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## Cost-effective plasmonic device for label-free streptavidin detection

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**Abstract**

NLS was used to prepare holed plasmonic substrates with high sensitivity to streptavidin detection. SEM and AFM characterizations showed substrates with holes distribution of  $240.1 \pm 27.8$  nm and periodicity of  $420.2 \pm 25.4$  nm. These substrates showed a sensitivity of  $382.40 \pm 11.60$  nm/RIU in solutions with different refractive indexes. The sensor has demonstrated high sensitivity in the biosensing of biotin-streptavidin. The immunoassay showed a  $1.8 \pm 0.3$  nm LSPR peak redshift in the protein detection. This work forms a foundation towards the cost-effective plasmonic biosensors.

**Keywords:** SPR, biosensor, immunoassay, NSL

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