Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C. This journal is © The Royal Society of Chemistry 2017

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

This journal is © The Royal Society of Chemistry 2016

Electronic Supplementary Information

Motion-based glucose sensing based on a fish-like enzymeless motor

Mingtong Li, Hui Zhang, Mei Liu, Bin Dong*

Institute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory for Carbon-Based Functional Materials & Devices, Soochow University, Suzhou, Jiangsu 215123, P. R. China, E-mail: bdong@suda.edu.cn **Video S1.** The autonomous movement of the fish-like motor in the aqueous solution containing different concentration glucose.

Video S2. The directed motion of the fish-like motor under the influence of an external magnetic field.

Video S3. Motion-based glucose sensing based on the fish-like motor.



Fig. S1 (a) CCD image of the fish-like motor in the absence of glucose. A layer of thymol blue is spread on the water surface as the indicator. (b-d) Consecutive CCD images at 1 s interval showing the surfactant released from the fish-like motor in the solution containing 40 mM glucose.



Fig. S2 (a-d) A series of photographs (at 1 s interval) showing the motion behavior of the rectanglelike motor in the solution with 40 mM glucose. The corresponding trajectory of this motor is shown in (e).



Fig. S3 The travel distance of the fish-like motor versus the glucose concentration in aqueous solution.



Fig. S4 The calibration curve of the travel distance of the fish-like motor versus the glucose concentration in human serum.



Fig. S5 The CCD image showing fructose forms a precipitate with calcium hydroxide (a), while glucose does not (b).



Fig. S6 The calibration curve showing the travel distance of the fish-like motor in urine with different concentration glucose after removing the fructose.