Supplementary document
Polymeric Grating Prism-based Dual-mode Miniature Surface Plasmon Resonance Sensor Chip

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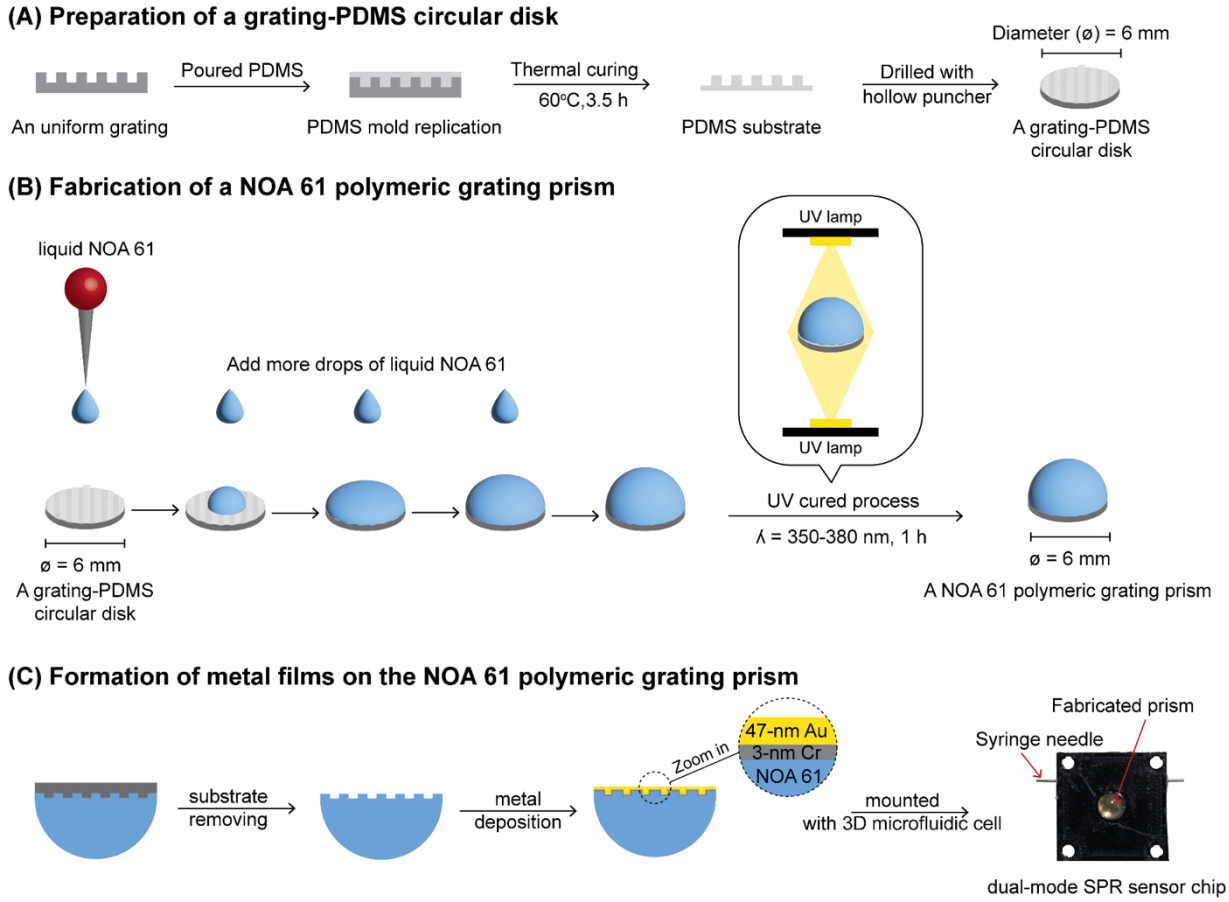

Fig. S1 Schematic representation outlining the fabrication process for the dual-mode SPR sensor chip, comprising three key steps: (A) preparation of a grating–PDMS circular disk, (B) fabrication of a NOA 61 polymeric grating prism, and (C) completion of the sensor chip by depositing a Cr/Au film on the NOA 61 polymeric grating prism.

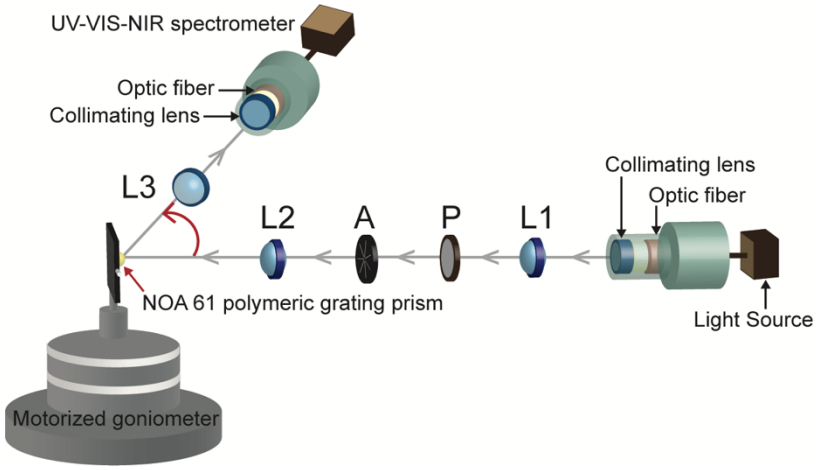

Fig. S2 Schematic drawing illustrating a custom-built surface plasmon resonance (SPR) characterization setup based on wavelength modulation. The diagram features key components, each denoted by abbreviations for clarity: L for lens, P for linear polarizer, and A for optical aperture.

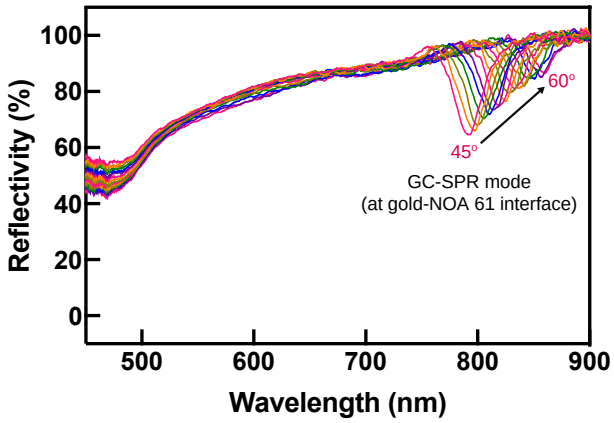

Fig. S3 SPR reflectivity curves of a 100-nm gold-coated NOA 61 polymeric grating prism observed at incident angles ranging from 45° to 60°.

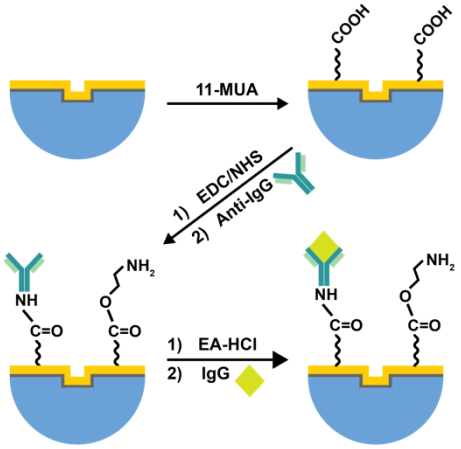

Fig. S4 Schematic diagram depicting the creation of the SPR biosensor for detecting human IgG.

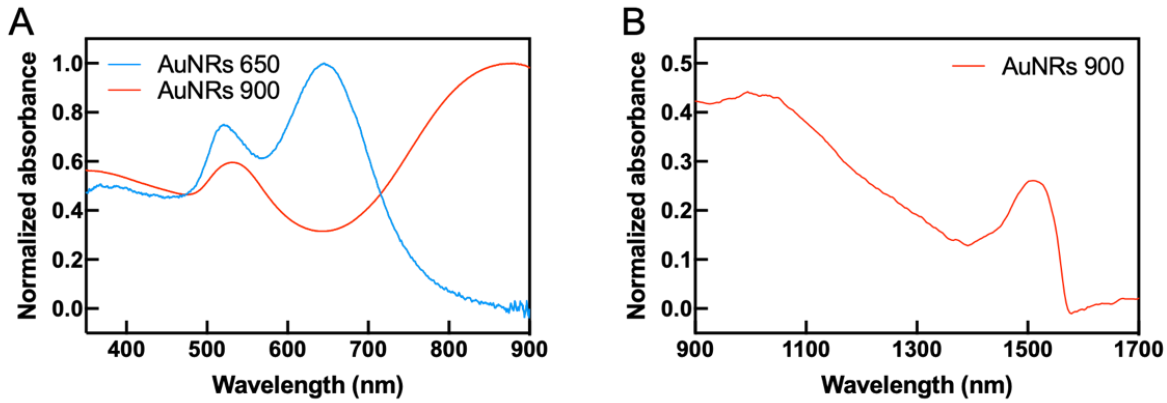

Fig. S5 Normalized absorption spectrum of AuNRs 650 (blue line) and AuNRs 900 (red line) in (A) the UV–vis region spanning 350–900 nm and (B) the NIR region spanning 900–1700 nm.

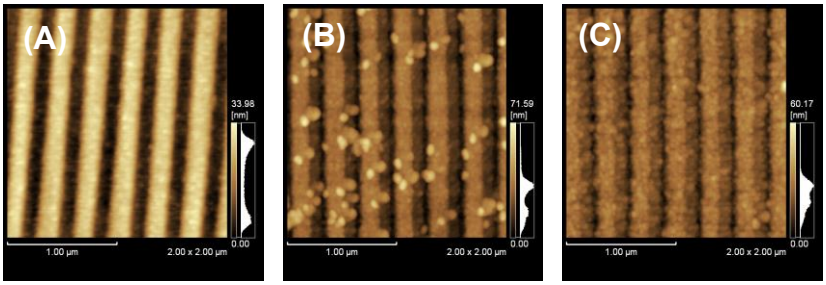

Fig. S6 AFM images, each measuring 2 × 2 μm², of (A) the gold-coated NOA 61 polymeric grating prism, (B) 4 layers of AuNRs 650 on the gold-coated NOA 61 polymeric grating prism, and (C) 4 layers of AuNRs 900 on the gold-coated NOA 61 polymeric grating prism.