

[Supplementary Information (SI)]

Smart Electronic Yarns for Human Biomonitoring made by Carbon Nanotube Coating

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Raman spectroscopy data on the smart yarns indicates that SWNTs remained intact before and after HSA assays in various concentrations. Figure S1 showed that there is no significant spectral position change in peaks as well as characteristic shapes. Although there are reports that Raman analysis was useful on estimating the degree of SWNT's exfoliation, the changes caused by removal of antibody on the networks of polymer stabilizer capped SWNTs in Raman peaks were not remarkable unlike electrical conductivity responses because individual SWNTs kept their vibrational states. This result validate that the antigen-antibody assay caused only by rearrangement of CNTs upon removal of anti-HSA proteins in the nanocomposite. Therefore, the smart sensing effects were overall insensitive to the environmental effects such as ions or impurities.

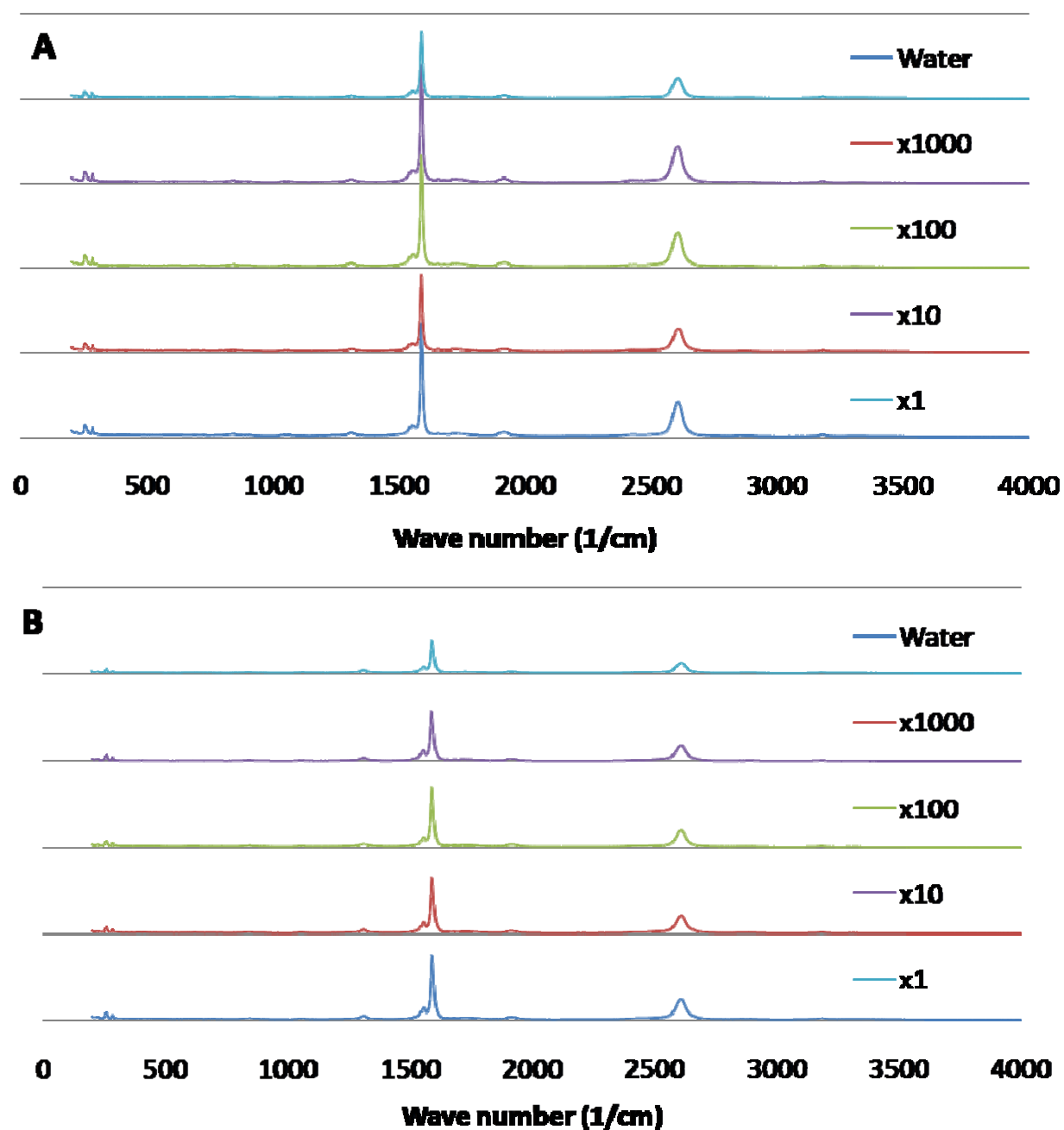


Figure S1 Raman spectroscopy results of varied HSA concentration effects on (A) a anti-HSA coated CNT smart yarns and (B) a original CNT yarns without anti-HSA.