

## ZnO Nanostructure based Electrochemical Bio-Sensors for intra/extracellular glucose measurement

**Muhammad. H Asif**

Lund University, Sweden

The nanostructure of zinc oxide (ZnO) such as nanorods and nanowires has interesting nanosurfaces compare to its bulk properties. Recently ZnO have attracted much interest because of its semiconducting, electrochemical, catalytic properties, being biosafe and biocompatible morphology combined with the easiness of growth. This implies that ZnO has a wide range of applications in optoelectronics, sensors, transducers, energy conversion and medical sciences. This abstract relates specifically to electrochemical glucose biosensors for extra/intracellular environment based on functionalized zinc oxide nanorods for biochemical applications. To adjust the sensor for intracellular measurements, the ZnO nanorods were grown

on the tip of a borosilicate glass capillary (0.7 $\mu$ m in diameter) and functionalized with polymeric membrane or enzymes for intracellular selective glucose sensors. The sensor in this study was used to detect and monitor real changes of glucose across human fat cells and frog cells using changes in the electrochemical potential at the interface of the intracellular microenvironment. The fabrication of such type of device aims to explain the methodology of ions/glucose sensing using functionalized ZnO nanorods for intracellular environment. This nanoelectrode device paves the way to enable analytical measurements in single living cells.

e: [muhammad.asif@ftf.lth.se](mailto:muhammad.asif@ftf.lth.se)