

Figure S1. Representative curves of temporal change of storage modulus (black circle) and loss modulus (red triangle) of the bulky PMBV/PVA hydrogels with varied initial PVA composition. PMBV/PVA (wt%/wt%) = 5.0/1.0 (a), 5.0/2.5 (b), and 5.0/5.0 (c). The gelation time is defined as the time required for the curves of storage modulus and loss modulus to cross each other. The gelation time of the hydrogel composed of 1.0wt% initial PVA concentration is ~7 s. The gelation times of the hydrogels composed of 2.5 or 5.0 wt% initial PVA concentration are below the detection limit. The measurements were performed by using dynamic rheometer set with 2.0% strain, 1.0 Hz frequency, 25 °C temperature, and a distance of 0.7 mm between the stage and measuring head.

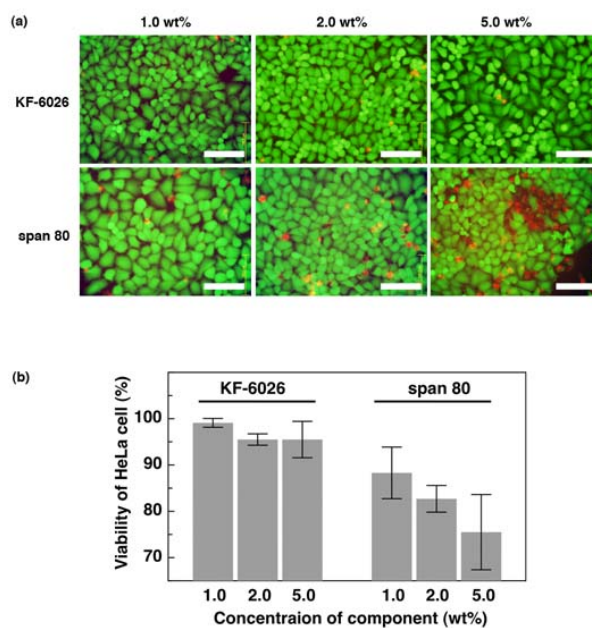


Figure S2. Comparison of the viability of HeLa cells after 24 h incubation with different types of the oil soluble surfactants, KF-6026 or span 80. Representative microscopic images of the cell stained with a Live/Dead viability assay kit (a). The averaged cell viability quantified by the microscopic assay (b). Six randomly selected different microscopic images were used for the quantification.

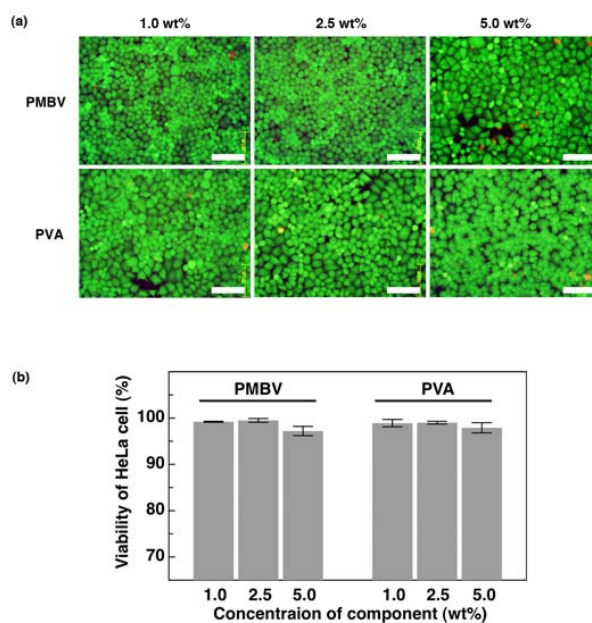


Figure S3. Viability of HeLa cells after 24 h culture in pre-polymer solutions containing PMBV or PVA. Representative microscopic images of the cell stained with a Live/Dead viability assay kit (a). The average cell viability quantified by the microscopic assay (b). Six randomly selected microscopic images were used for the quantification.

Table S1. PDB IDs of protein presented in this study

Proteins	PDB ID ^{*1}
BTX	1IDI
BSA	3V03
IgG	1IGT

^{*1} The three dimensional structures of protein are found when inputting the PDB ID in web site of RCSB Protein Data Bank (URL: <http://www.rcsb.org/pdb/home/home.do>)
