**Supplementary Material**

**Transmission surface plasmon resonance image detection**

**by a smartphone camera**

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**Figure S1.** AFM image of total thickness of gold-coated CYTOP grating film. The average total thickness of the substrate is around 450 nm.

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**Figure S2.** (A) TSPR spectra of gold-coated polycarbonate grating substrate (inset shows schematic of a substrate) and (B) the experimental (dot plots) and calculated (solid lines) results of SP dispersion of the TSPR substrate. The blue and green calculated SP dispersion curves are for gold/water and gold/polycarbonate interfaces, respectively. TSPR peaks for
−SP+2 (gray dot plots) and +SP−1 (green dot plots) modes were observed in the near-infrared and visible light regions, respectively. The TSPR peaks of the −SP+2 mode originated from the gold/water interface, while the TSPR peak of the +SP−1 mode originated from the gold/polycarbonate interface. All TSPR spectra were recorded in an aqueous environment.