# Supporting Information

# A Localized Surface Plasmon Resonance Imaging Instrument for Multiplexed Biosensing

*Julia A. Ruemmele,* † *W. Paige Hall,* † *Laura K. Ruvuna, and Richard P. Van Duyne**

Department of Chemistry, Northwestern University, Evanston, IL 60208-3133

† These authors contributed equally to this work

* Author to whom correspondence should be addressed. Tel: 847-491-3516, Fax: 847-491-7713, electronic mail: vanduyne@northwestern.edu.

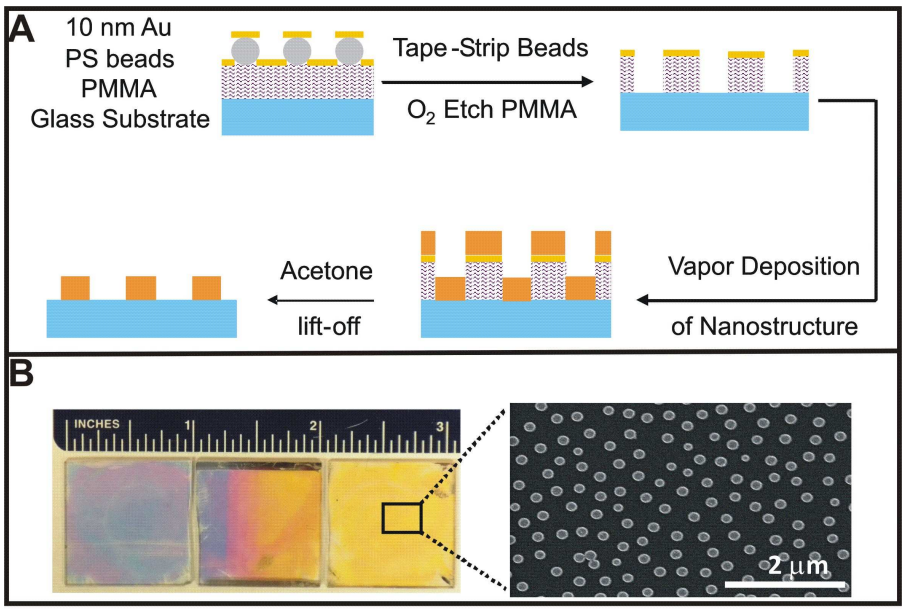


**Figure S1: (**A) Schematic of Substrate Fabrication. A glass substrate is spin coated with PMMA, which is coated with PDDA so that polystyrene beads can be deposited. A thin layer of gold is deposited over the beads, the beads are then removed by tape stripping, leaving the PMMA below. An oxygen plasma treatment etches through the PMMA at regions previously occupied by the beads creating holes down to the glass. A plasmonic material is deposited via physical vapor deposition through the gold and PMMA hole mask. Finally, the mask is removed by sonication in acetone. (B) Camera images of 1 $in^2$ arrays of HCL-fabricated nanodisc arrays. An SEM image of a Au nanodisc array.

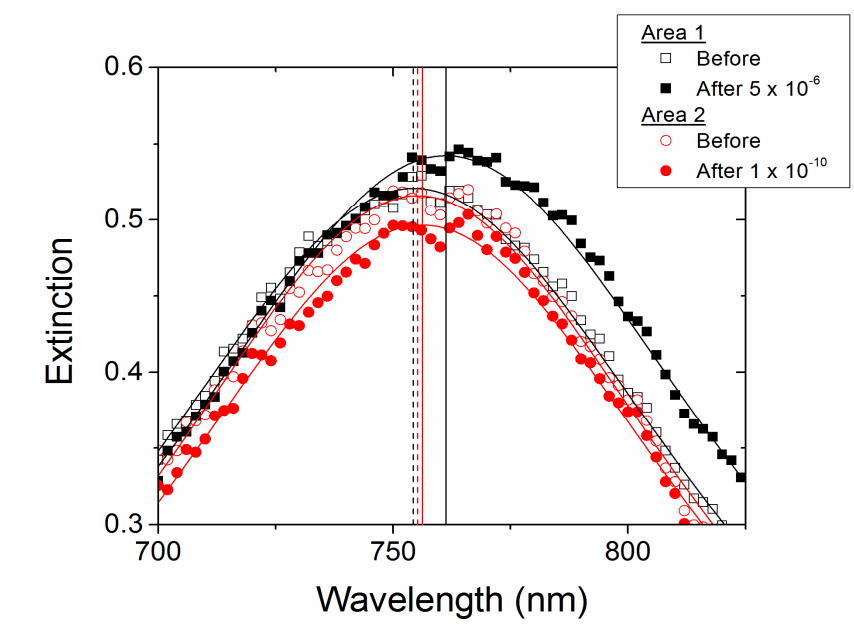


**Figure S2** – Representative LSPR curves taken during Streptavidin Binding Curve experiments. Given the large quantity of data, only representative curves are shown here so that they can be distinguished from one another. The points are raw data and lines are fits to the data. The vertical lines represent the peak position determined by the fits. The data represented by black open squares was obtained from a surface functionalized with biotin, the closed square data is from the same area after exposure to 5 x $10^{-6}$ M streptavidin; the dashed vertical black line is the peak position corresponding to the open squares, and the solid line corresponds to closed squared. The data represented by red open circles was obtained from a surface functionalized with biotin, the closed circle data is from the same area after exposure to 1 x $10^{-10}$ M streptavidin; the dashed vertical red line is the peak position corresponding to the open circles, and the solid line corresponds to closed circles.