Supplementary Material

Minimally-invasive Glucose Monitoring using a Highly Porous Gold Microneedles-based Biosensor: Characterization and Application in Artificial Interstitial Fluid

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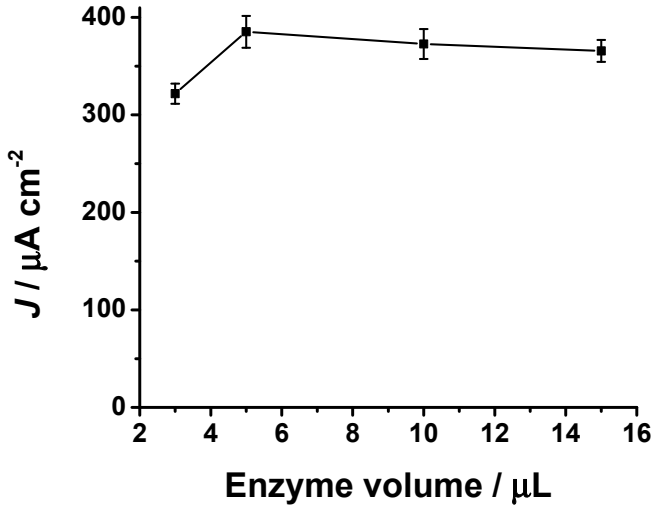

Figure S1. Effect of enzyme loading on biosensor response.

Table S1. Heterogeneous electron transfer rate constant (k_0), real electroactive area (A_{EA}) and roughness factor (ρ) of gold planar electrode and gold microneedles electrode before and after the electrodeposition of h-PG and Au-MWCNTs.
A_{geo} planar Au electrode= 0.020 cm^2; A_{geo} microneedle electrode= 0.2 cm^2.

	k_0 / 10^{-3} cm s^{-1}	A_{EA} / cm^2	ρ
Au planar electrode	1.1 ± 0.1	0.08 ± 0.01	4.0 ± 0.2
Au planar electrode / h-PG	3.0 ± 0.8	1.12 ± 0.02	56.0 ± 0.8
Au planar electrode / Au-MWCNTs	2.7 ± 0.9	1.24 ± 0.02	39.5 ± 0.6
Au microneedles	5.8 ± 0.2	2.02 ± 0.18	10.1 ± 0.6
Au microneedles / h-PG	56. 2 ± 0.5	206.42 ± 0.42	1032.1 ± 2.3
Au microneedles / Au-MWCNTs	16.3 ± 0.4	60.36 ± 0.31	301.6 ± 1.6