

Electronic Supporting Information (ESI)

Facile synthesis of $Ti_3C_2T_x$ @gold nanoparticle–arginine and serine functionalized graphene quantum dot aerogel for electrochemical detection of chloramphenicol

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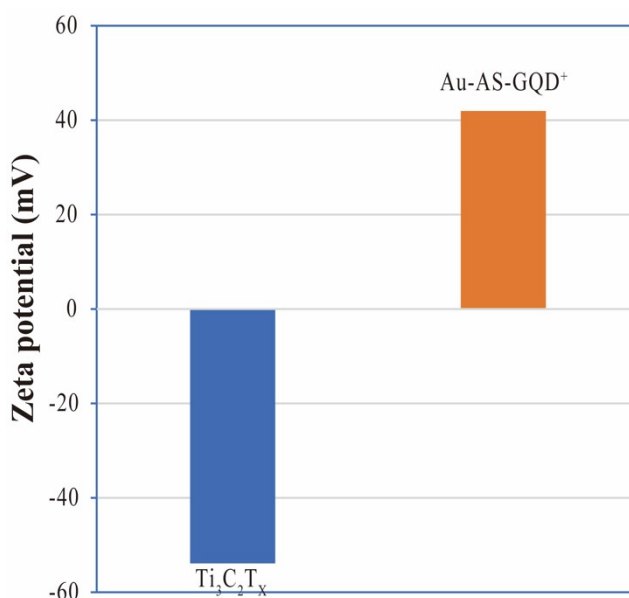


Fig. s1 Zeta potential of Au-AS-GQD⁺ and Ti₃C₂T_x

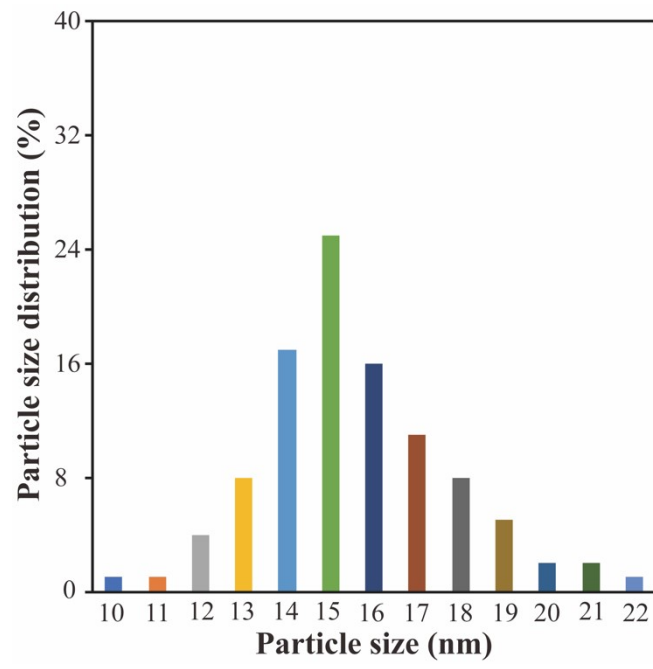


Fig. s2 Particle size distribution of gold nanoparticles

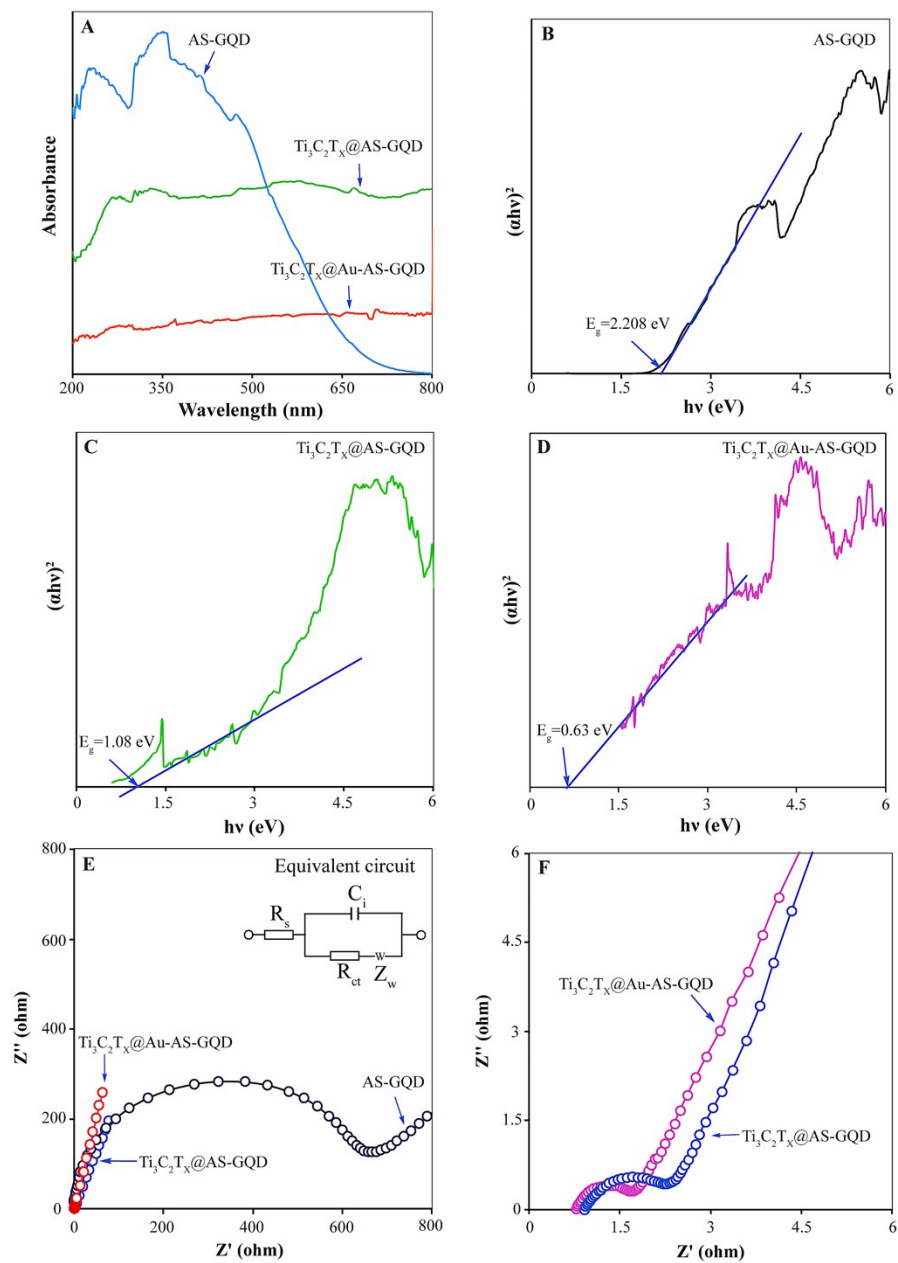


Fig. S3 UV-visible diffuse reflectance spectra (A) of AS-GQD, $\text{Ti}_3\text{C}_2\text{T}_x\text{@AS-GQD}$ and $\text{Ti}_3\text{C}_2\text{T}_x\text{@Au-AS-GQD}$, the plots of the transformed Kubelka-Munk function vs. the energy of light for AS-GQD (B), $\text{Ti}_3\text{C}_2\text{T}_x\text{@AS-GQD}$ (C) and $\text{Ti}_3\text{C}_2\text{T}_x\text{@Au-AS-GQD}$ (D), and Nyquist plots (E and F) of AS-GQD, $\text{Ti}_3\text{C}_2\text{T}_x\text{@AS-GQD}$ and $\text{Ti}_3\text{C}_2\text{T}_x\text{@Au-AS-GQD}$

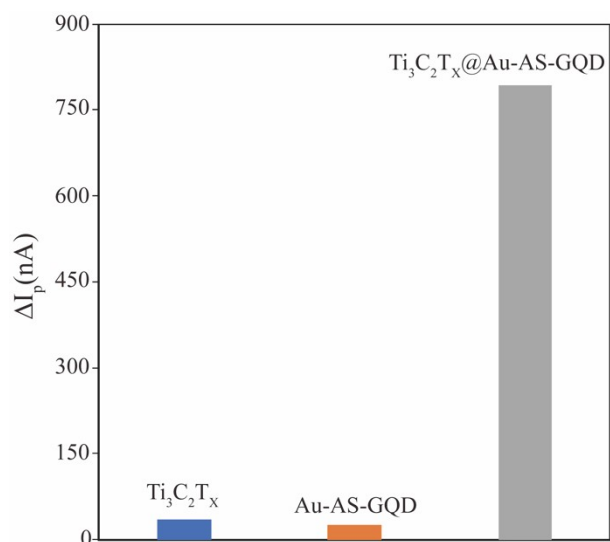


Fig. s4 The ΔI_p values caused by 100 μM chloramphenicol of different electrodes

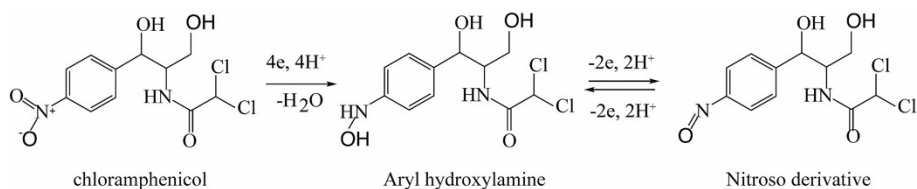


Fig. s5 One possible redox mechanism of chloramphenicol at $Ti_3C_2T_x@Au-AS-GQD/GCE$

Table s1 EIS parameters for different electrodes

Electrode modification process	R_s (Ω)	R_{ct} (Ω)	Capcitance(F)	Warburg, Y_o
AS-GQD	58.95	340.5	5.313×10^{-6}	0.00066
$Ti_3C_2T_x@AS-GQD$	0.251	0.31	2.323×10^{-7}	0.000266
$Ti_3C_2T_x@Au-AS-GQD$	0.255	0.22	1.281×10^{-7}	0.000172