ABSTRACT

Nanoplasmonic sensor for the detection of cardiac Troponin

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The Isoform of troponin I is uniquely produce in the adult human myocardium and it overexpress at myocardial injury. Accordingly, Iso troponin 1 level in plasma and other biological fluids can serve as diagnostic and prognostic disease biomarkers. Our study focus on the design of a label free ultrasensitive nanoplasmonic sensor by utilizing unique localized surface Plasmon resonance (LSPR) property of highly sensitive gold nanoprisms. Herein our study reveals that chemically synthesized nanoprisms with 42 nm average edge lengths can be used in nanoplasmonic sensor fabrication for the troponin detection. The limit of detection has been found to be sub-picomolar concentrations in PBS buffer and we will explore this sensing mechanism to detect Troponin I of myocardial infarction patient's samples.