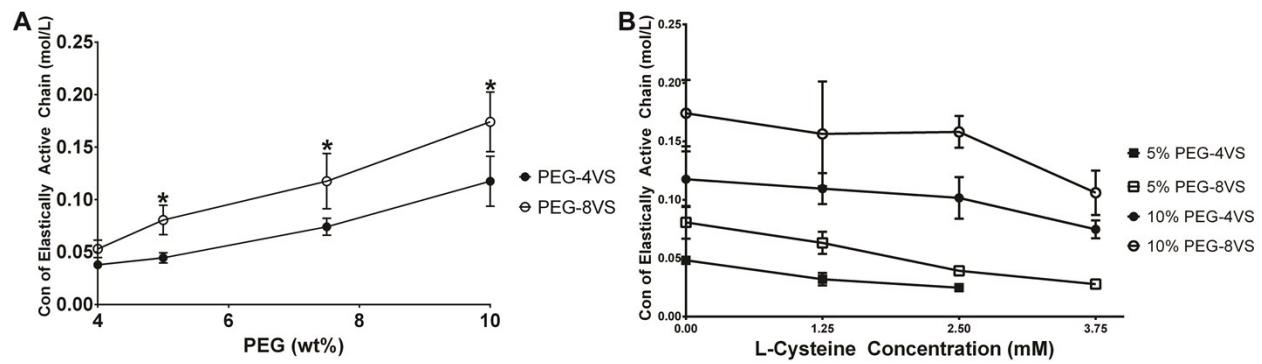


## Supporting Information

**Supplementary figure 1: Concentration of elastically active chains.** **(A)** Concentrations of elastically active chains of 8-arm PEG were greater than those of 4-arm PEG at all biologically relevant PEG solids concentration, indicating a higher PEG functionality would favor intermolecular reactions between elastically active binding sites. **(B)** Concentrations of elastically active chains of 8-arm PEG were available up to 3.75mM L-Cysteine modification when they were only available up to 3mM L-Cysteine modification in 4-arm PEG hydrogels, confirming experimental data on how PEG with higher number of functional binding sites allowed greater degree of biological modification.

## Supplementary figure 1



**Supplementary figure 2: LIVE/DEAD assay on 5% 4-arm PEG-VS on Day 12.** Human bone marrow stromal cells (HS-5) viability was confirmed by LIVE/DEAD assay. High Calcien AM (Green) staining confirmed the cell viability was not significantly affected by the RGD concentration. Scale bar: 200 $\mu$ m.

Supplementary figure 2

