

# **Glucose Oxidase/Aminoferrocene immobilized on a Gold Electrode using Self Assembled Monolayers for Glucose sensing**

Vimal Kumar<sup>1</sup>, Taira Kajisa<sup>1,2\*</sup>

**1** Bio-Nano Electronics Research Centre, Toyo University

**2** Graduate School of Interdisciplinary New Science, Toyo University

A glucose sensor for increasing the efficiency of electron transfer has been developed by immobilizing Glucose Oxidase and Aminoferrocene to 11-Mercaptoundecanoic acid (11-MuA) on a modified Gold (Au) surface using 1-Ethyl-3-(3'-dimethylaminopropyl) carbodiimide·HCl (WSC) and N-Hydroxysuccinimide (NHS). In order to measure the glucose concentration these electrodes are attached to biological Field Effect Transistors. The Au electrode is modified with WSC/NHS conjugation to form amine coupling bonds on the surface of the Au, the 11-MuA bind with the modified Au using thiol groups using Van der Waal forces for formation of SAM. These SAMs facilitates better electron transfer from the Glucose oxidase to the electrode. These electrodes were characterized using AFM, SEM, FTIR, XPS and Electrochemical characterization. The potentiometric signals are analysed for 100 $\mu$ M - 10mM concentration of glucose solution in pH 7.4 PBS buffer.