

Table S1: Solidworks dimensions of meta-biomaterials.

Design Type	Internal angle Φ (°)		a (mm)		b (mm)		H x W x D (mm)
	A	C	A	C	A	C	
Auxetic Type 1	75		2.5		2.59		24.82 x 25.7 x 25.7
Auxetic Type 2	85		2.5		2.51		25.65 x 25.7 x 25.7
Auxetic Type 3	65		3.5		2.76		27.21 x 25.7 x 25.7
Conventional Type 1	105		2.5		2.59		23.21 x 25.7 x 25.7
Conventional Type 2	115		2.5		2.76		27.20 x 25.7 x 15.7
Conventional Type 3	95		3.5		2.51		25.03 x 25.7 x 25.7
Strut thickness	350 μm						

Table S2 : Solidworks dimensions of hybrid meta-biomaterials with A = auxetic and C = conventional geometry.

Design Type	Internal angle Φ (°)		a (mm)		b (mm)		H x W x D (mm)
	A	C	A	C	A	C	
Hybrid Type 1	75	114.90	1.25	1.25	1.30	1.38	25.7 x 26.43 x 25.7
Hybrid Type 2	85	129.52	1.25	1.25	1.26	1.62	25.7 x 26.43 x 25.7
Hybrid Type 3	65	115.05	1.75	1.75	1.38	1.38	25.7 x 26.43 x 25.7
Hybrid Type 4	105	114.90	1.25	1.25	1.30	1.38	25.7 x 25.18 x 25.7
Hybrid Type 5	115	129.52	1.25	1.25	1.26	1.62	25.7 x 25.18 x 25.7
Hybrid Type 6	95	115.05	1.75	1.75	1.38	1.38	25.7 x 25.18 x 25.7
Strut thickness	350 μm						