

526e Electrochemical Glucose Sensor for Diabetes Management

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The American Diabetes Association states that diabetes contributes to more than 213,000 American deaths each year. These deaths could potentially be prevented with better monitoring and more rigorous control of glucose levels. The current method for monitoring is an invasive and painful method that involves pricking the finger to obtain a blood sample to monitor glucose levels. Due to the current methods compliance with checking 3-4 times daily can be easily forgotten or avoided. To have better compliance of monitoring glucose levels a noninvasive, less painful and continuous monitoring system would be desirable. We propose to create an implantable electrochemical sensor array that would continuously monitor the glucose levels. The sensor will monitor the current related to the rate of reaction occurring between glucose and a redox polymer with the catalyst glucose oxidase. The sensor will be fabricated by photolithography methods to develop electrodes with sensing elements (redox polymer and glucose oxidase) encapsulated in a poly(ethylene glycol) (PEG) hydrogel.