Electronic Supplementary Material (ESI) for RSC Advances. This journal is © The Royal Society of Chemistry 2017

Supporting information



Figure S1 Process flow for source-drain electrode fabrication

Si (100) Substrate	
Ţ	Fixed by adhesive tape
deletetetetetetetetetetetetetetetetetete	
Si (100) Substrate	
\bigcup	Thermal evaporation 1×10 ⁻⁷ Torr 0.1Å/s
Si (100) Substrate	
Ţ	Peer-off
Silicon dioxide (166µm)	
AAO 200nm pore-size + 60µm thickness	
Cr(10nm)+Au(100nm)	

Figure S2 Process flow for nanoporous gold gate electrode fabrication



Figure S3 Transfer characteristic curves of OECT based on nanoporous gold gate electrode in 10 mM PBS containing 50 nM C-DNA target with different hybridization time. $V_{DS} = -0.1 \text{ V}$.



Figure S4 Nyquist plots of PNA/DNA hybridization process on nanoporous gold electrode in the presence of 10 nM C-DNA target with different hybridization time. Buffer: 10 mM PBS. Redox probe: $1 \text{ mM Fe}(CN)_6^{3-/4-}$.



Figure S5 Equivalent circuit model for nanoporous gold electrode. R_s , solution resistance; C_{dl} , the double layer capacitance; R_{x1} , the resistance through PNA or PNA/DNA film; R_{x2} , the pinhole/defect resistance of nanoporous gold electrode; Q_1 and Q_2 are constant phase elements.