Electronic Supplementary Material (ESI) for RSC Advances.

A facile graphene oxide based sensor for electrochemical detection of prostate anti-cancer (anti-testosterone) drug flutamide in biological samples

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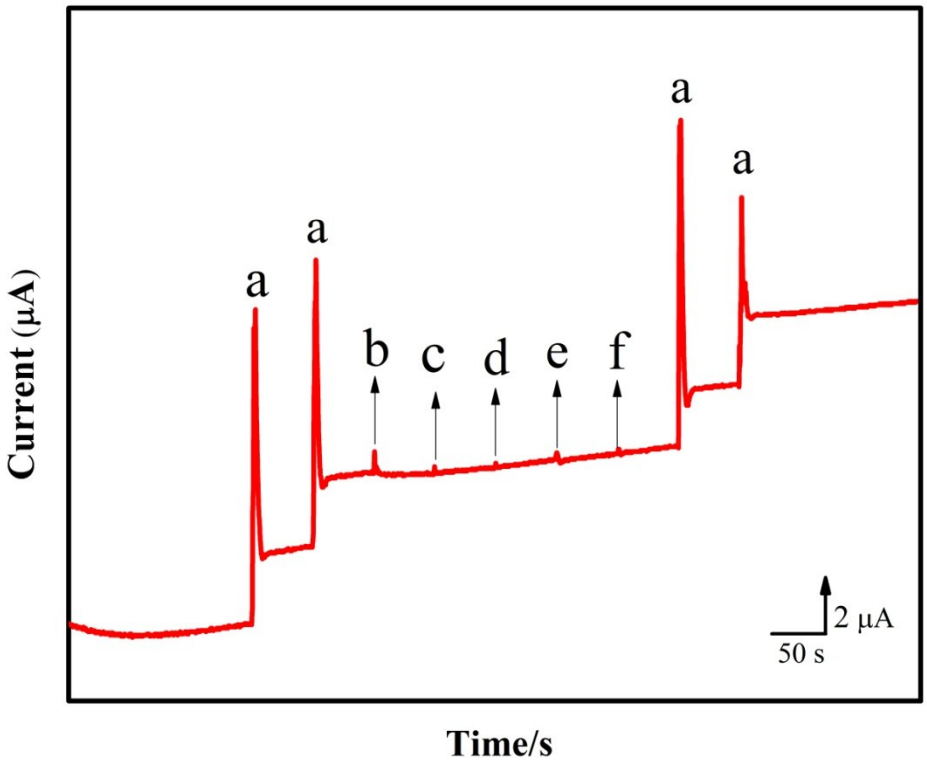

Fig.*S1*. Amperometric (*i-t*) response at GO/RDE in addition of 6 μM flutamide (a), and 30 fold excess concentrations of biological compounds uric acid (b), glucose (c), ascorbic acid (d), dopamine (e), and catachol (f) containing continuously stirred 0.05M PB solution (pH 7); rotation speed 1200 rpm; applied potential (E_{app}) = -0.52 V.

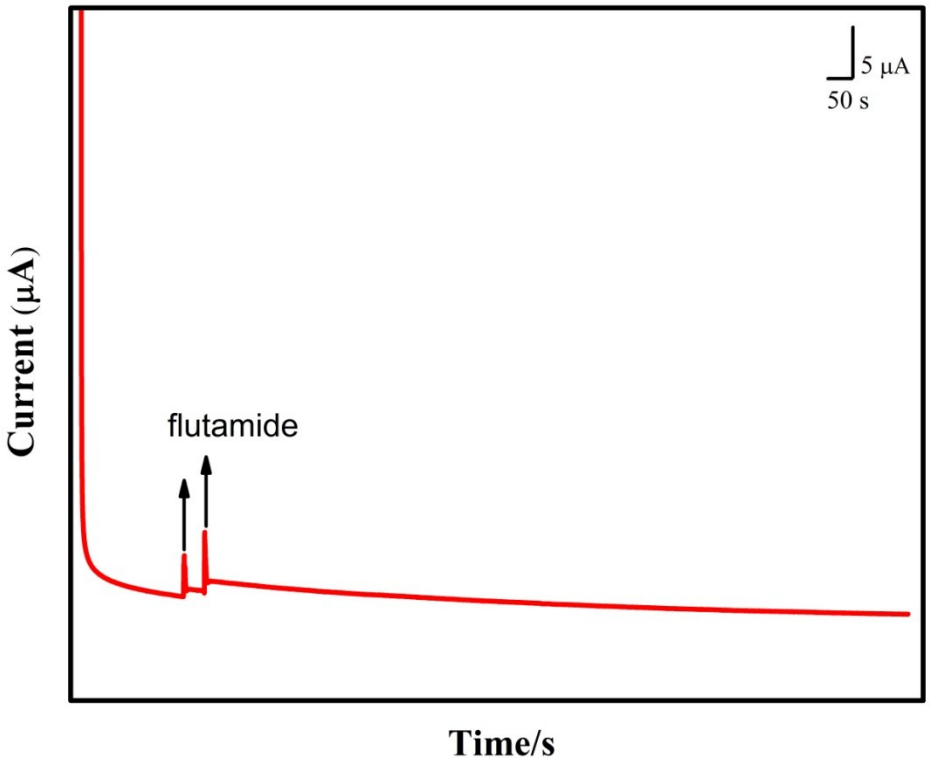

Fig.*S2* Steady-state response observed at GO/RDE flutamide sensors for the addition of 6 µM flutamide in 0.05 M PB (pH 7) up to 2000 s; applied potential = −0.52 V; rotation speed = 1200 rpm.

Table *S1* Comparison of the major characteristic of the different methods used in the determination of anti-cancer drug flutamide

Electrodes	Linear range (µM)	Limit of detection (µM)	Sensitivity (µA $\mu M^{-1}cm^{-2}$)	Ref
silver nanoparticles (EM)[a]	10–1000	9.33	-	40
Ag/Au alloy nanoparticles (CL)[b]	0.5 - 100	0.012	-	41
Fe^{3+} and 1,10-phenanthroline (SP)[c]	0.5–10	0.332	-	42
CTAB/CPE	20-160 (ppm)	50 ppb	-	43
Hanging mercury drop electrode	-	0.19 (bulk)	-	44
		0.08 (tablet)	-	
		0.009 (serum)	-	
Square wave cathodic adsorptive stripping voltammetric/PGE[a]	-	0.015	-	45
Graphene oxide/GCE	0.009 -1.9	0.006	29.55	This work

Abbreviation: Electrochemical method[a] , Chemiluminescence[b], spectrophotometric method [c], PEG-Pencil graphite electrode, CTAB- cetyltrimethylammonium bromide, CPE-Carbon paste electrode

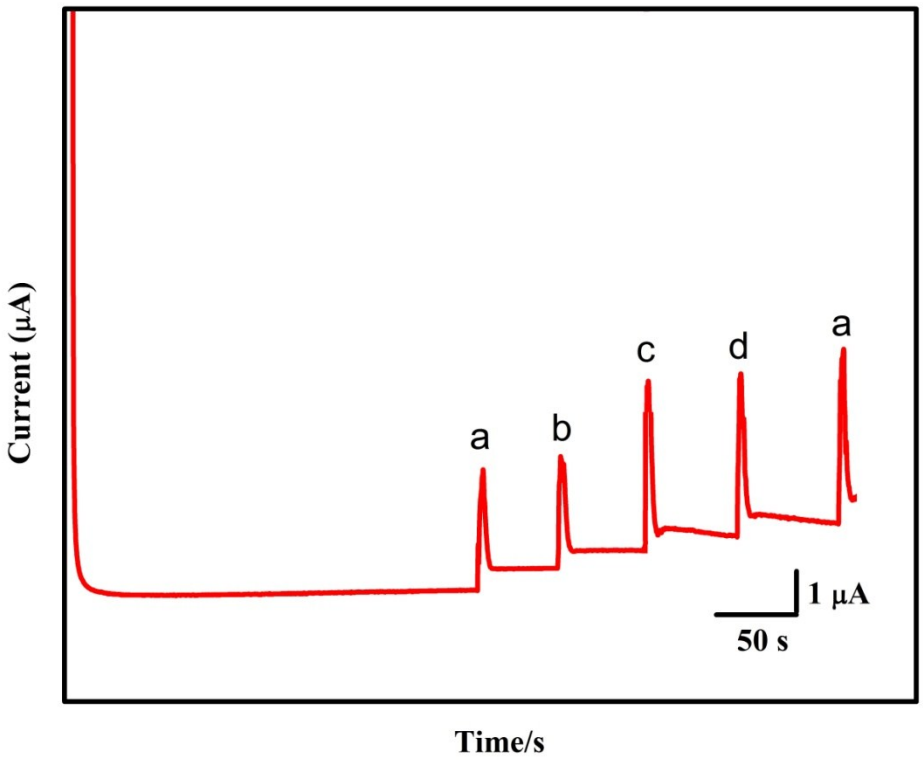

Fig.*S3*. Amperometric (*i-t*) response at GO modified RDE in addition of 6 μM flutamide (a) human serum (b) rat kidney (c) rat brain serum sample (d) containing continuously stirred 0.05M PB solution (pH 7); rotation speed 1200 rpm. Applied potential (E_{app}) = -0.52 V.

Table *S2* The recoveries for the determination of flutamide in human, rat kidney and brain serum samples

Real sample	**Add (μM)**	**Found ((μM)**	**Recovery (%)**
Human serum	3	2.97	99.0
Rat kidney serum	3	2.96	98.6
Rat brain serum	3	2.99	99.6