

3rd International Conference and Exhibition on **Biosensors & Bioelectronics**

August 11-13, 2014 Hilton San Antonio Airport, San Antonio, USA

An electrochemical sensing interface for dengue virus detection

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Dengue fever is one of the deadly infections that threaten the human kind. No efficient treatment or vaccine is available for preventing or treating the disease caused by Dengue virus. Therefore, diagnostic methods are necessary to detect the disease consistently and rapidly, and consequently treat Dengue virus infection in an early phase. Apparently the methods used to cultivate the virus or to identify the specific antibody are both unwieldy and time consuming. The Reverse transcription polymerase chain reaction (RT-PCR) method although fast for diagnosis in the viremia stage but RT-PCR protocols suffer from two limitations: a false negative result due to the variation of DENV serotypes and the absent of standard protocol. Biosensors especially electrochemical biosensors have presented as potential alternatives to overcome all difficulties, because it is cost effective, robust, and able to detect very low concentration of analytes from different specimen mixtures and due to specific interaction to the analyte. In this study a sensing interface for dengue virus detection has been fabricated by modification of indium tin oxide (ITO) with diazonium salts. The electrochemical deposition was conducted by using electrochemical reduction method. The ITO sensing interfaces have been characterized *via* FeSEM, TEM, and FTIR. On the other hand, the electrochemical measurements were done by using two redox species $\text{Ru}(\text{NH}_3)_6\text{Cl}_3$ (1 mM) and $\text{K}_3\text{Fe}(\text{CN})_6$ (1 mM). The well-constructed sensing interface gives promising platform for the development of biosensors for diagnosis of dengue virus which continues to be a major health problem in the tropical and subtropical regions of world.

Biography

Sook Mei Khor has completed her PhD from the University of New South Wales (UNSW) in year 2011 under the supervision of Prof. J. Justin Gooding. Her research interest is in biosensors and surface chemistry. Currently she is the senior lecturer at the Department of Chemistry, University of Malaya, Malaysia.

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