All Inkjet-printed Graphene-based Conductive Pattern for Wearable E-textiles Applications

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Supplementary Information

Fig S1 Raman spectra of a) GO and b) rGO shows the intensity ratio of D to G band ($I_D/I_G$) was increased due to the significant reduction of GO to rGO.
**Fig S2** The combination of NP1 and rGO ink demonstrates incompatibility of these two inks.
**Fig S3** SEM images of untreated and NP1 inkjet printed cotton fabrics: (a) untreated cotton (×2000); (b) NP1 inkjet printed Cotton (×5000) and (c) NP1 (12 layers) inkjet printed Cotton (×20000). SEM image of untreated cotton fabric shows a very smooth and featureless surface as expected; however after printing with 12 layers (12L) NP1 nanoparticles, the treated surface displays nano or micro-roughness with a fairly homogenous distribution of nanoparticles. Also some interfibre bonding was observed at the fabric interface.
Fig S4 A LED light connected to a NP1 and rGO printed conductive textile and power supply
Fig. S5 The wash stability (the change in resistance/cm) of all inkjet-printed graphene track on NP1 printed cotton textiles for ECG application.