

Supplemental Materials for:

A Rapid Crosslinkable Maleimide-modified Hyaluronic Acid and Gelatin Hydrogel Delivery System for Regenerative Applications

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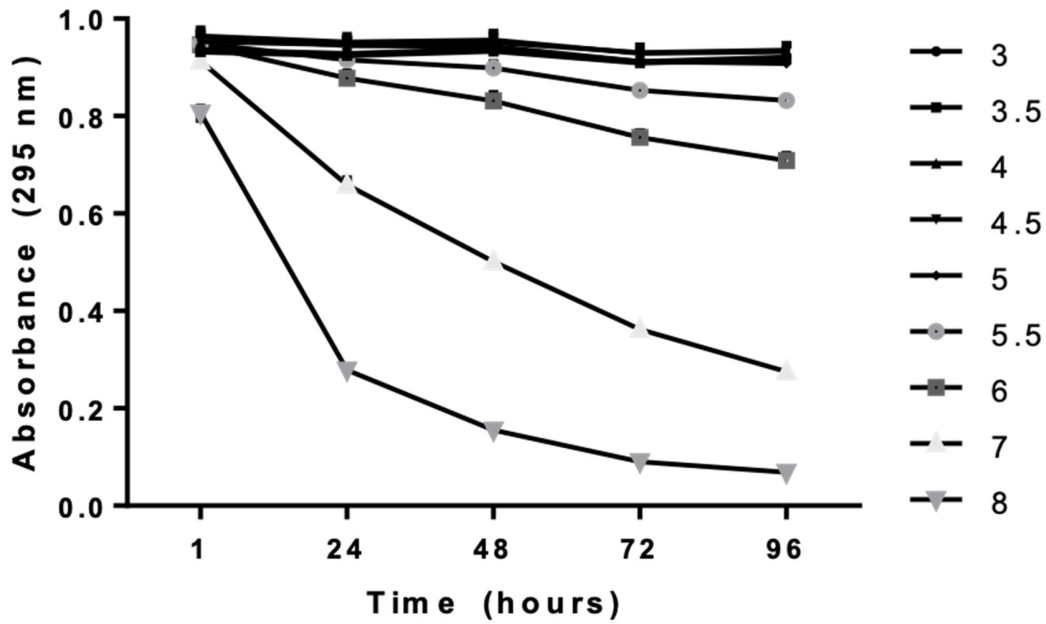
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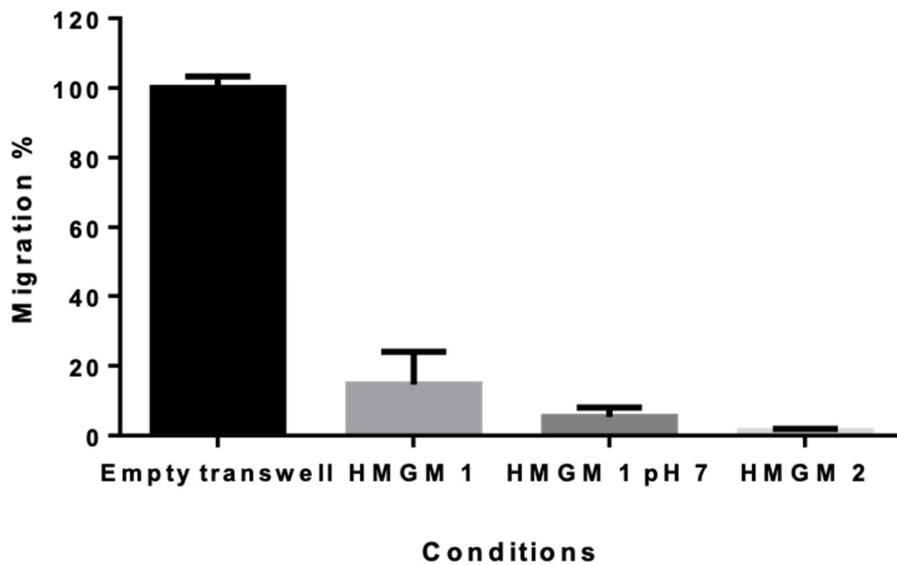
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Supplementary Figure 1. Sensitivity of maleimides at various pH conditions (pH 3-8) using UV-vis Spectroscopy. Absorbances (n=3) per condition were measured at 295 nm.



Supplementary Figure 2. Mechanical Barrier Assay with HMGM hydrogels. Migration percentages of FITC-dextran solution passed with hydrogels were calculated (n=3).

Hydrogel	Components	Final Conc. (w/v %)
HMGM 1	HA-Mal (100 kDa)	1.0%
	Gel-Mal (175 g)	0.4%
	PEGDSH (3.4 kDa)	0.25%
HMGM 2	HA-Mal (200 kDa)	0.5%
	Gel-Mal (300 g)	0.4%
	PEGDSH (3.4 kDa)	0.125%

Supplementary Table 1. Hydrogel composition.

HA-Mal MW (kDa)	HA-Mal Conc. (% w/v)	Gel-Mal bloom strength (g)	Gel-Mal Conc. (% w/v)	PEG Geometry	PEG MW (kDa)	PEG Conc (% w/v)	Stiffness Score (1-5)	Easily Extrudable	Self Standing
100	1	175	1.6	2 arm	3.4	0.5	3.5	x	x
100	1	175	1.6	2 arm	3.4	1	3.25	x	x
100	1	175	1.6	4 arm	10	1	3.75		x
100	2	175	1.6	2 arm	3.4	0.5	4	x	x
100	2	300	1.6	2 arm	3.4	0.5	4	x	x
200	1	175	1.6	2 arm	3.4	0.5	4	x	x
200	1	175	1.6	4 arm	10	1	3.25		x
200	1	175	1.6	2 arm	3.4	0.5	4	x	x
200	1	300	1.6	2 arm	3.4	0.5	4	x	x
200	1	300	1.6	2 arm	3.4	0.5	4	x	x

Supplementary Table 2. Hydrogel formulations tested for ability to self-stand and for ease of extrusion. “x” indicates a positive result in terms of extrusion or ability for self-support.

	Swelling %					
	t=0	t=1	t=2	t=3	t=6	t=24
HMGM 1	0	10 ± 3%	14 ± 4%	22 ± 13%	25 ± 12%	32 ± 13%
HMGM 2	0	23 ± 19%	27 ± 13%	21 ± 10%	24 ± 11%	26 ± 9%

Supplementary Table 3. Swelling table.