

## Electronic Supplementary Information

# Photonic crystal pH and metal cation sensors based on poly(vinyl alcohol) hydrogel

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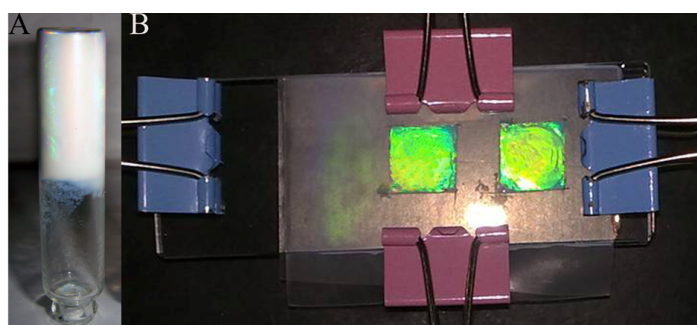
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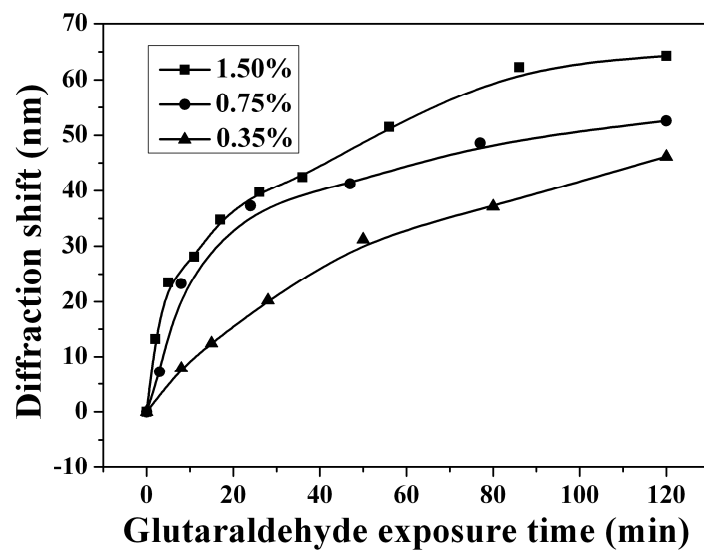
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**Table S1** Impact of cross-linking time of PVA/PAA GCCA with 0.35% glutaraldehyde solution on the pH response performance.

Cross-linking time (min)	The stopband at pH 2.8 (nm)	The stopband at pH 9.5 (nm)	Magnitude of the stopband change (nm)
12	611	850	239
30	625	791	166
60	661	727	66



**Fig. S1** Optical photos of GCCA samples fabricated in (A) a culture flask and (B) a home-made cast.



**Fig. S2** The diffraction dependence on reaction time for cross-link formation in 1.5%, 0.75%, and 0.35% glutaraldehyde solution, respectively.