SUPPORTING INFORMATION SECTION

Oligonucleotide-Functionalized Carbon Nanotube Sensor for Sensitive Detection of Mercury in Saliva

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Detection of Hg^{2+} in buffer

The response of DNA-functionalized SWNTs biosensor was tested against increasing concentrations of Hg^{2+} (1 nM to 1000 nM) in PB solution (10 mM, pH 7.4). Fig. S2 shows the calibration curve, normalized change in resistance [$(R-R_o)/R_o$, where R is the resistance after incubation with Hg^{2+} and R_o is the resistance after hybridization between polyT and polyA] as a function of log concentration of Hg^{2+} (in nM). A linear response was observed for Hg^{2+} concentrations varying from 1 nM to 1000 nM and a linear regression equation of *y = −0.2164x - 0.2549 (R^2 = 0.9145)* was obtained.
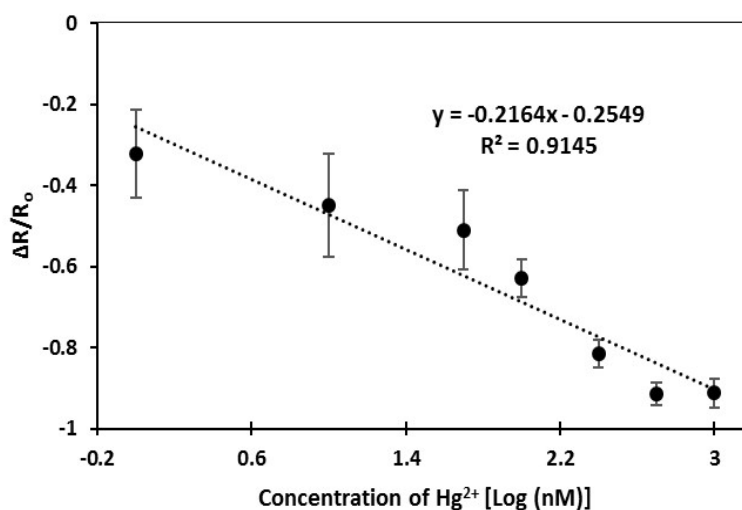

Fig. S1 Calibration curve for detection of Hg^{2+} in PB. Each data point is an average of measurements from 8 independent sensors and error bars represent ±1 standard deviation.
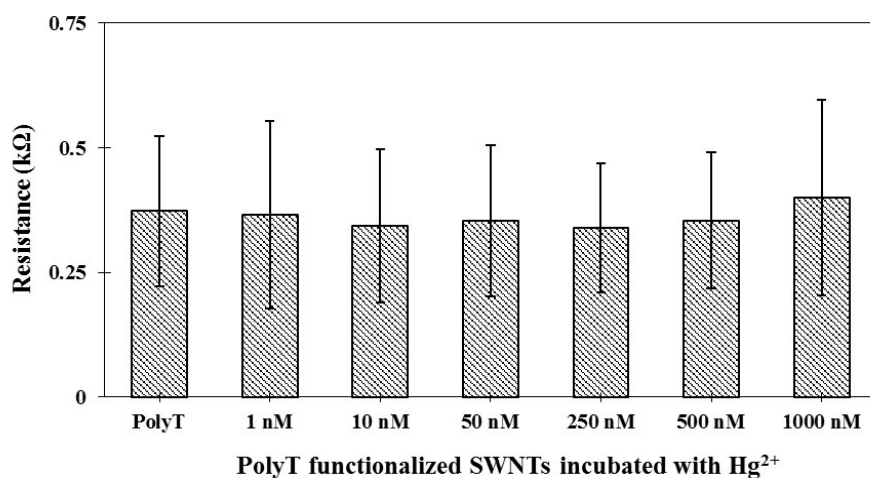
Fig. S2 Control experiment showing response of polyT functionalized SWNTs incubated with increasing concentrations of CH_3Hg^+ in absence of polyA. Each data point is an average of measurements from 5 independent sensors and error bars represent ±1 standard deviation.
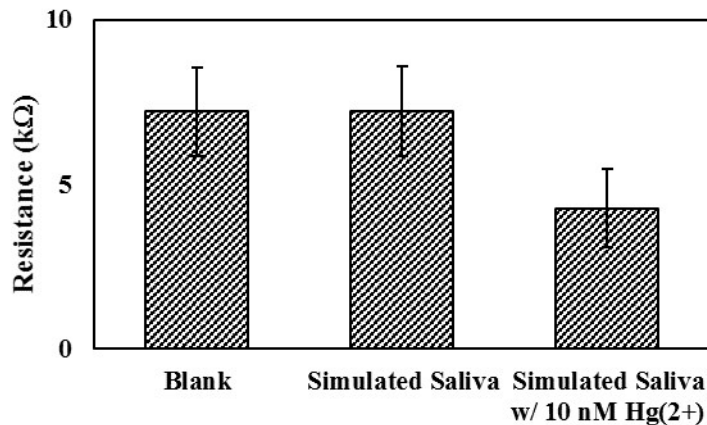

Fig. S3 Bar graphs showing the response of biosensor to a blank sample (phosphate buffer, 10 mM, pH 7.4), simulated human saliva sample in the absence of Hg^{2+} ions and saliva sample spiked with 10 nm of Hg^{2+} ions. Each data point is an average of measurements from 5 independent sensors and error bars represent ±1 standard deviation.

Table S1. Effect of mercapto-1-hexanol blocking on non-specific binding of CH_3Hg^+

	$\Delta R/R_0$ (average of 4 devices)
Response to 500 nm CH_3Hg^+ **in absence of MCH** blocking	**0.81 ± 0.24**
Response to 500 nm CH_3Hg^+ **with MCH** blocking	**0.08 ± 0.10**