Supporting Information

An enzyme-free capacitive glucose sensor based on dual-network glucose-responsive hydrogel and coplanar electrode

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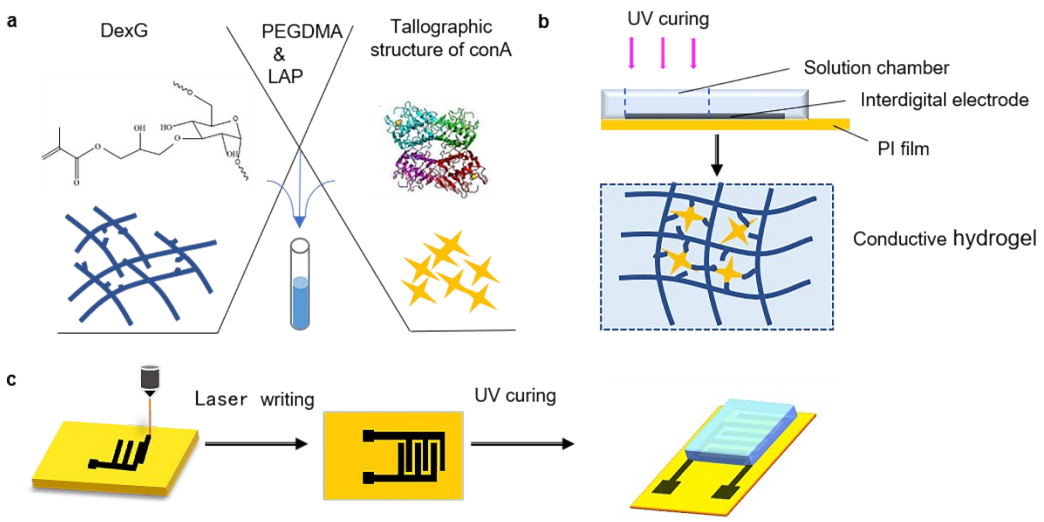

Fig. S1. Schematics of DexG-Con A hydrogel sensor: (a) Preparation of glucose-response solution; (b) Fabrication of hydrogel under UV light; (c) Fabrication of IDEs and integration of DexG-Con A hydrogel sensor.

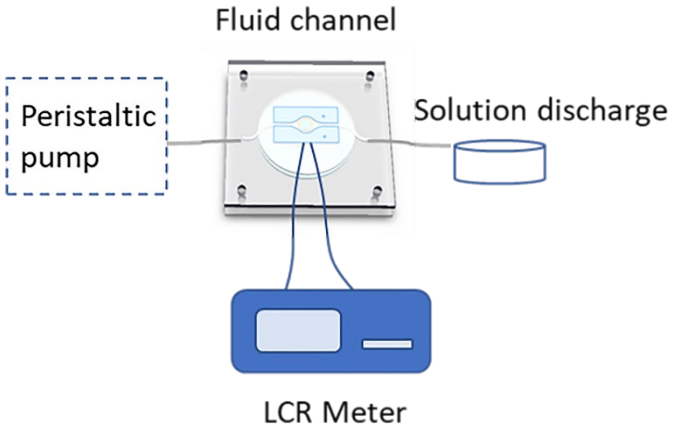

Fig. S2. Experiment setup for time-resolved glucose sensing.

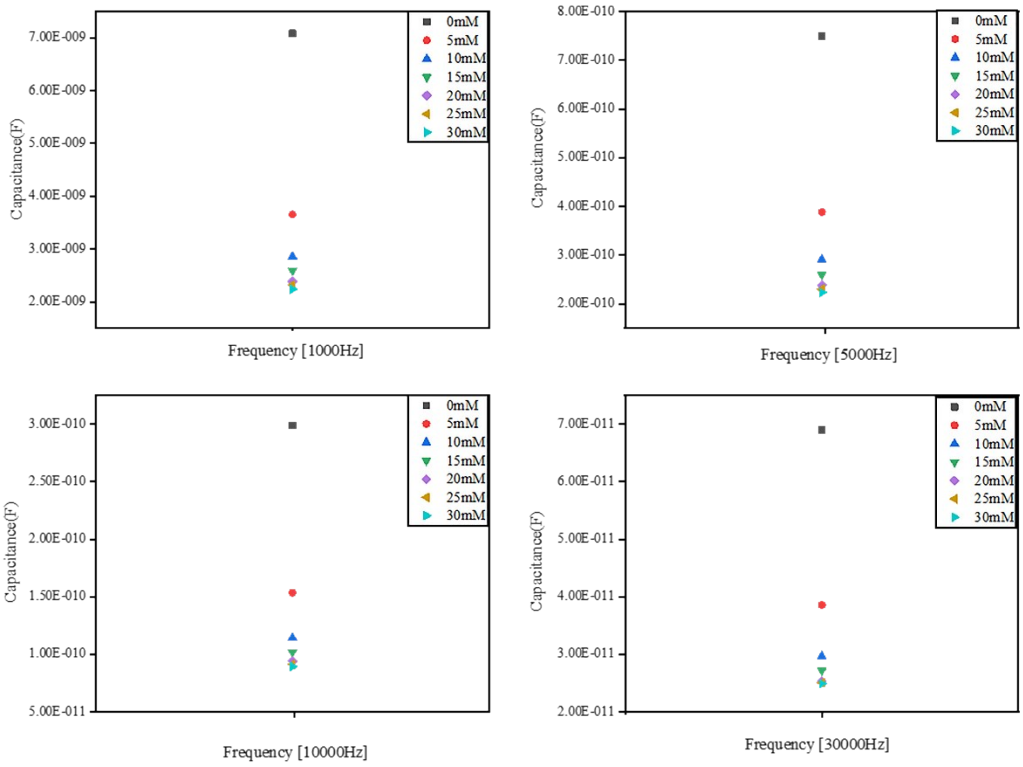

Fig. S3. Capacitance change at different input voltage frequencies when exposed to varied glucose concentrations. Very similar difference in capacitance ($\Delta C/C_{0mM}$) was observed at given 1, 5, 10 and 30 kHz.

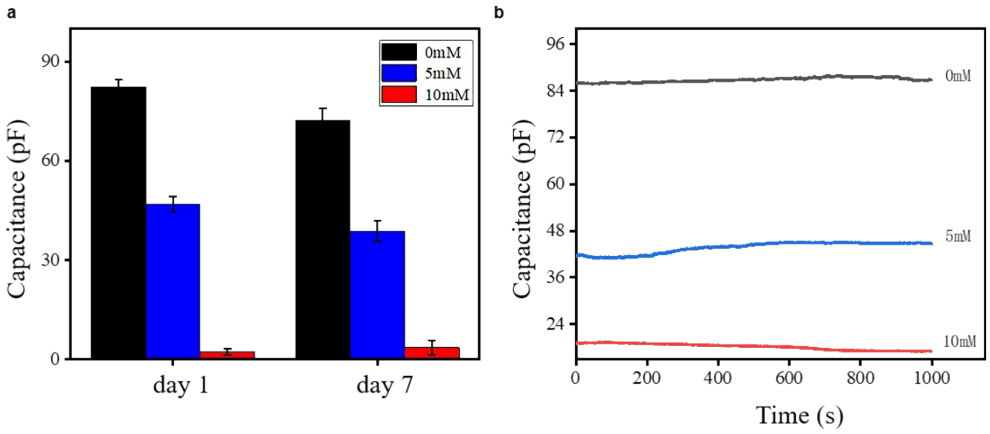

Fig. S4. The stability of DexG-ConA sensor. (a) Capacitance change in response to different glucose concentrations at day 1 and day 7. The sensor was kept under working condition between two measurements. A signal drift of less than 10.9% was found comparing the two measurements at day 1 and day 7. (b) Real-time capacitance changes in response to different glucose concentrations (0, 5, 10 mM) after each capacitance reaches an equilibrium. Throughout the test period over 1000 s, the sensor a relatively constant response for each glucose concentration.

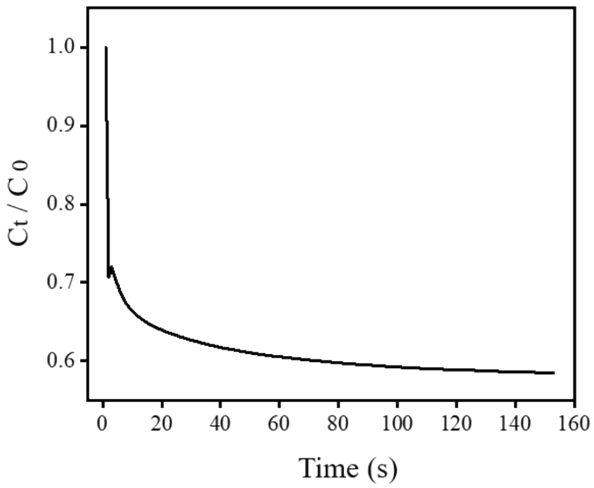

Fig. S5. Sensor capacitance in response to glucose concentration change from 0 mM to 3 mM. When the environment glucose concentration of the sensor increased from 0 to 3 mM, its capacitance can reach an equilibrium in around 2 min.