

Electrical Detection of Pathogenic Bacteria using Single Walled Carbon Nanotube Biosensor

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Single-walled carbon nanotube (SWNT)-based electrical biosensor was developed for the label-free and specific detection of pathogenic bacteria. In this system, an electrical sensor is composed of a pair of gold electrodes and a linearly patterned SWNT network film that bridges the electrodes as a channel material. This biosensor successfully detected DNA from reference strains and real clinical samples. We believe that our SWNT-based electrical biosensor could be a promising candidate for future use in highly integrated chips and handheld diagnostic electronics. [This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries from the Ministry of Science, ICT and Future Planning (MSIP) through the National Research Foundation (NRF) of Korea (NRF-2012-C1AAA001-2012M1A2A2026556).]