

Supporting Information for

Label-free colorimetric detection of trace cholesterol based on molecularly imprinted photonic hydrogels

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1. Preparation of silica colloidal crystal templates

Silica colloidal crystal templates were prepared according to the Stöber method¹. Briefly, 4.5 mL TEOS and 90 mL anhydrous ethanol were mixed in a 250 mL three-neck flask, under intensive stirring with a magnetic beater, and then 5 mL ammonia and 15 mL deionized water were slowly added together and kept reaction for 12 h, producing seed solution. The seed solution of 25 mL were mixed with 70 mL anhydrous ethanol, 5 mL ammonia and 15 mL deionized water in a 250 ml three-neck flask, and then the TEOS solution was slowly added with a constant pressure funnel, and then the monodisperse silica particles were obtained by centrifugation and rinsing using anhydrous ethanol for 3 times to wash off residues. Afterwards, the obtained monodisperse silica particles were fully dispersed in anhydrous ethanol by ultrasonic bath with a weight concentration of about 1%, then loaded into 10 mL vials. A clean glass slide was put into each vial vertically for silica colloidal crystal growth. After evaporation of ethanol, silica colloidal crystal templates were formed on both sides of each glass slide.

2. Supplementary Data

Table S1. Property comparisons of MIPH film using different porogens.

Porogen	Solubility	Integrity	Corrosivity
Chloroform	+++ ^{a)}	++ ^{b)}	+ ^{c)}
Acetonitrile	+	++	+
Toluene	+++	+	+++

a) Strong.

b) Common.

c) Weak.

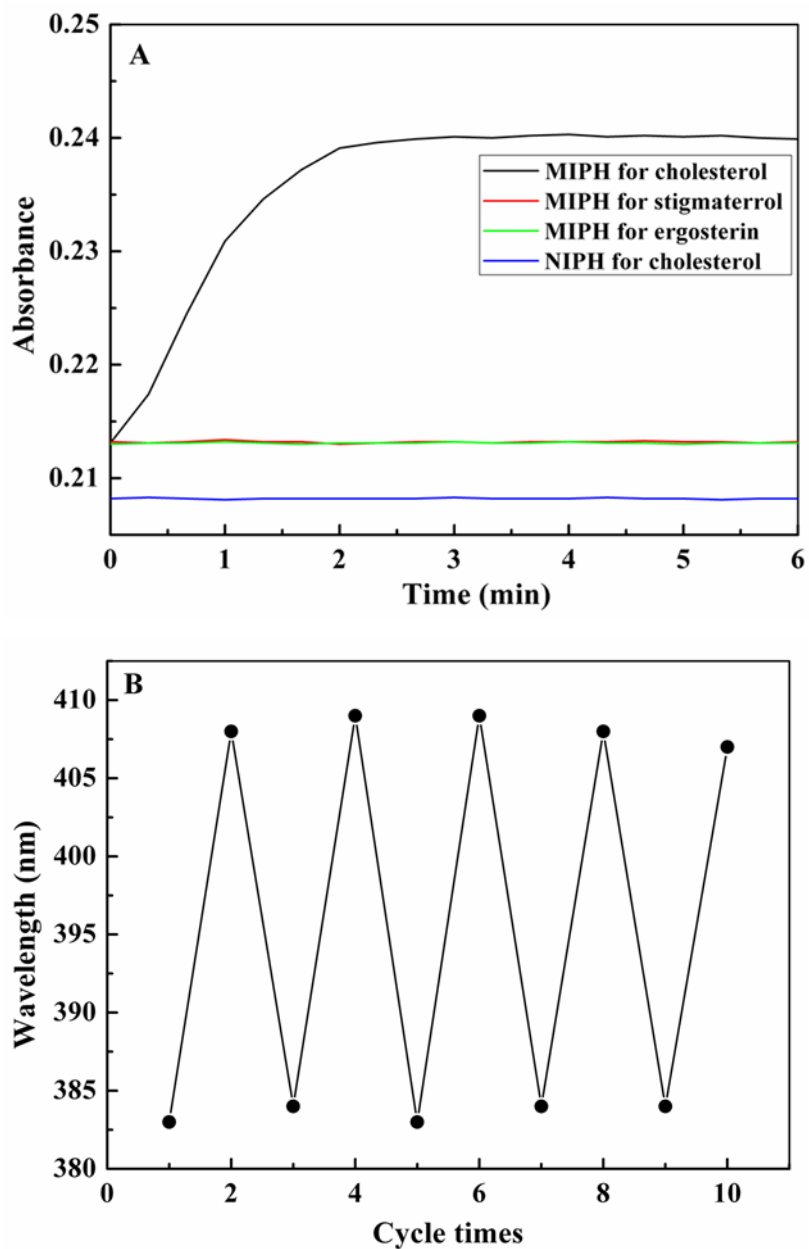


Fig. S1. (A) Binding kinetics of MIPH for cholesterol, stigmasterol and ergosterol, and of NIPH for cholesterol. (B) Recoverability of MIPH dipped in a PBS containing cholesterol and recovered in a PBS with cholesterol after elution.

References

1 W. Stöber, A. Fink and E. Bohn, *J. Colloid Interface Sci.*, 1968, **26**, 62–69.