

Supporting Information: A Gelated Colloidal Crystal Attached Lens for Noninvasive Continuous Monitoring of Tear Glucose

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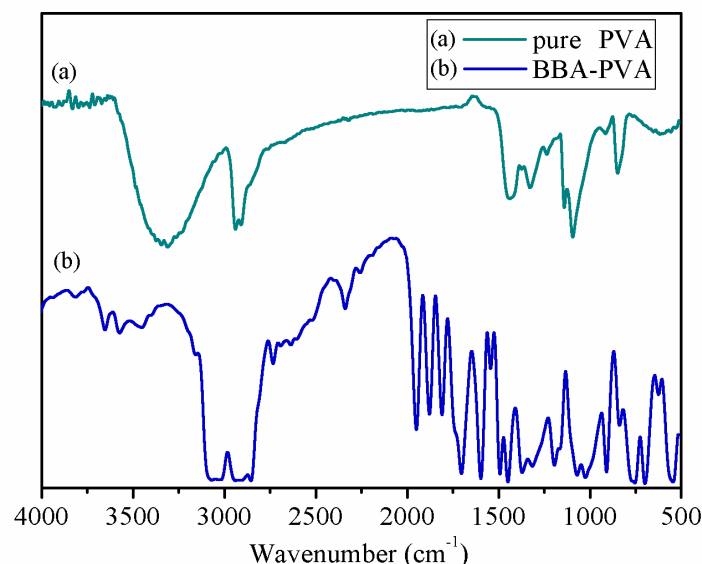


Figure S1. Fourier transform infrared spectroscopy (FTIR) spectra of (a) PVA hydrogel and (b) 4-BBA-PVA hydrogel.

The surface chemistry of the freshly synthesized hydrogel samples was analyzed by using an FTIR spectrometer (Bruker Vertez-70). Each spectrum was measured in a range between 500 and 4000 cm⁻¹. The result showed peaks at 1450 cm⁻¹, 2950 cm⁻¹ and 3300 cm⁻¹ correspond to the C-H bending (alkane, -CH₃, -CH₂) and the C-H stretching vibration from pure PVA, respectively. After the modification of 4-BBA, the absorption peak at ~2900 cm⁻¹ was broadened, which belongs to the stretching vibration of -OH group. A =CH stretching vibration appeared around 3100 cm⁻¹ demonstrated benzene ring was contained and a C=O stretching vibration appeared about 1700 cm⁻¹ showed the modified material structure contained carbonyl. Vibration peaks of benzene derivatives at 2000 cm⁻¹ certified that, after the modification, the benzene derivatives—phenylboronic acid in our case,—were grafted onto the PVA chain.