

Supporting Information

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Highly sensitive glucose sensors based on enzyme-modified whole-graphene solution-gated transistors

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Figures:

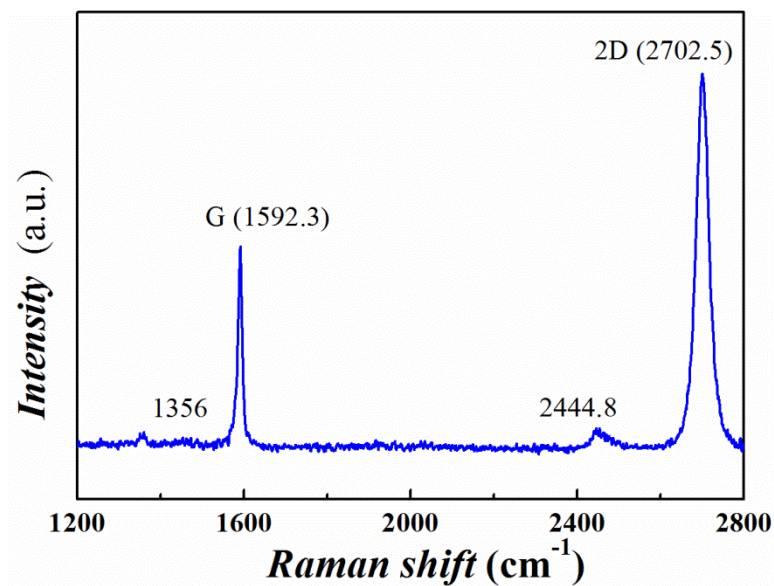


Figure S1: Raman spectrum of a CVD graphene on Si substrate.

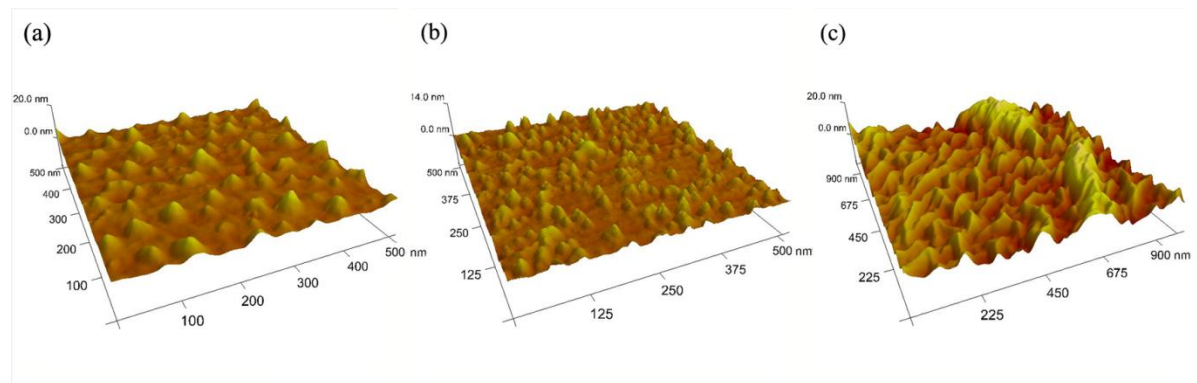


Figure S2. AFM images of the PtNPs deposited on graphene films with the deposition time of (a) 90s, (b) 120s and (c) 150s.

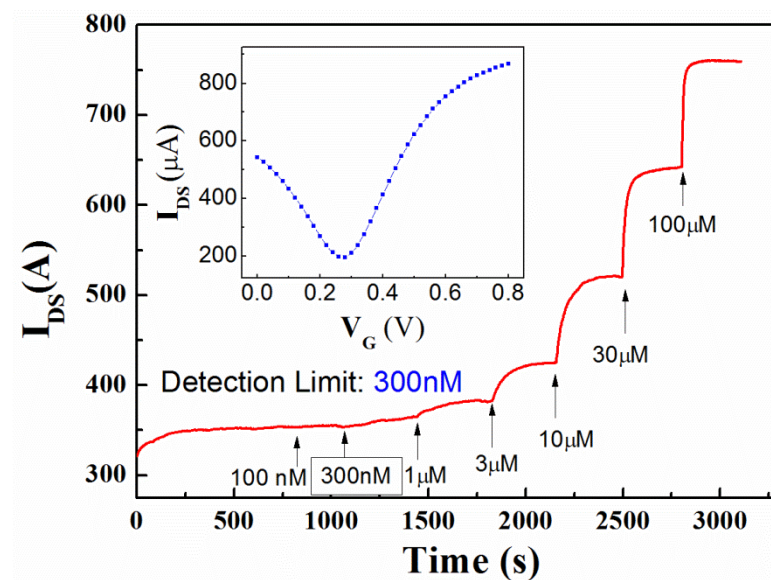


Figure S3. The channel current responses of a SGGT with PtNP-modified graphene gate (deposition time: 90s) to additions of H_2O_2 with different concentrations measured at the fixed voltages of $V_G = 0.7V$ and $V_{DS} = 0.05V$. *Inset:* the transfer curve of the device measured in PBS solution, $V_{DS} = 0.05V$.

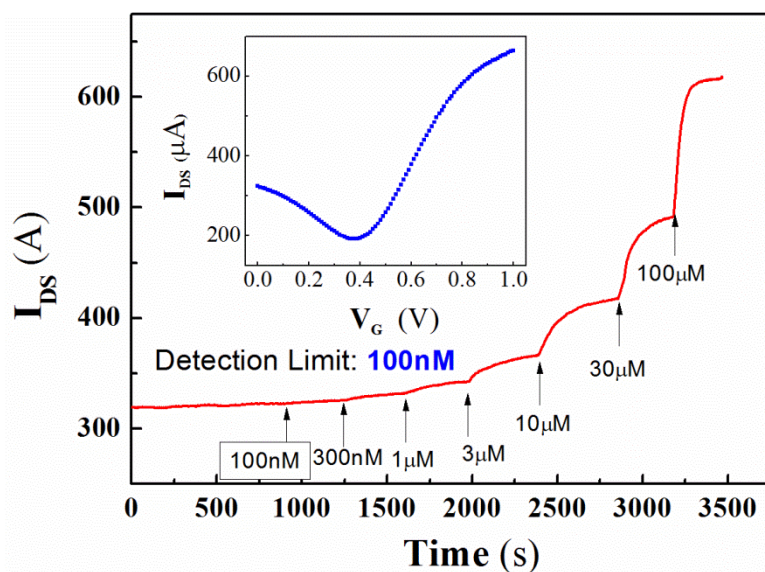


Figure S4. The channel current responses of a SGGT with PtNP-modified graphene gate (deposition time: 150s) to additions of H_2O_2 with different concentrations measured at the fixed voltages of $V_G = 0.7V$ and $V_{DS} = 0.05V$. *Inset:* the transfer curve of the device measured in PBS solution, $V_{DS} = 0.05V$.

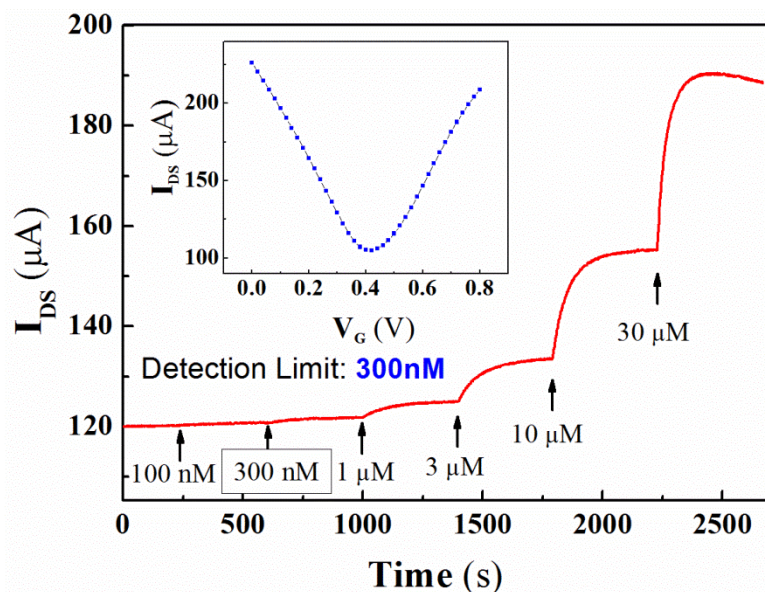


Figure S5. The channel current responses of a SGGT with Au nanoparticles modified on the graphene gate to additions of H_2O_2 with different concentrations measured at the fixed voltages of $V_G = 0.7V$ and $V_{DS} = 0.05V$. *Inset:* the transfer curve of the device measured in PBS solution, $V_{DS} = 0.05V$.

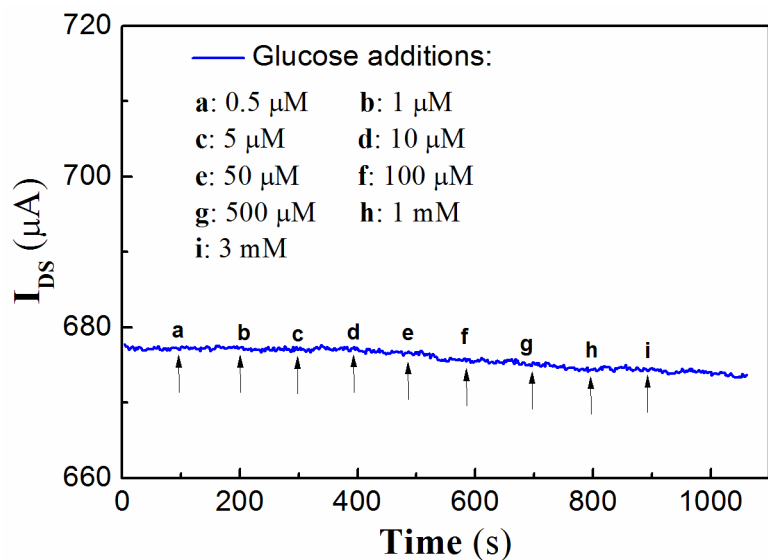


Figure S6. The channel current responses of a SGGT with PtNPs/graphene gate to additions of glucose. $V_{DS}=0.05V$, $V_G=0.7V$.

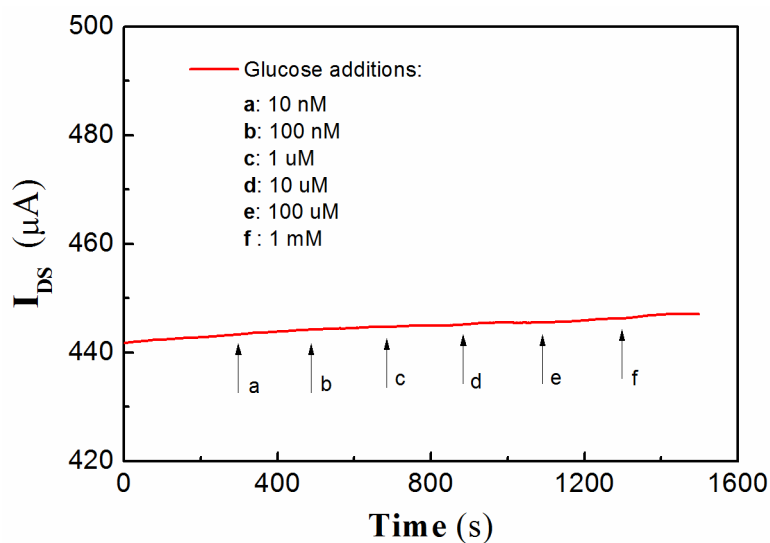


Figure S7. The channel current responses of a SGGT with GOx-CHIT/Nafion/graphene gate to additions of glucose. $V_{DS}=0.05V$, $V_G=0.7V$.

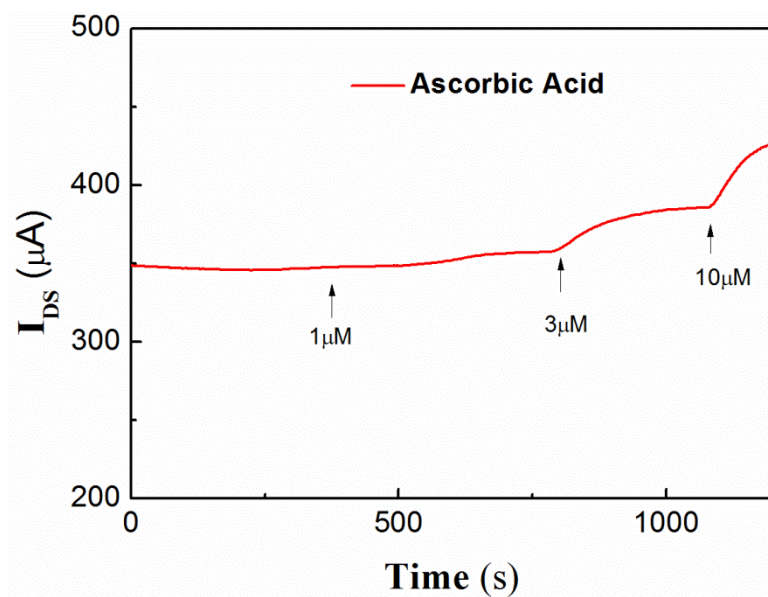


Figure S8. The channel current responses of a SGGT with PtNPs modified on the graphene gate to additions of ascorbic acid(AA) with different concentrations measured at the fixed voltages of $V_G = 0.7V$ and $V_{DS} = 0.05V$.