Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

Label-free colorimetric detection of tetracycline using analyte-responsive inverse-opal hydrogels based on molecular imprinting technology

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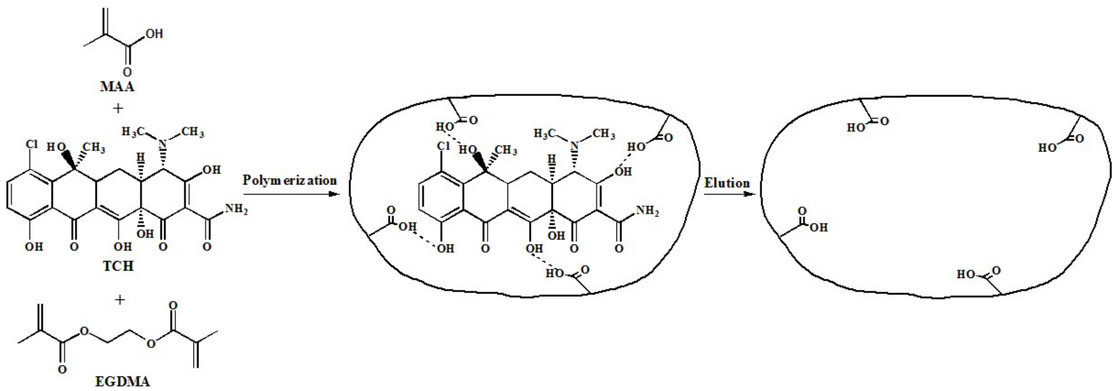

Fig. S1. Schematic illustration for the preparation of TCH-responsive IOH.

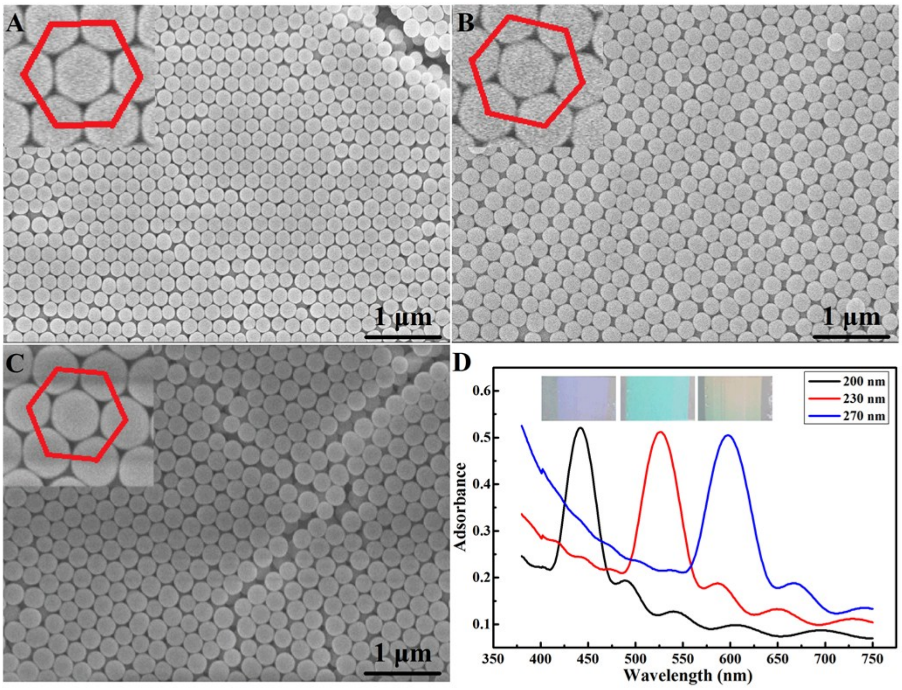

Fig. S2. SEM images of periodic silica-air arrays formed using silica microspheres of different sizes: (A) 200 nm prepared with 4 mL ammonia, (B) 230 nm prepared with 7 mL ammonia, (C) 270 nm prepared with 10 mL ammonia, and (D) UV-vis absorption spectra and photographs of silica-air arrays corresponding to different sizes.

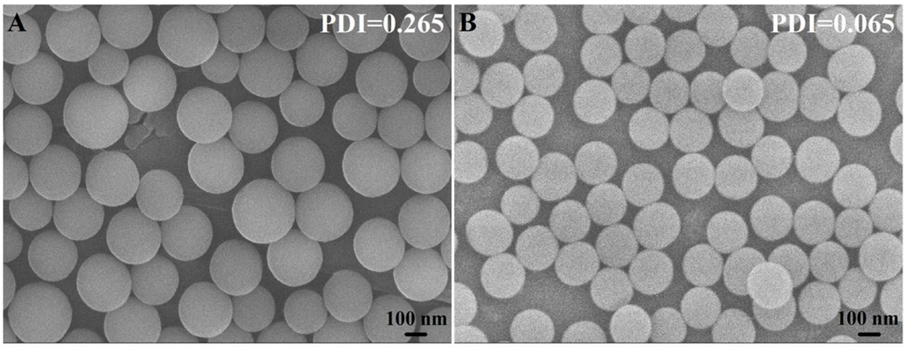

Fig. S3. SEM images of silica microspheres prepared (A) before and (B) after optimization.

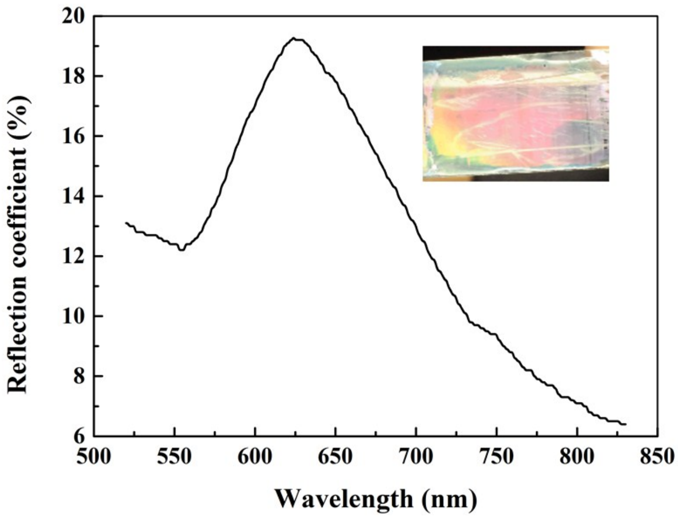

Fig. S4. UV-vis diffuse reflection spectrum of fabricated TC-responsive IOH; the inset shows a photograph of the TC-responsive IOH.

Table S1 Comparisons of fabricated TC-responsive IOH analytical performance with other reported typical imprinted analyte-responsive IOHs.

Target analyte	Linear range	Diffraction peak shift or wavelength change (Δλ)	Responsive time	Reference
Cholesterol	$2.59\times10^{-13} - 2.59\times10^{-7}$ M	425 nm – 400 nm, Δλ = 25 nm	2 min	25
Bile acid	$10^{-12} - 10^{-6}$ M	425 nm – 395 nm, Δλ = 30 nm	2 min	33
Imidacloprid	$10^{-13} - 10^{-7}$ M	551 nm – 589 nm, Δλ = 38 nm	–	34
Bisphenol A	$10^{-13} - 10^{-3}$ M	Δλ = 15 nm	–	35
Cinchonine	$0 - 10^{-3}$ M	527 nm – 503 nm, Δλ = 24 nm	5 min	36
Ketamine	0 – 1 μg mL^{-1}	543.5nm – 622.5 nm, Δλ = 79 nm	2 min	37
Atrazine	$10^{-16} - 10^{-6}$ M	558 nm – 618 nm, Δλ = 60 nm	2 min	18
L-Tryptophan	$10^{-10} - 10^{-5}$ M	Δλ = 126 nm	–	26
Tetracycline	$1 \times 10^{-10} - 1 \times 10^{-6}$ M	438 nm – 395 nm, Δλ = 43 nm	3 min	This work

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