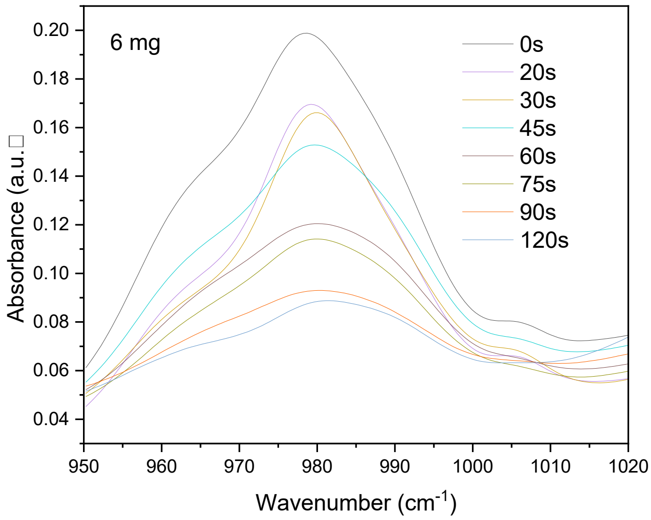

Figure S1. FTIR absorbance curves of 35AM65VP anhydrate gel with 6 mg curcumin after exposure of different times.

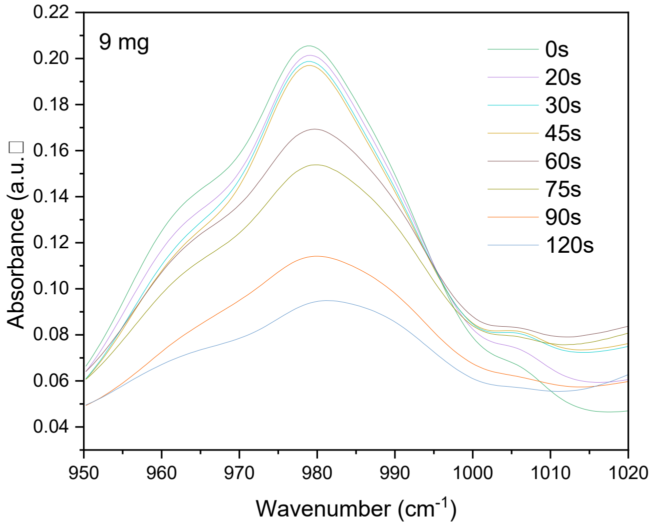

Figure S2. FTIR absorbance curves of 35AM65VP anhydrate gel with 9 mg curcumin after exposure of different times.

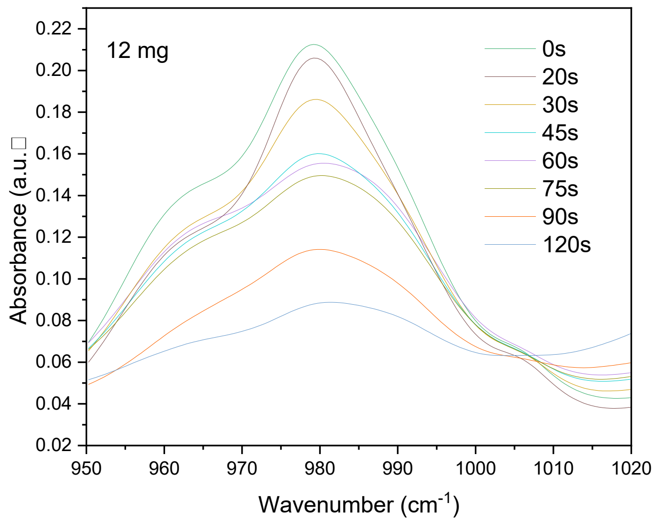

Figure S3. FTIR absorbance curves of 35AM65VP anhydrate gel with 12 mg curcumin after exposure of different times.

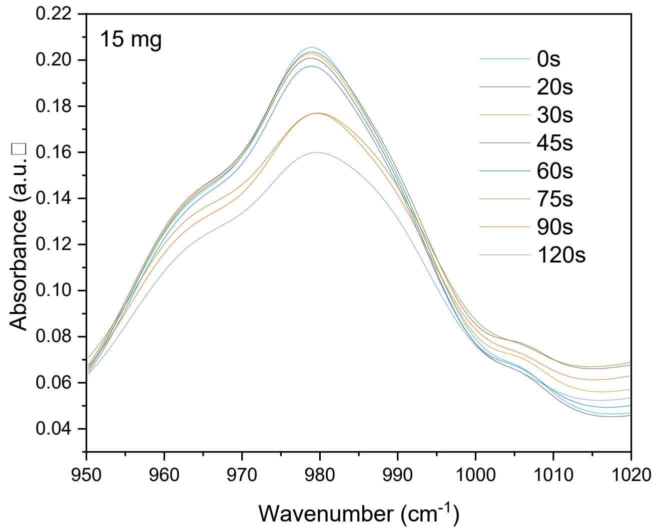

Figure S4. FTIR absorbance curves of 35AM65VP anhydrate gel with 15 mg curcumin after exposure of different times.

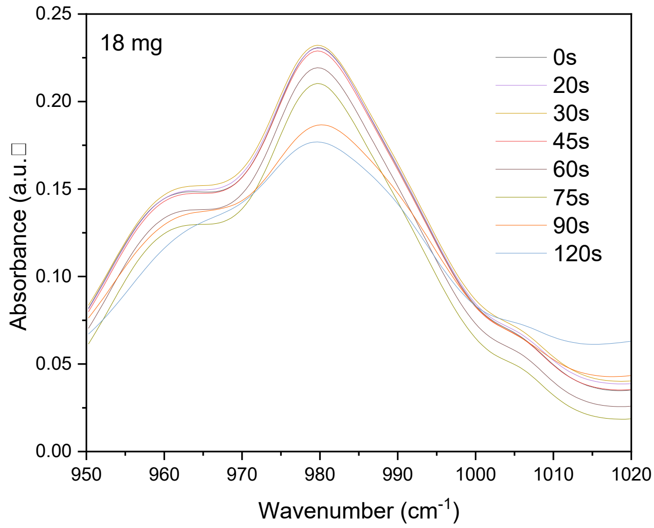

Figure S5. FTIR absorbance curves of 35AM65VP anhydrate gel with 18 mg curcumin after exposure of different times.

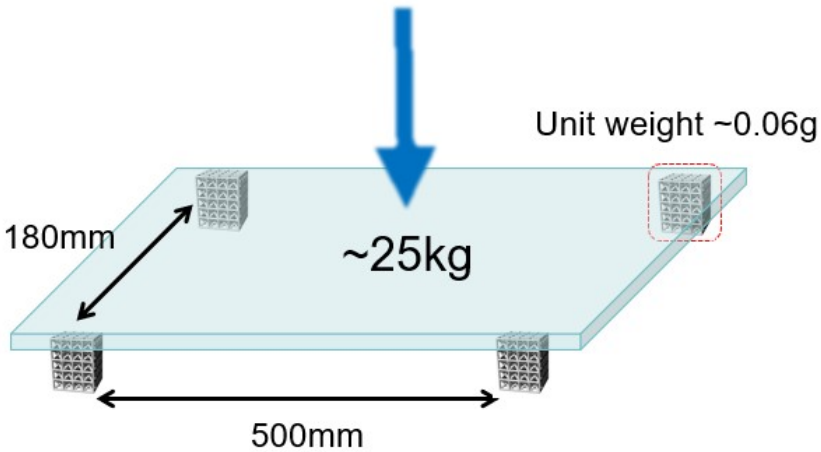

Figure S6. Schematic illustration of a 25 kg weight object loading of four cubic 35AM65VP anhydrated gels.

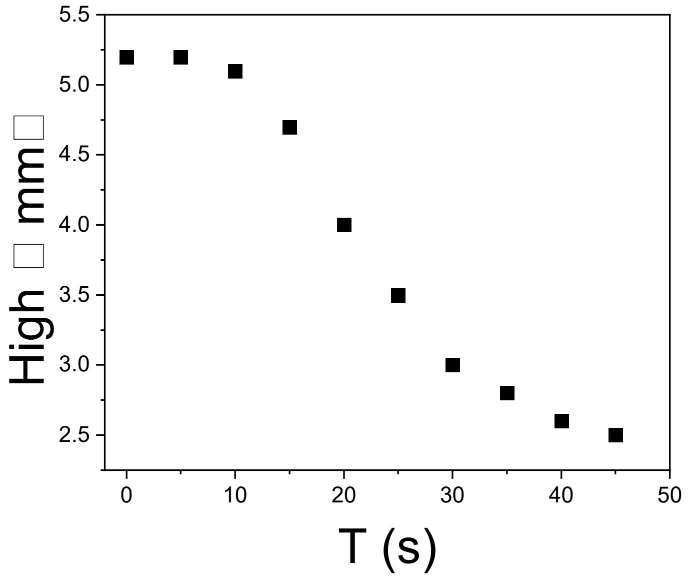

Figure S7. The height varying data after hydration of 35AM65VP anhydrated gel for a period of times.

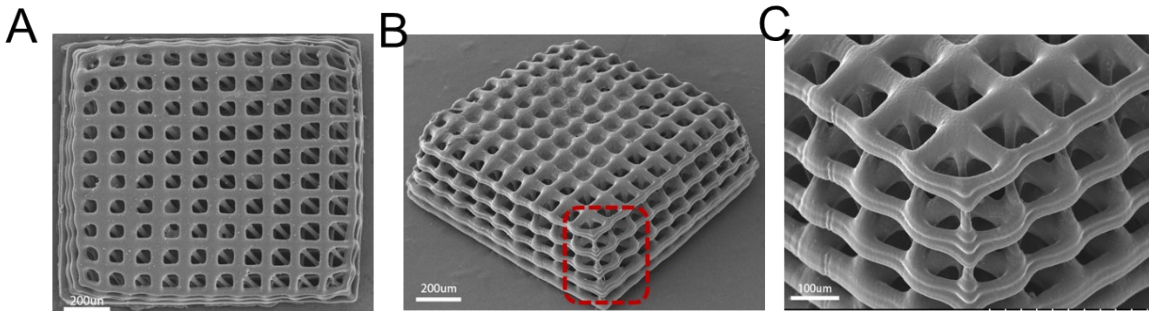

Figure S8. SEM photos of cell co-culturing printing model at different views. (A) front view, (B) side view, and (C) detailed photo of (B).

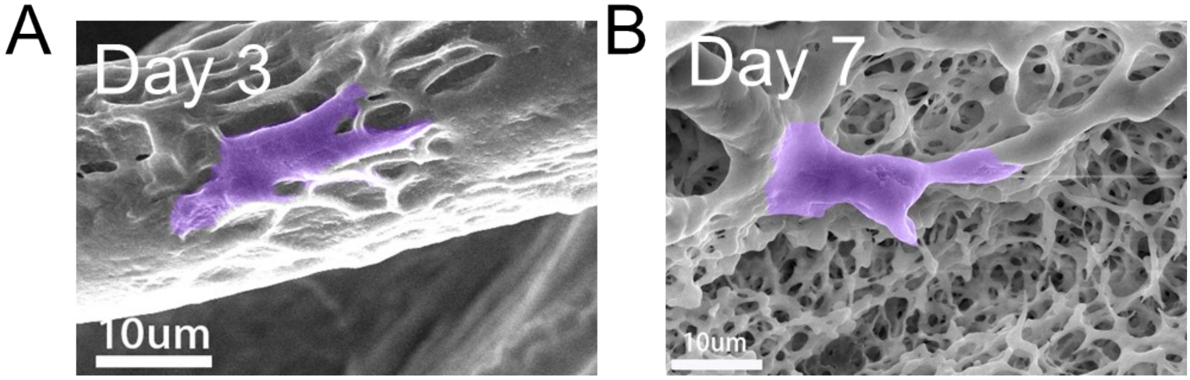

Figure S9. SEM photos of 35AM65VP hydrogel after incubation with HEUVECs for 3 day and 7 days.

Table S1. The mechanical parameter of anhydrous gels.

	σ_b**(MPa)**	λ**(%)**	**E(MPa)**
10AM90VP	9.6±1	10.5±0.55	80.2±7.5
20AM80VP	17.5±2.5	9.5±0.45	217.1±15
30AM70VP	45.4±3.7	8.0±0.4	592.8±45
35AM65VP	70.0±5.2	7.7±0.4	1043.3±47.5
70AA30VP	16.1±1.9	6.3±0.3	267.3±17.4
50AA50VP	35.2±4.4	8.3±0.375	473±30
30AA70VP	43.7±4.9	6.8±0..325	674.7±45

Table S2. The mechanical parameter of hydrogels.

	σ_b(MPa)	λ(%)	E(MPa)
10AM90VP	0.01±0.004	-	0.05±0.01
20AM80VP	0.03±0.005	-	0.16±0.04
30AM70VP	0.1±0.01	-	0.13±0.04
35AM65VP	0.1±0.01	-	0.25±0.05
70AA30VP	0.33±0.04	-	1.03±0.1
50AA50VP	0.34±0.04	-	1.33±0.5
30AA70VP	0.39±0.04	43±2	2.4±0.2

PS: "-" represents that data were not measured.

Table S3. Statistics of preparation technique, material, elastic modulus (E), tensile/compressive strength and specific resolution of recent published articles.

REF	Preparation technique	Material	E kpa	Tensile/compressive strength kpa	Specific resolution μm
This work	**Digital light process 3D printing**	**35AM75VP anhydrate gel**	**1043000**	**70000**	**1.5**
This work	**Digital light process 3D printing**	**35AM75VP hydrogel**	**250**	**100**	**1.5**
1	extrusion printing	Laponite and alginate	~8000	~8000	~700
2	stereolithographic printing	poly(ethylene glycol) dimethacrylate (PEGDMA)	500	150	1000
3	extrusion printing	MXene and PEDOT:PSS	25	120	500
4	3D and 4-axis bioprinting	Gelatin, alginate, and tannic acid	10	8	400
5	extrusion printing	albumen/alginate/gelatin	-	200	1000

6	Embedded 3D Bioprinting	Gelatin Methacryloyl	25	40	150
7	extrusion printing	alginate (ALG), methylcellulose (MC), and polyacrylic acid (PAA), Fe3O4	17	300	1000
8	extrusion printing	multidomain peptides	4	4	250
9	extrusion printing	Sodium alginate and methylcellulose	5	5	1000
10	inkjet printing with a spray-coating technique	Saponified GelMA and sodium alginate	25	25	100
11	extrusion printing	Sodium alginate, Agar, acrylamide (AAm)	40	250	820
12	embed a long-fiber for extrusion printing	Alginate, Collagen Ink, and Gelatin Support Bath	400	50	400
13	extrusion printing	cellulose nanocrystal, methoxy pectin	-	100	520
14	two-photon polymerization	commercially available 2PP ink	-	-	7
15	extrusion printing	gelatine methacrylate/Laponit e	160	80	500
16	extrusion printing	alginate, two-dimensional layered double hydroxide	-	1.7	300
17	lithographic biofabrication	PEG-SH, GelMA,	60	-	50
18	extrusion printing	xanthan gum/cellulose nanocrystal	130	6	200
19	extrusion printing	Polyelectrolyte	-	1610	500
20	extrusion printing	polysaccharide (alginate)–tannic acid (TA)–protein	-	100	500
21	extrusion printing	PVA, TA	-	1200	800
22	Digital light process 3D printing	Poly(acrylamide) PEGDA, TPO	100	25	7

PS: "-" represents that data were not given.

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