

## Optical detection of Glycated Albumin

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Biosensors are devices engineered to detect important biomarkers by generating analytical signals based on biological or chemical reactions. Here, we have engineered a biosensor that can detect glycated albumin (GA), exploiting it as a biomarker for Diabetes. The sensor was designed to provide mean glucose level of diabetics over three weeks, which indicates the glycation status of diabetes patients. Localized surface plasmon resonance (LSPR) was used as a means of signal transduction during engineering of the biosensor. To achieve this, gold nanoparticles were deposited on a quartz substrate by Flame Spray Pyrolysis, a scalable, robust, and low-cost synthetic route. This substrate was then used for the detection of glycated albumin via the conjugation of a DNA aptamer able to selectively bind GA, resulting in a plasmonic wavelength shift. Selectivity experiments were also performed with a range of different molecules and high selectivity was achieved with GA. Further experiments will be performed for higher sensitivity.