Supporting Information

A 3D Printable and Mechanically Robust Hydrogel Based on Alginate and Graphene Oxide

Sijun Liu, Anil Kumar Bastola, Lin Li*

School of Mechanical and Aerospace Engineering, Nanyang Technological University,

50 Nanyang Avenue, Singapore 639798, Singapore

Email: mlli@ntu.edu.sg

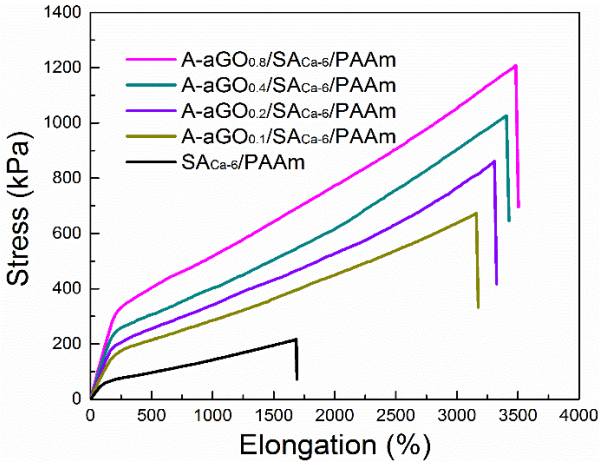

Figure S1. Effects of various A-aGO contents on the stress-elongation curves of the A-aGO/$SA_{Ca\text{-}6}$/PAAm nanocomposite hydrogels.

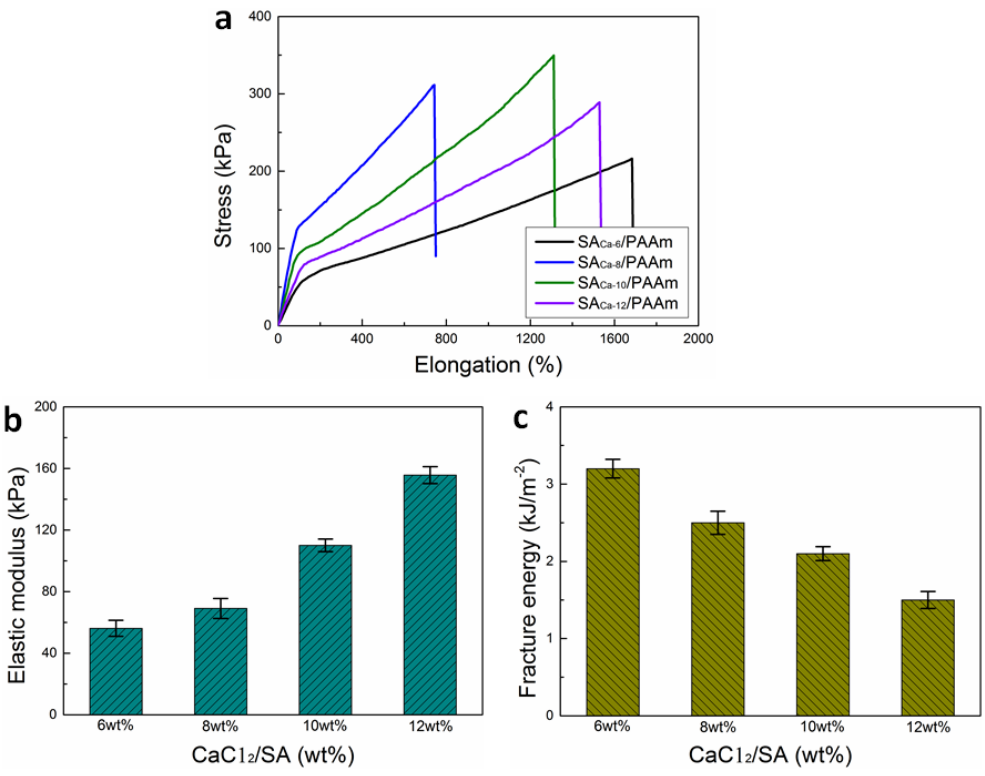

Figure S2. (a) Effects of various $CaCl_2$ contents on the stress-elongation curves of the SA/PAAm DN hydrogels. Dependences of (b) elastic modulus and (c) fracture energy on $CaCl_2$ contents.

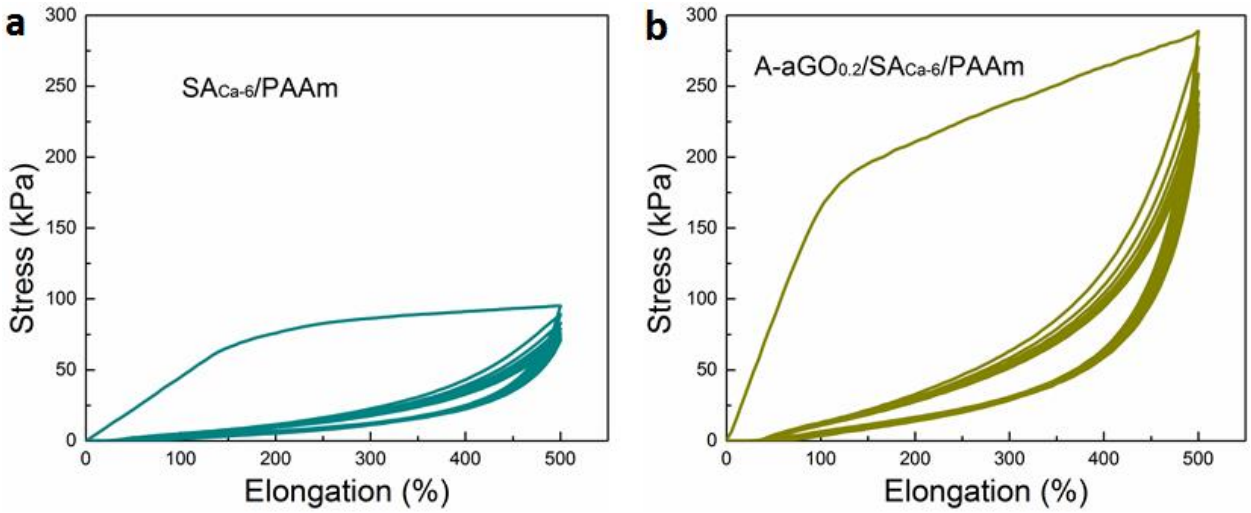

Figure S3. Eight successive loading–unloading cycles for (a) the $SA_{Ca\text{-}6}$/PAAm DN hydrogel and (b) the A-$aGO_{0.2}$/$SA_{Ca\text{-}6}$/PAAm nanocomposite hydrogel.

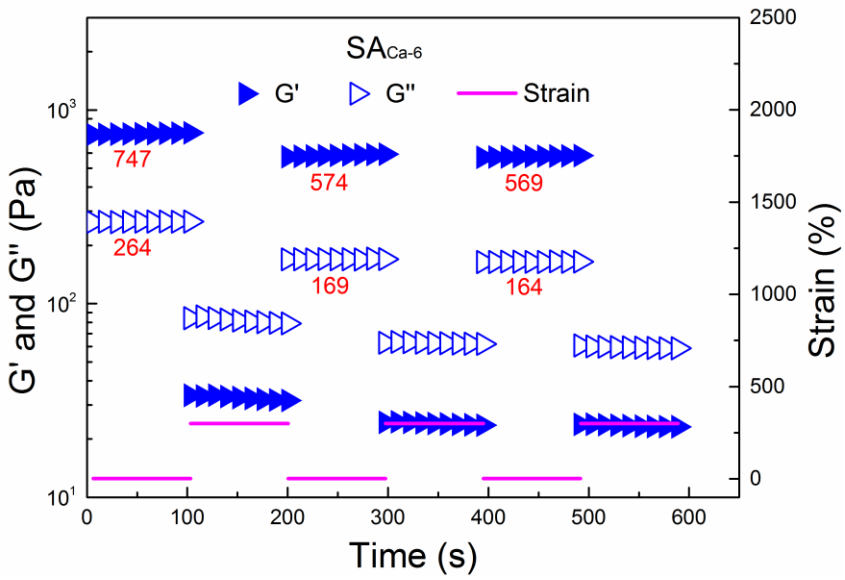

Figure S4. Changes of G' and G" with time in alternant oscillation strains of 2 and 300 % for the $SA_{Ca\text{-}6}$ hydrogel in an angular frequency of 1 Hz, where the red numbers represent the average modulus at the oscillation strain of 2 %.

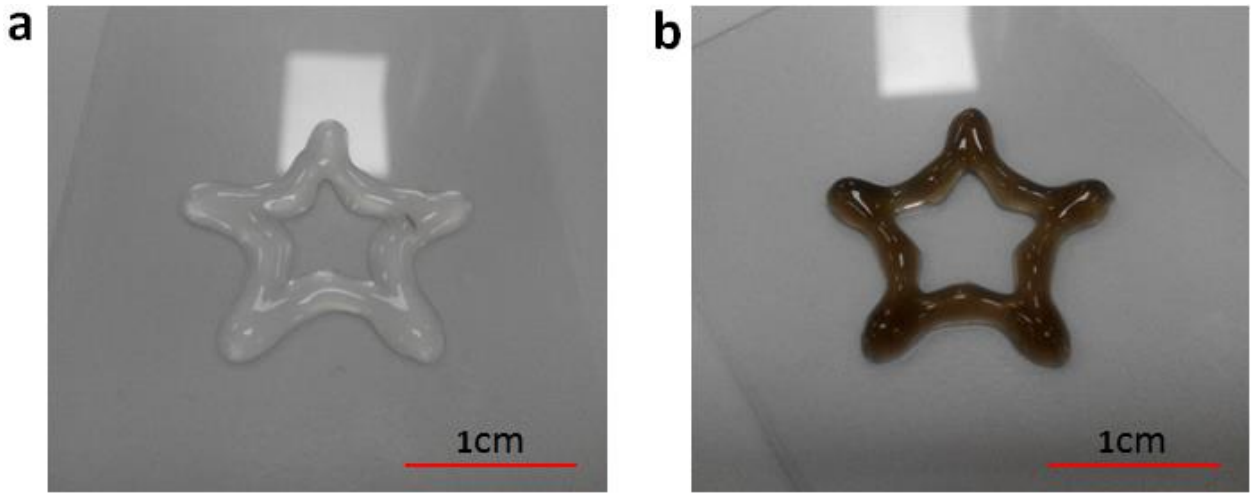

Figure S5. 3D printed hollow pentagon patterns when (a) the $SA_{Ca\text{-}6}$/AAm hydrogel and (b) the $GO_{0.2}/SA_{Ca\text{-}6}$/AAm hydrogel respectively were used as the ink of 3D printer.

Supplementary Video:

Video S1. Compression of 3D printed nanocomposite pyramid sample after UV-curing