

## Electronic Supplementary Information (ESI)

### **Electricity generation of a laminar-flow microbial fuel cell without any additional power supply**

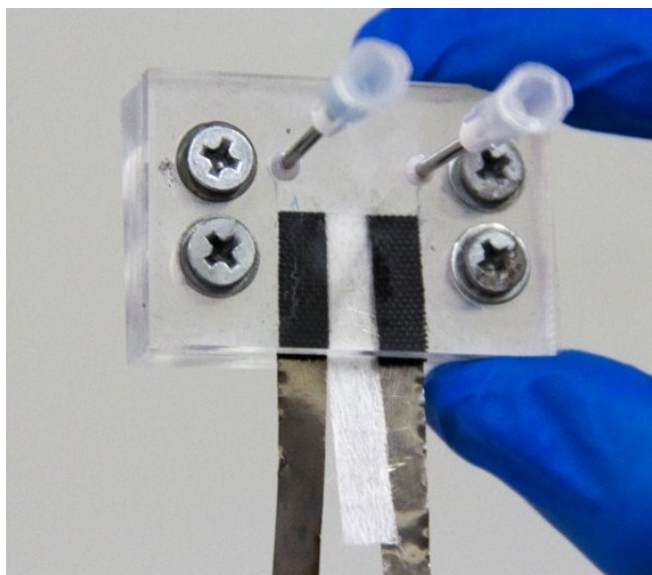
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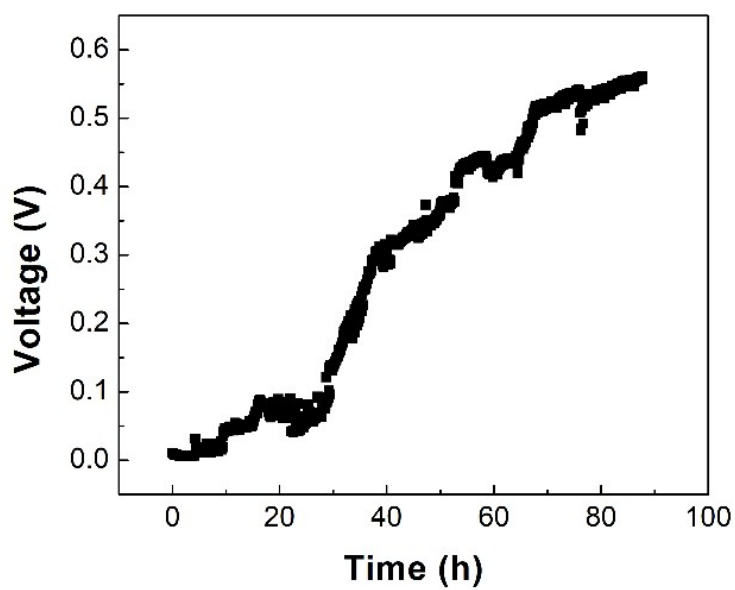
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## Supplementary Figures and Tables



**Fig. S1** The fully assembled laminar-flow microbial fuel cell.



**Fig. S2** Voltage curve of the LFMFC during the start-up process.

**Table S1** Comparison of the cell performance with other  $\mu$ MFCs.

<b>Maximum power density (W m<sup>-3</sup>)</b>	<b>Anode chamber volume (<math>\mu</math>L)</b>	<b>Internal resistance (<math>\Omega</math>)</b>	<b>Membrane</b>	<b>Cathode material</b>	<b>Anode material</b>	<b>Biocatalyst</b>	<b>Reference</b>
2300	4.5	10000	With	Gold	Gold	Mixed bacteria	Choi et al., 2011
62.5	4	16000	With	Carbon cloth	Carbon cloth	<i>S. oneidensis</i> MR-1	Qian et al., 2011
11220	50	219 $\pm$ 10	With	3D graphene scaffold	Gold	Mixed bacteria	Ren et al., 2016
618 <sup>a</sup>	40	2350	Without	Graphite	Graphite	Mixed bacteria	Ye et al., 2013
1810 <sup>a</sup>	40	1092	Without	Graphite	Graphite	Mixed bacteria	Yang et al., 2016
497 <sup>b</sup>	1.52	N/A	Without	Carbon	Carbon	Wild-type <i>Pseudomonas aeruginosa</i> PAO1	Yang et al., 2017
<b>3200 <math>\pm</math>100</b>	<b>27.75</b>	<b>1577</b>	<b>Without</b>	<b>Carbon cloth</b>	<b>Carbon cloth</b>	<b>Mixed bacteria</b>	<b>This work</b>

a: calculated based on anode volume, b: calculated based on the anode volume of a single MFC

## References:

- S. Choi, H.-S. Lee, Y. Yang, P. Parameswaran, C. I. Torres, B. E. Rittmann, and J. Chae. *Lab Chip*, 2011, **11**, 1110–1117.
- F. Qian, Z. He, M. P. Thelen and Y. Li. *Bioresource Technol.*, 2011, **102**, 5836–5840.
- H. Ren, H. Tian, C. L. Gardner, T. L. Ren and J. Chae. *Nanoscale*, 2016, **8**, 3539–3547.
- D. Ye, Y. Yang, J. Li, X. Zhu, Q. Liao, B. Deng and R. Chen. *Int. J. Hydrogen Energy*, 2013, **38**, 15710–15715.
- Y. Yang, D. Ye, Q. Liao, P. Zhang, X. Zhu, J. Li and Q. Fu. *Biosens. Bioelectron.*, 2016, **79**, 406–410.
- W. Yang, K. K. Lee and S. Choi. *Sensor. Actuat. B: Chem.*, 2017, **243**, 292–297.