

Table ESI1 Volume of each component (collagen, ELR-GTAR, ELR-RGD, neutralizing buffer and cell suspension) for preparing 1mL of the final cellularized solution at each condition. Initial concentration of collagen, ELR-GTAR and ELR-RGD solutions was 4 g/L.

Proportion:	2:			1:		1	Final concentration		
	ELR:Col (%w/w)	Col (μL)	ELR-GTAR (μL)	ELR-RGD (μL)	Neutralizing solution* (μL)	PBS& (μL)	Cell suspension#	Col (g/L)	ELR (g/L)
0		500	0.0	0.0	250.0	0.0	250.0	2.00	0.00
3		485	7.5	7.5	242.5	7.5	250.0	1.94	0.06
30		350	75.0	75.0	175.0	75.0	250.0	1.40	0.60
60		200	150.0	150.0	100.0	150.0	250.0	0.80	1.20

Notes:

*Neutralizing solution: 3.5 \times DMEM supplemented with 10 mM HEPES and 60 mM NaOH.

& PBS was added to complete the proportion of 2:1:1 since the ELR solutions did not need to be neutralized

#Cell suspension: 2 \times 10⁶ HDFn /mL in DMEM supplemented with 10 % of FBS and 1% of Pen-Strep.

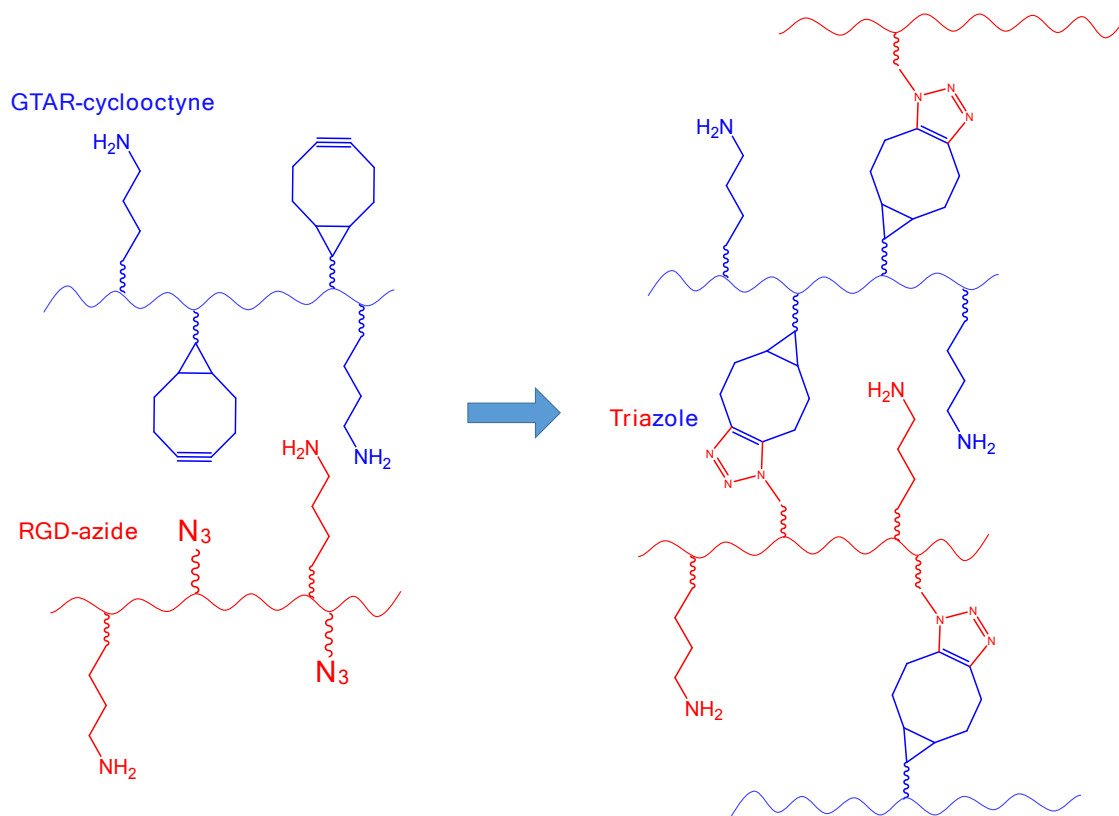


Fig. ESI1 Triazole groups formed during SPAAC crosslinking reaction between the GTAR-cyclooctyne and RGD-azide click modified ELRs.

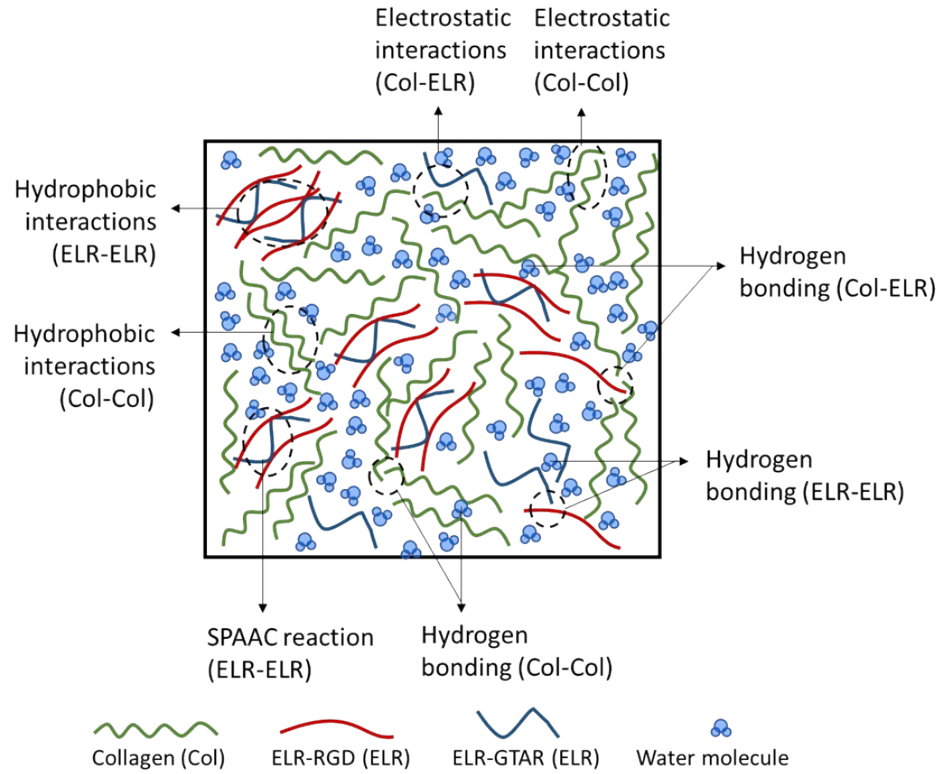
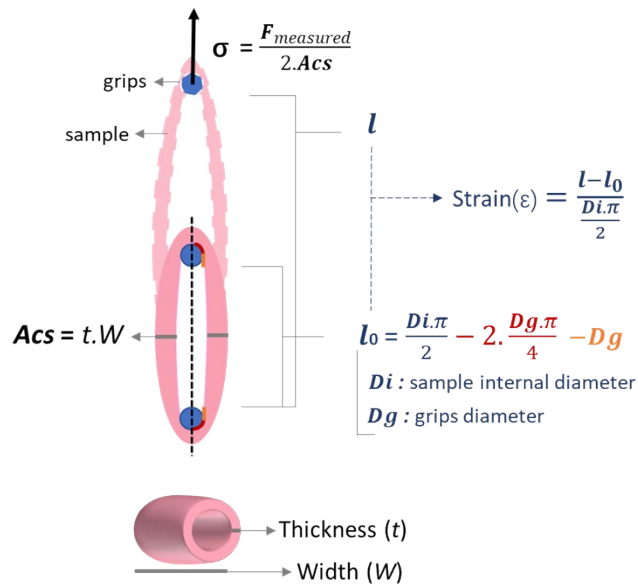


Fig. ES12 Expected interchain and intrachain interactions between collagen and ELRs in the constructs. Hydrogen bonding can be direct or water-mediated bonding among the



chains.

Fig. ES13 Tensile stress relaxation testing: parameters for the calculation of stress and strain using the values of load and displacement of the grips. l_0 was the initial distance

between the grips related to the position of zero force (sample was open but not yet stretched).

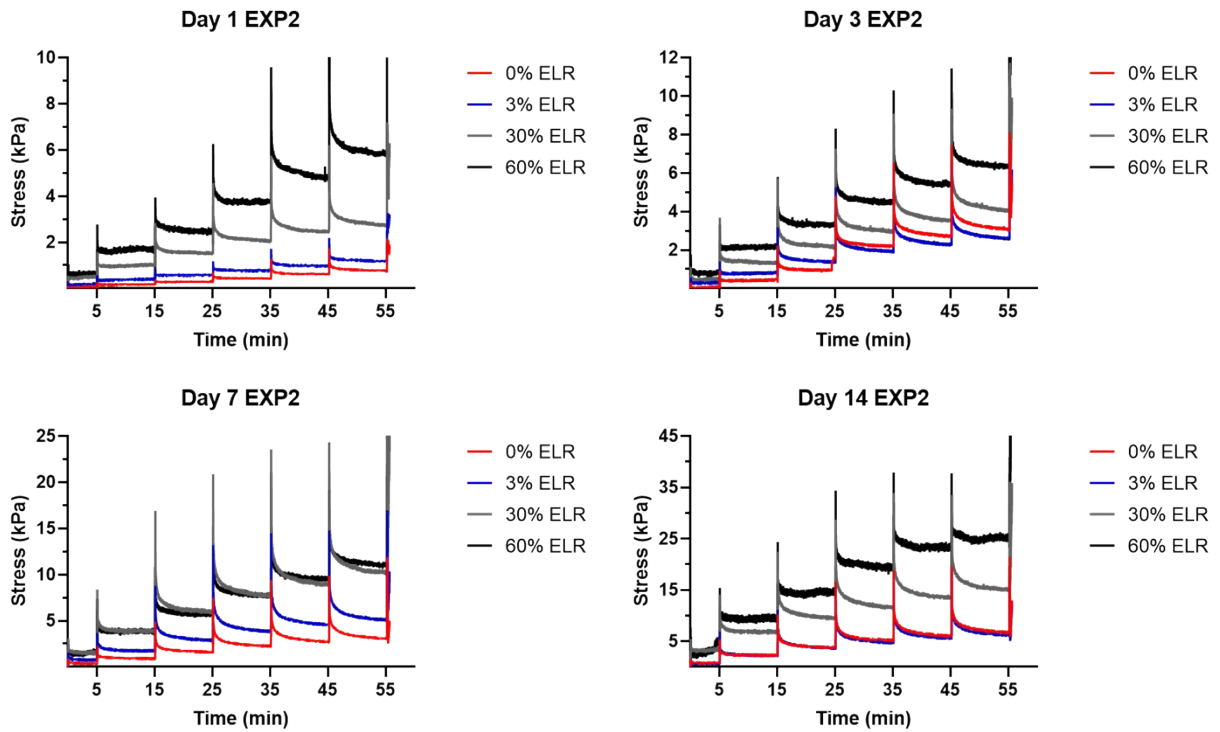


Fig. ES14 Examples of stress relaxation curves for all conditions after 1, 3, 7 and 14 days of maturation. One sample per time point was evaluated in each one of the 4 experiments.