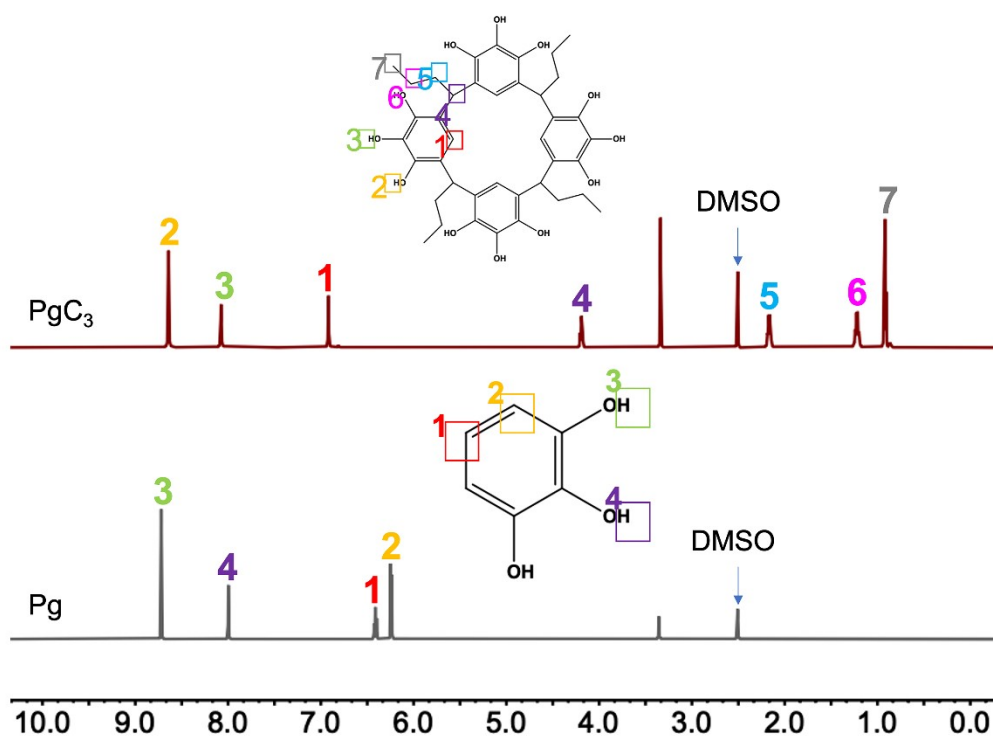


Fig. S2. ^1H NMR spectra (600 MHz, DMSO, room temperature) of PgC_3 and Pg .

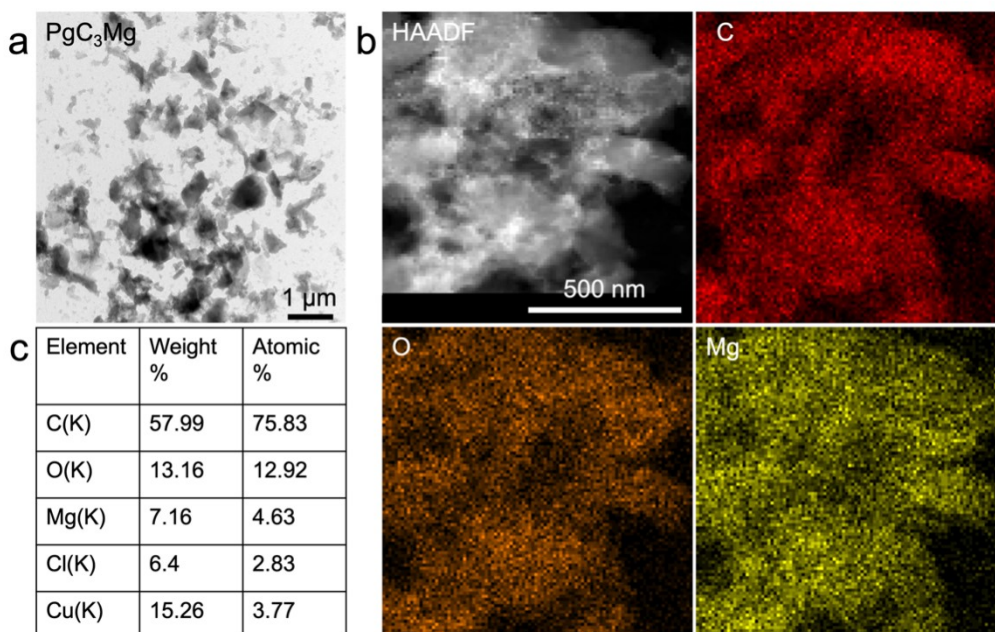


Fig. S3. The EDS mapping images of PgC_3Mg . TEM image (a) of PgC_3Mg and its corresponding elemental mapping images (b) and quantification results (c).

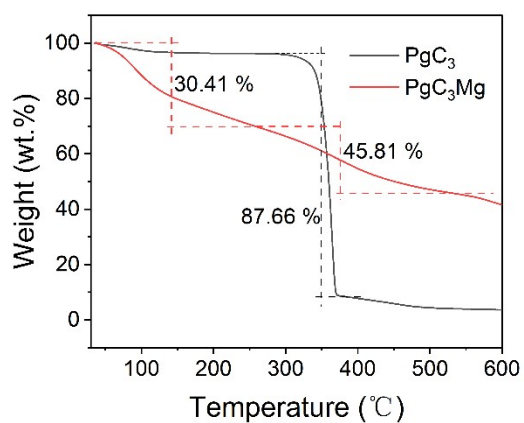


Fig. S4. Thermogravimetric analyses (TGA) of PgC_3 and PgC_3Mg from room temperature to 600 °C in air. The final mass of PgC_3Mg corresponds to MgO .

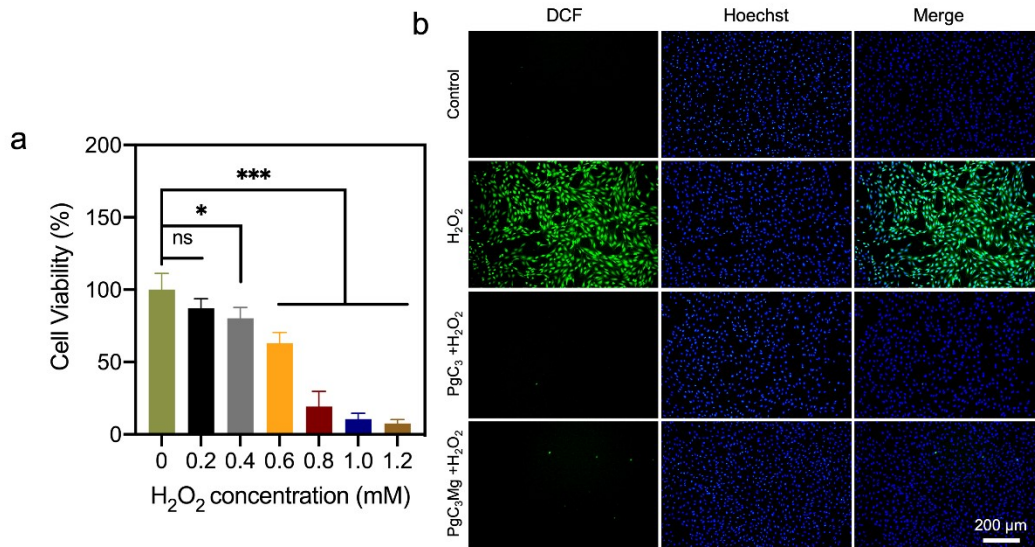


Fig. S5. Intracellular ROS scavenging of PgC₃Mg. (a) The survival rate of BMSCs treated with different concentrations of H₂O₂ for 24 hours by CCK-8 assay. (b) DCFH-DA staining of BMSCs after cocultured with 20 μg/mL PgC₃ or PgC₃Mg with 400 μM H₂O₂ treatment.

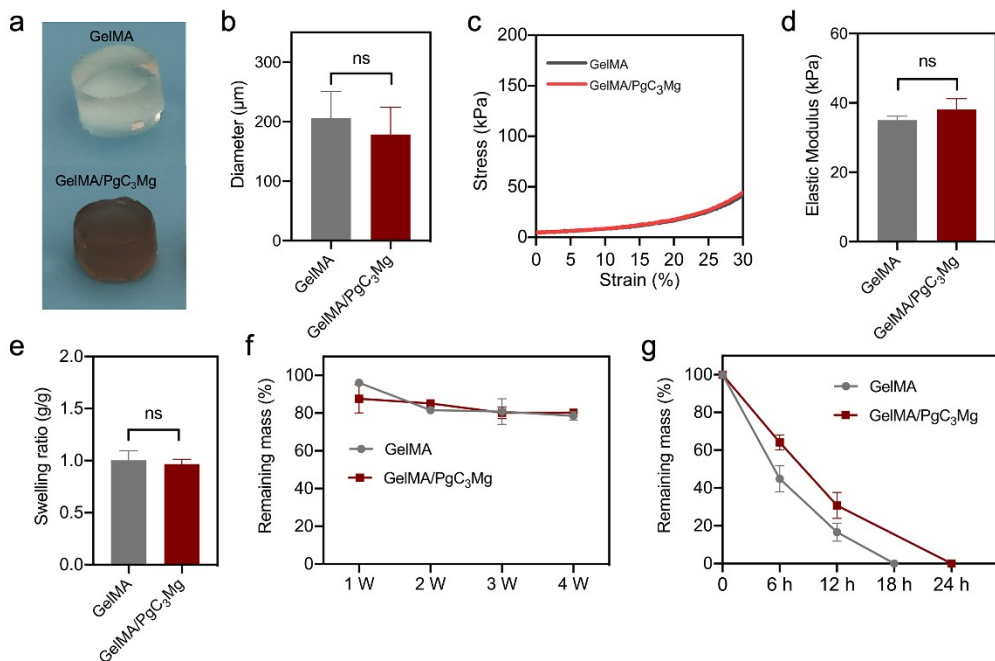


Fig. S6. Characteristics of GelMA and GelMA/PgC₃Mg hydrogel. (a) Optical images, (b) diameter according to SEM images, (c) representative compressive stress-strain curves, (d) compressive modulus, (e) swelling ratio of GelMA and GelMA/PgC₃Mg

hydrogels. Degradation properties of various hydrogels in (f) PBS and in (g) collagenase at 37 °C.

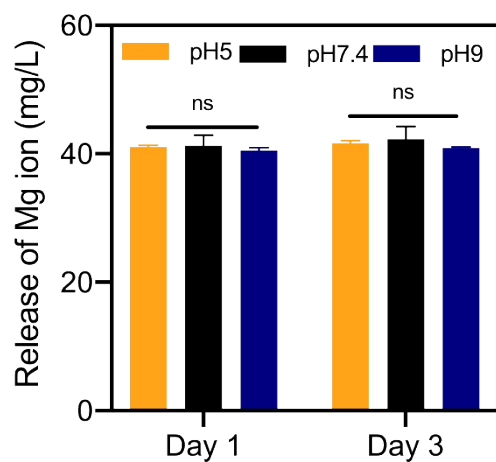


Fig.S7. Release of Mg ion from GelMA/PgC₃Mg at different pH environments.

Table 1. Primers used for the RT-qPCR.

Target gene	Sequence
<i>Gapdh</i>	F: GCATCTTCTTGTGCAGTGCC
	R: GATGGTGATGGGTTTCCCGT
<i>Alp</i>	F: TGCCTACTTGTGTGGCGTGAA
	R: TCACCCGAGTGGTAGTCACAATG
<i>Runx2</i>	F: ATGCTTCATTCGCCTCACAAA
	R: GCACTCACTGACTCGGTTGG
<i>Ocn</i>	F: CCGTTTAGGGCATGTGTTGC
	R: CCGTCCATACTTTCGAGGCA
<i>Opn</i>	F: CCAGCCAAGGACCAACTACA
	R: AGTGTTTGCTGTAATGCGCC