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Corrigendum

Corrigendum to "A high-performance glucose biosensor using covalently immobilised glucose oxidase on a poly(2,6-diaminopyridine)/carbon nanotube electrode"

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ABSTRACT

A highly-sensitive glucose biosensor amenable to ultraminiaturisation was fabricated by immobilization of glucose oxidase (GOX), onto a poly(2,6-diaminopyridine)/multi-walled carbon nanotube/glassy carbon electrode (poly(2,6-DP)/MWCNT/GCE). Cyclic voltammetry was used for both the electrochemical synthesis of poly-(2,6-DP) on the surface of a MWCNT-modified GC electrode, and characterization of the polymers deposited on the GC electrode. The synergistic effect of the high active surface area of both the conducting polymer, i.e., poly-(2,6-DP) and MWCNT gave rise to a remarkable improvement in the electrocatalytic properties of the biosensor. The transfer coefficient (α), heterogeneous electron transfer rate constant and Michaelis-Menten constant were calculated to be 0.6, 4 $s-1$ and 0.22 mM at pH 7.4, respectively. The GOx/poly(2,6-DP)/MWCNT/GC bioelectrode exhibited two linear responses to glucose in the concentration ranging from 0.42 μM to 8.0 mM with a correlation coefficient of 0.95, sensitivity of 52.0 μAmM-1 cm-2, repeatability of 1.6% and long-term stability, which could make it a promising bioelectrode for precise detection of glucose in the biological samples.

The authors regret that keywords and legends of Scheme 1 published in this manuscript was incorrect, and did not represent the data that was analyzed and discussed. The correct keywords and complete scheme1 now appears here.

The new Scheme

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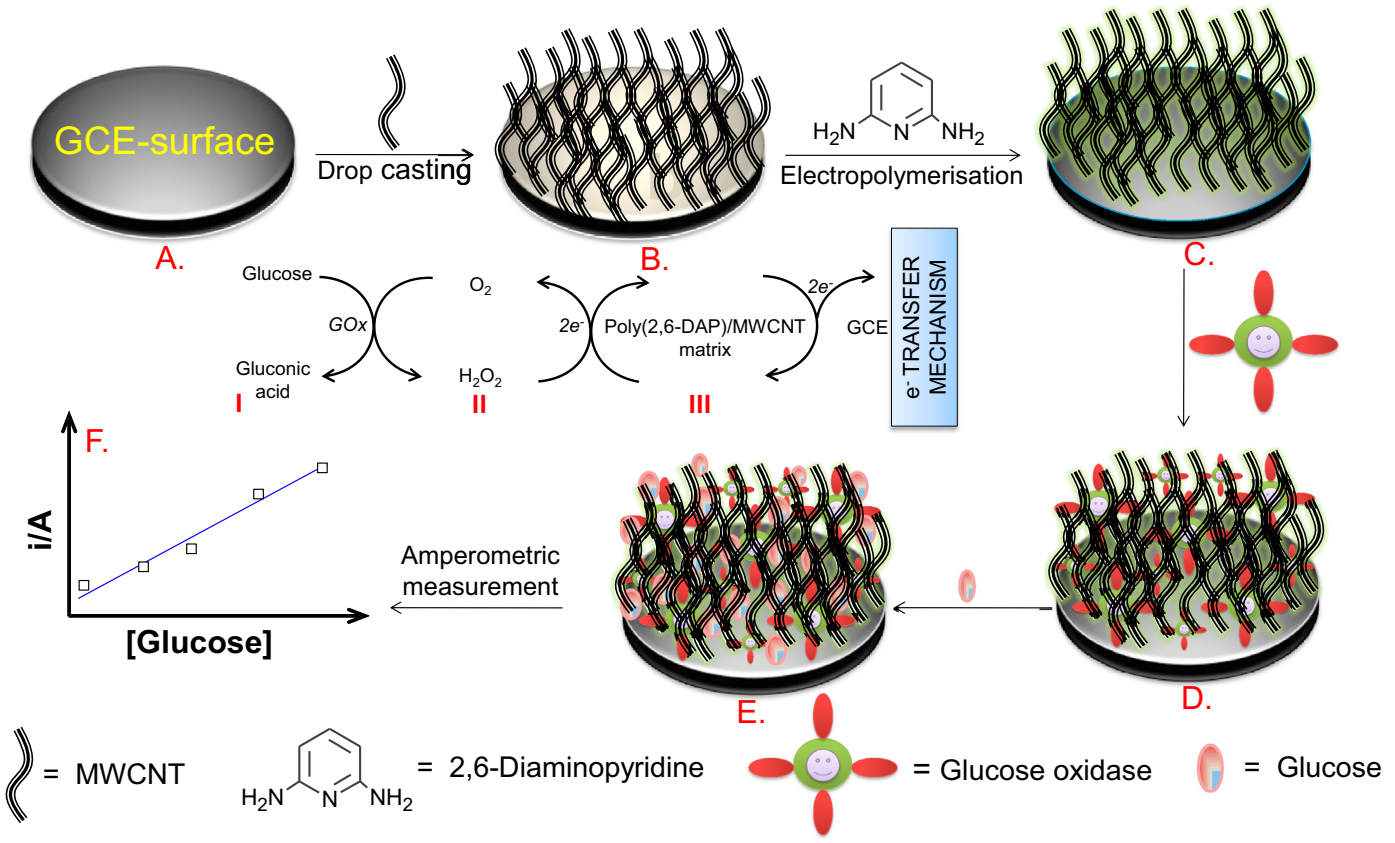

Scheme 1. Schematic illustrations of fabrication, biosensing and electron transfer mechanism of an ultra-sensitive glucose biosensor (A–F). (A–B) treatment and casting of MWNT on a GC electrode; (C) electrodeposition of poly(2,6-DAP) on MWNT/GC electrode; (D) covalent-immobilization of GOx on a poly(2,6-DAP)/MWNT/GC electrode using glutaraldehyde as a linker; and (E–F) amperometric glucose biosensing at a GOx/poly(2,6-DAP)/MWNT/GC bioelectrode at physiological pH.

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