**Supplementary Information**

SI-1: SANS data from 10% w/w gelatin in the sol and gel state. The scattering patterns of gelatin gels are shown at 12˚C (black), 18˚C (grey) and 21˚C (light grey). Gelatin in solution was measured at 37˚C (dotted black line) and 50˚C (dotted grey line).



**SI-2: Repeats A: Chemical gel with 10 U mTGase/ g gelatin at 120 min measured on D11 (ILL, France) (black) and KWS-2 (FRMII, Germany) (grey). B: Chemical gel with 30 U mTGase/g gelatin at 120 min measured on KWS-1 (FRMII, Germany) (black) and D11 (ILL, France) (grey), C: 10% w/w physical gel at 21˚C measured on D11 (ILL, France) (black) and KWS-2 (FRMII, Germany) (grey), D: PC gel with 30 U mTGase/g gelatin measured on D11 (ILL, France) (black) and KWS-1 (FRMII, Germany) (grey) .**



**SI-3: LIVE/DEAD staining of RBMS cells growing on the chemical (A-D) and physical-co-chemical (E-H) gels with four different cross-linker concentrations (10 (A/E), 20 (B/F), 30 (C/G) – 40 U mTGase/g gelatin (D/H)) stained on day 14 after seeding. The living cells are stained in green (calein AM) and the cell nucleus of dead cells is marked in red (EthD-1). A, E: 10 U mTGase/g gelatin. B, F: 20 U mTGase/g gelatin. C, G: 30 U mTGase/g gelatin. D, H: 40 U mTGase/g gelatin.**

**Protocol.** Cell viability on hydrogels was assessed using the LIVE/DEAD (R) Cell  
Viability assay (Invitrogen) after 14 days in culture.  Hydrogels were  
rinsed twice with PBS and incubated with 4 μM Calcein AM and 4 μM  
ethidium homodimer-1 in PBS, which stain live and dead cells green and  
red, respectively.  Hydrogels were imaged using an Olympus IX51  
epifluorescence microscope (Essex, UK) equipped with an Olympus DP70  
camera.