The detection of bisphenol A using DNA-functionalized graphene field effect transistors integrated in microfluidic systems

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1. **Figures for graphene transistor performance and Fluorescence images of DNA on graphene.**

2. **Table for the comparison of our device with literature.**

Figures

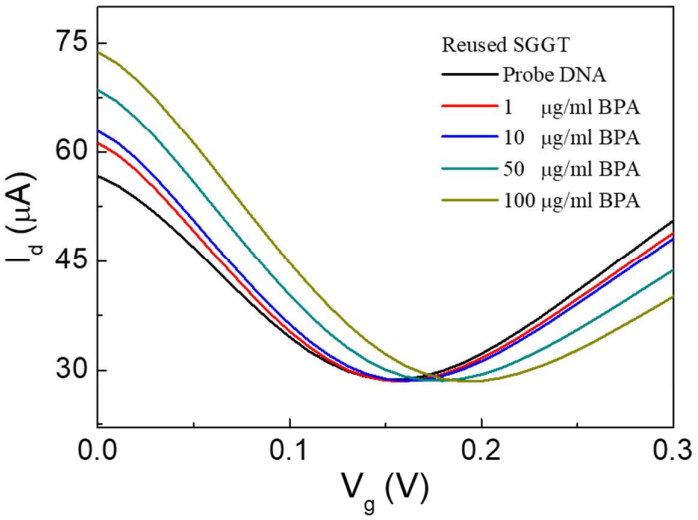

Figure S1. Transfer characteristics of the reused SGGT modified by probe DNA for the detection of different concentration of BPA.

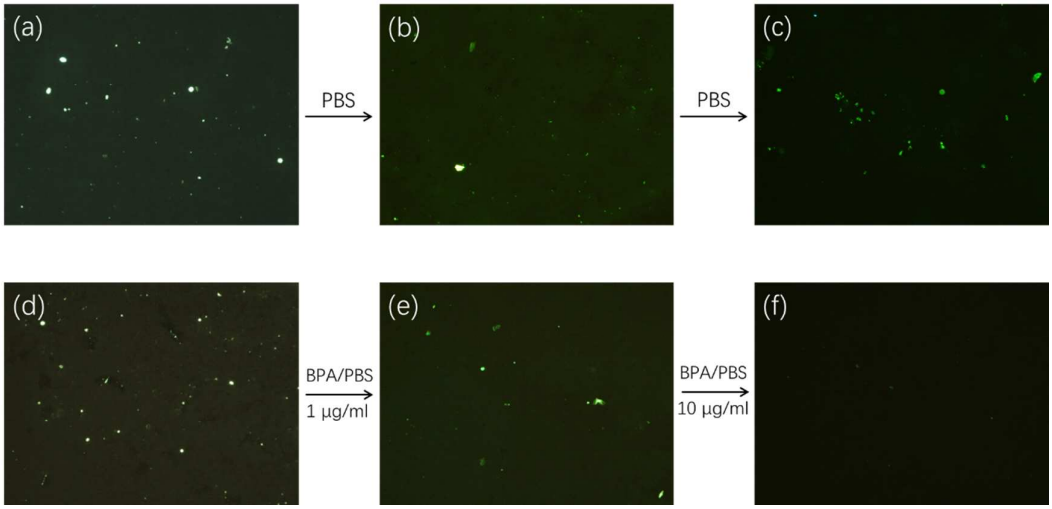

Figure S2. Fluorescence images of the probe DNA anchored on the surface of Au-doped graphene (a, d) before and after (b, c) the treatment of pristine PBS or (e, f) BPA contained PBS solution.

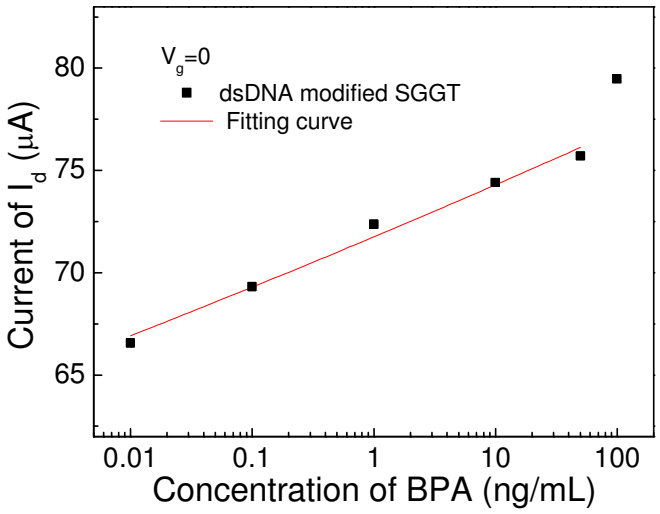

Figure S3. The variation of I_d (when V_g=0) for the transfer curves of the SGGT modified by dsDNA as a function of different concentrations of BPA.

Table S1. Performance comparison of BPA detection based on different sensors

Methods	Detection limit (ng/mL)	Linear range (ng/mL)	Portable	Reusable	Ref.
Graphene field effect transistors integrated in microfluidic systems	10	$10\text{-}5\times10^{4}$	Yes	Yes	Our work
Fluorescence resonance energy transfer biosensor	0.05	0.1-10	No	-	[44]
Plasmonic chirality-based aptasensor	0.008	0.02-5	No	-	[45]
High performance liquid chromatography with fluorescence detection	0.1	0.5-100	No	-	[46]
Plasmonic chirality-based sensor	0.02	0.05-10	No	-	[47]
Fluorescence polarization Immunoassay	2	20-800	No	-	[48]
High-performance liquid chromatography	3.6×10^{-4}	$2\times10^{-3}\text{-}70\times10^{-3}$	No	-	[6]
Electrochemical impedance spectroscopy	9.6×10^{4}	$0\text{-}2.7\times10^{6}$	Yes	No	[8]
Label-free aptasensor-based colorimetric method	0.1	0.01-100	Yes	-	[20]
Electrochemical sensor with differential pulse voltammetry	137.0	$1.1\times10^{3}\text{-}6.8\times10^{3}$	Yes	Yes	[17]