

An Antibody-Immobilized Silica Inverse Opal Nanostructure for Label-Free Optical Biosensors

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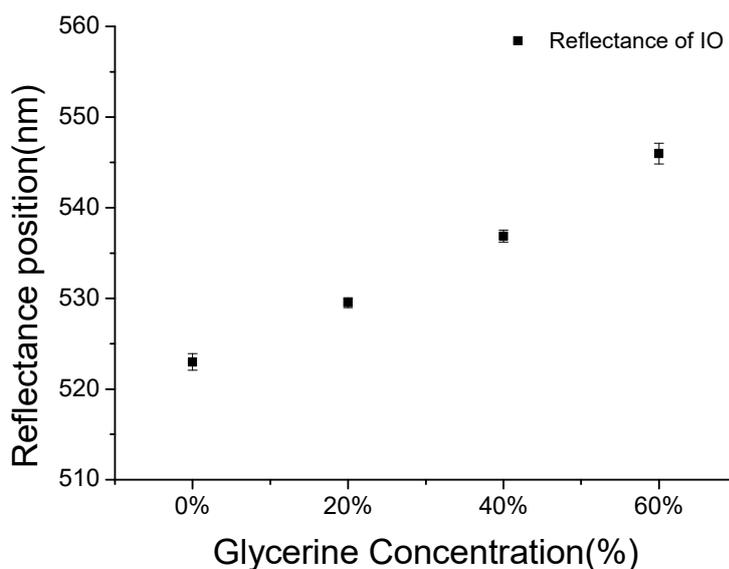


Figure S1. Reflectance peak position of IO nanostructure by glycerin concentration. Refractive index of glycerin is 1.33, 1.36, 1.38, and 1.41 by concentration 0%, 20%, 40% and 60%.

Characterization of Immobilized Antibody on IO Structures

To confirm the immobilization of antibody, we performed the HRP activity test by goat anti-rabbit IgG H&L. Also, we compared SiO₂ thinfilm to IO nanostructure. The HRP tagged antibody was immobilized for 3 h at 4°C on Cys-porG immobilized IO nanostructure. To reduce the non-specific binding, the surface was treated by 1% BSA for 60min. Antibody immobilized IO nanostructure was immersed in the mixture solution of 800 μM of TMB and 50 mM H₂O₂ in 2 mL PBS. After 5 min, 0.1 mL of 2 M of H₂SO₄ solution was added in the mixture solution to stop the reaction. Then, the absorbance at 450 nm was measured by using UV/Visible spectrometer (DU-800, Beckman Co., Brea, CA, USA).

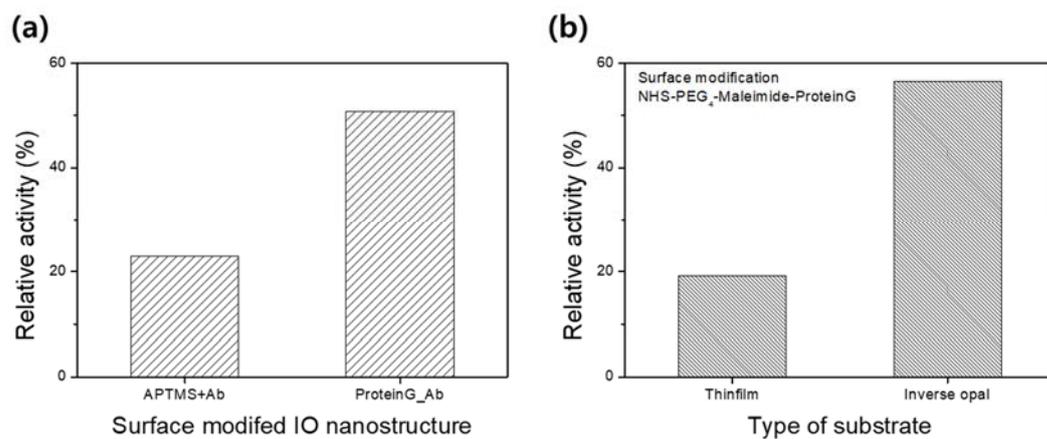


Figure S2. (a) HRP activity of IO nanostructure compared APTMS modified IO with proteinG modified IO. (b) Comparison of one-dimensional thin film and three-dimensional IO nanostructure.