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

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Supplementary Information

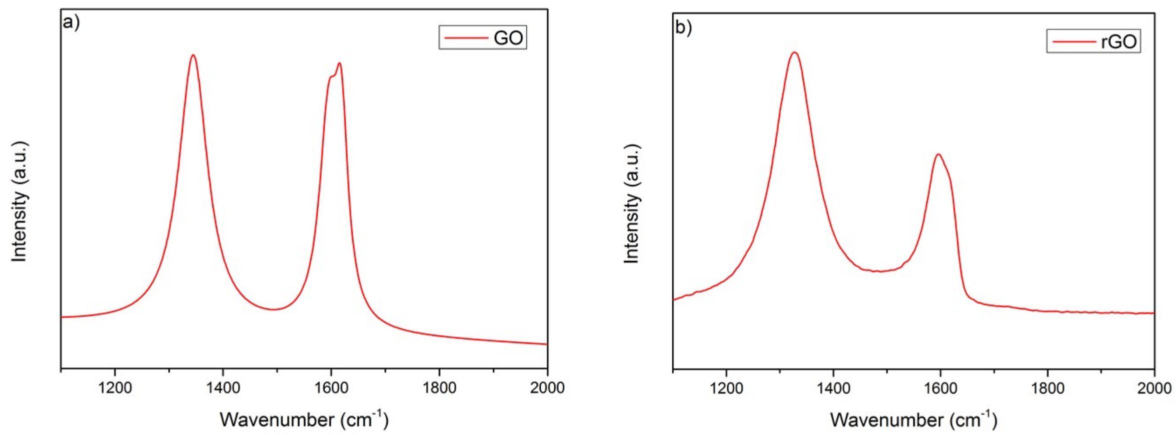
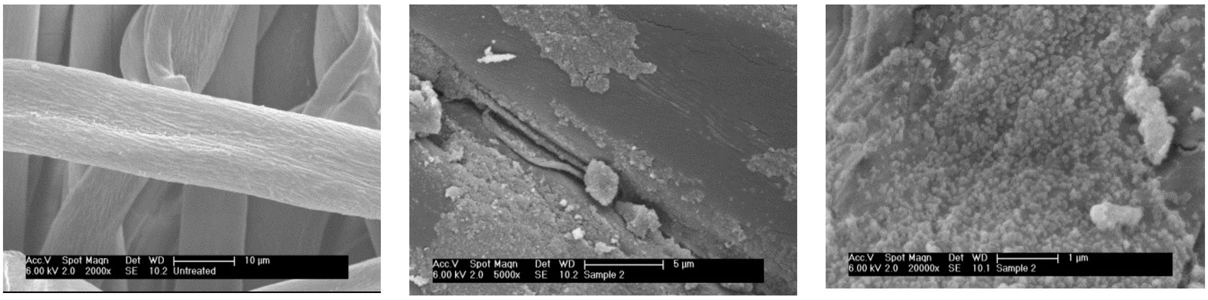


Fig S1 Raman spectra of a) GO and b) rGO shows the intensity ratio of D to G band (I_D/I_G) was increased due to the significant reduction of GO to rGO.

Fig S2 The combination of NP1 and rGO ink demonstrates incompatibity of these two inks.



(a) (b) (c)

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.

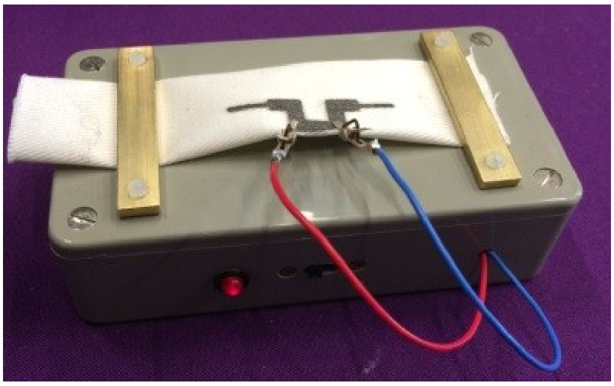


Fig S4 A LED light connected to a NP1 and rGO printed conductive textile and power supply

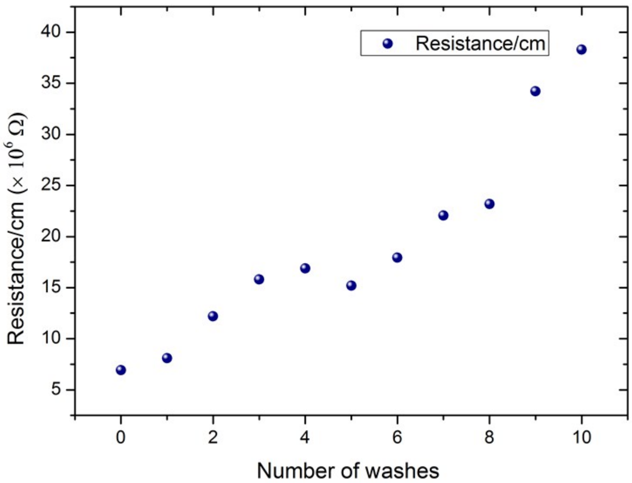


Fig. S5 The wash satbility (the change in resiatnce/cm) of all inkjet-printed graphene track on NP1 printed cotton textiles for for ECG application.