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Low cost sensing technology for type 2 diabetes monitoring PRASHANT SARSWAT, MICHAEL FREE, University of Utah — Alpha-hydroxybutyrate (2-hydroxybutyrate or α-HB) is becoming more widely recognized as an important metabolic biomarker that has been shown to be highly correlated with prediabetes and other metabolic diseases. In 2012 there were 86 million Americans with prediabetes, many of whom are not aware they have prediabetes, but could be diagnosed and treated to prevent type 2 diabetes if a simple, low-cost, convenient test were available. We have developed new, low-cost, accurate α-HB detection methods that can be used for the detection and monitoring of diseases such as prediabetes, type 2 diabetes, β-cell dysfunction, and early hyperglycemia. The new sensing method utilizes a diol recognition moiety, additives and a photoinitiator to detect α-HB at levels near 1 micro g/l in the presence of serum compounds such as lactic acid, sodium pyruvate, and glucose. The objective of this research is to improve the understanding of the interactions that enhance α-HB detection to enable additional improvements in α-HB detection as well as improvements in other biosensor applications.

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