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2 **Cryotemplation for the Rapid Fabrication of Porous, Patternable Photopolymerized**

3 **Hydrogels**

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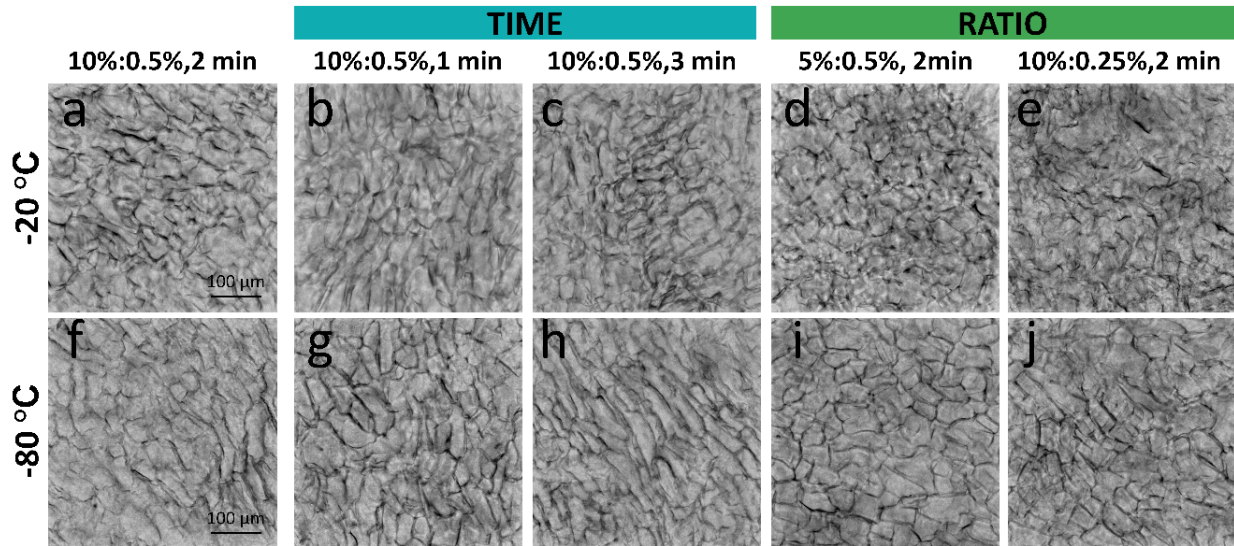
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2 **Supp. 1.** Influence of (a-c,f-h) crosslinking time, (a,d,e,f,i,j) polymer: initiator ratio, and freezing
 3 temperature on PEG pore size. Porous hydrogels were prepared at (a-e) -20 °C or (f-j) at -80 °C.

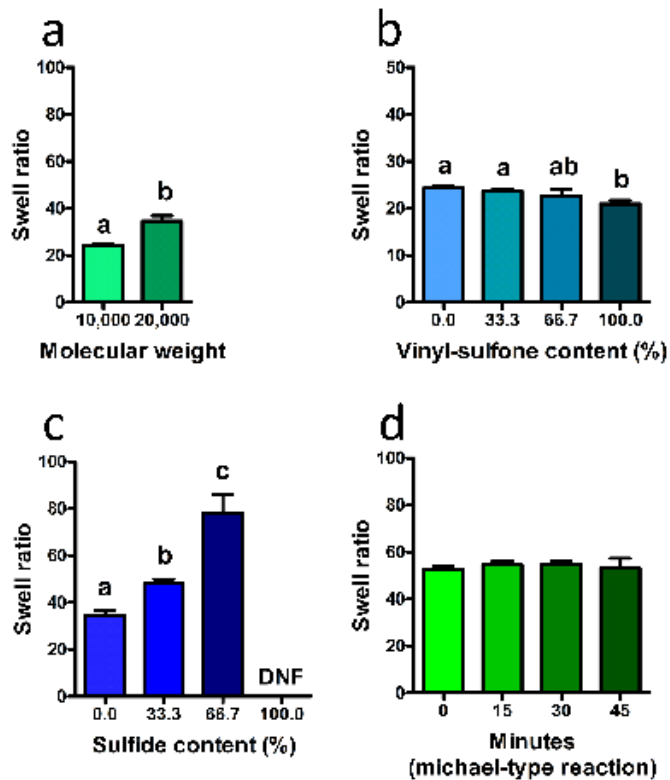
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		<i>GELATION</i>		<i>PORE STRUCTURE</i>				<i>PERMEABILITY</i>				
		<i>Temp.</i>	<i>Condition</i>	<i>Diam (μm): Quartiles</i>			<i>Porosity (%) ± SD</i>		<i>Swell Ratio ± SD</i>		<i>Water (% w/w) ± SD</i>	
TIME	10%, 0.5% P:I Ratio	-20 °C	1 min	27.1	30.4	33.9	97.1	0.0	28.5	0.5	96.5	0.1
			2 min	23.8	27.0	30.5	96.4	0.0	23.6	0.3	95.8	0.1
			3 min	23.6	26.6	29.7	96.6	0.1	24.6	0.4	95.9	0.1
		-80 °C	1 min	32.7	36.8	40.5	97.8	0.0	47.0	2.5	97.9	0.1
			2 min	31.4	34.1	37.7	97.5	0.1	42.9	1.3	97.7	0.1
			3 min	30.3	33.4	37.1	97.5	0.1	36.2	1.5	97.3	0.2
		+20 °C	1 min	-	-	-	94.8	0.4	12.5	0.2	92.0	0.2
			2 min	-	-	-	94.7	0.1	12.1	0.5	91.7	0.3
			3 min	-	-	-	94.8	0.1	11.9	0.2	91.6	0.2
P:I RATIO	2 min	-20 °C	5%,0.5%	30.8	33.8	38.4	97.8	0.1	47.1	0.9	97.9	0.0
			10%,0.25%	25.5	29.9	33.3	97.2	0.0	27.3	0.8	96.3	0.1
		-80 °C	5%,0.5%	31.5	34.7	38.9	98.5	0.0	71.0	1.2	98.6	0.0
			10%,0.25%	33.3	37.4	41.1	97.7	0.1	39.9	0.8	97.5	0.1
		+20 °C	5%,0.5%	-	-	-	97.1	0.1	18.3	0.4	94.5	0.1
			10%,0.25%	-	-	-	95.0	0.3	12.2	0.3	91.8	0.2

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2 **Table 1.** Influence of crosslinking time, polymer: initiator ratio, and preparation temperature on
3 PEG hydrogel pore size (n = 4). Porous hydrogels were prepared at -20 °C or at -80 °C.
4 Hydrogels were prepared at +20 °C. Note that the pore sizes were not normal in distribution
5 according to the Shapiro-Wilk test; therefore, the interquartile ranges (25%, 50%, 75%) were
6 provided.

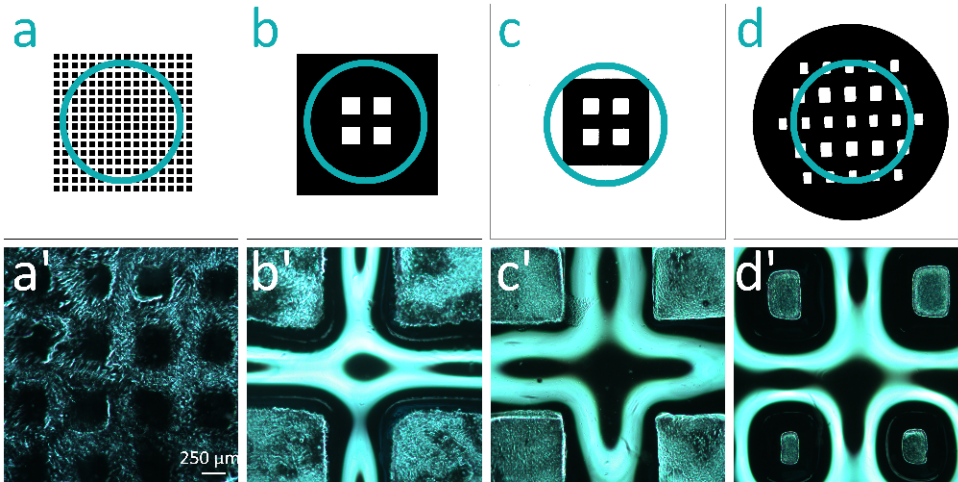
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2 **Supp. 2.** Influence of PEG parameters on the swelling of 10% polymer, 0.5% photoinitiator
 3 hydrogels crosslinked for 15s (n = 4). (a) The swelling ratio was determined for varying
 4 molecular weight using a PEG monomer containing acrylate end-groups. The polymer chemistry
 5 was also investigated using (b) vinyl-sulfone or (c) thiol terminated PEG, and (d) prior reaction to
 6 tri-thiol containing peptides using Michael-type addition. Porous hydrogels were prepared at -20
 7 °C. DNF = gel did not form. Conditions designated with different letters are statistically different
 8 ($p < 0.05$) using ANOVA with a Bonferonni post-hoc.

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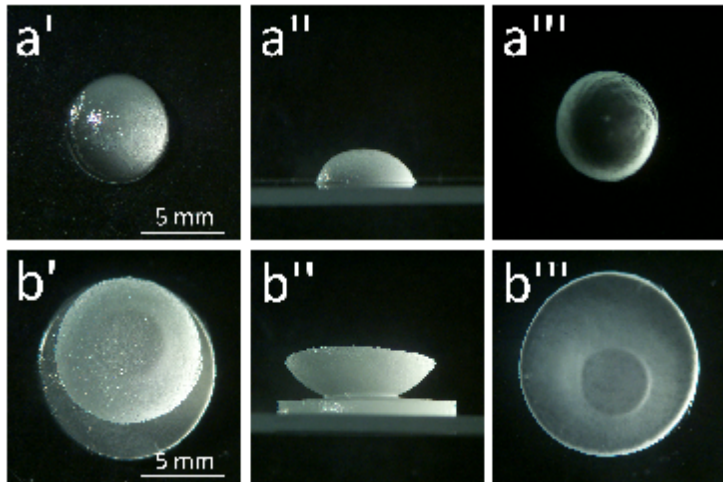
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2 **Supp. 3.** Photomask-based templation of porous PEG hydrogels using (a,b) laserjet-fabricated
 3 masks and (c,d) chrome masks. (') Phase microscopy of 10% polymer, 0.5% photoinitiator
 4 hydrogels prepared at -20 °C using these masks and crosslinked for 1-2min.

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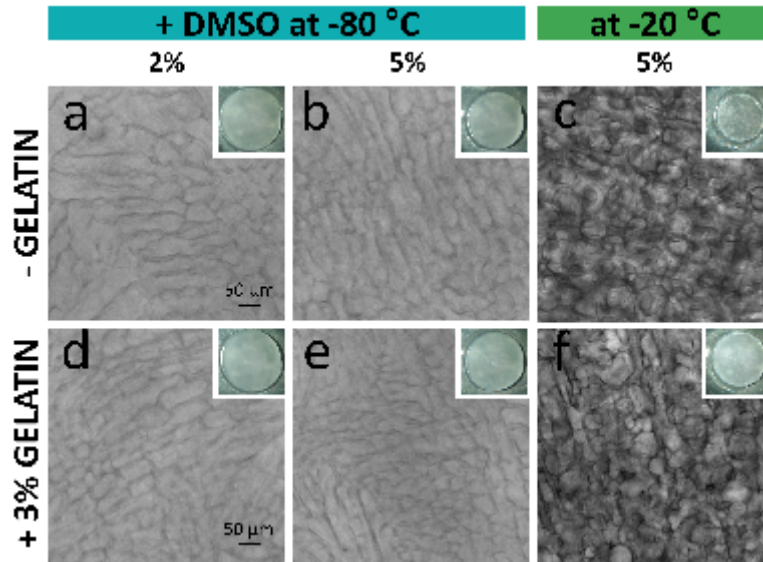
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9 **Supp. 4.** Porous PEG hydrogel templation by joining rounded frozen solutions. (') denotes aerial
 10 views, ('', ''') denotes side views.

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2 **Supp. 5.** (a,b,d,e) Influence of DMSO content on porous PEG hydrogel formation with (d,e) and
 3 without (a,b) gelatin for hydrogels prepared at -80 °C. (c,f) Influence of DMSO on PEG
 4 hydrogel structure at -20 °C with (c) and without (f) gelatin.