**Supplemental Material**

**High-Performance Paper-based Biocathode fabricated by Screen-printing an improved Mesoporous Carbon Ink and by Oriented Immobilization of Bilirubin Oxidase**

Noya Loew1,‡, Isao Shitanda1,3,‡,\*, Himeka Goto1, Hikari Watanabe1, Tsutomu Mikawa3, Seiya Tsujimura2,4, and Masayuki Itagaki1,3

1 Department of Pure and Applied Chemistry, Faculty of Science and Technology, Tokyo

University of Science Noda, 2641 Yamazaki, Chiba 278-8510, Japan.

2 Research Institute for Science and Technology, Tokyo University of Science, 2641 Yamazaki, Noda, Chiba 278-8510, Japan

3 RIKEN Center for Biosystems Dynamics Research, 1-7-22 Suehirocho, Tsurumiku,

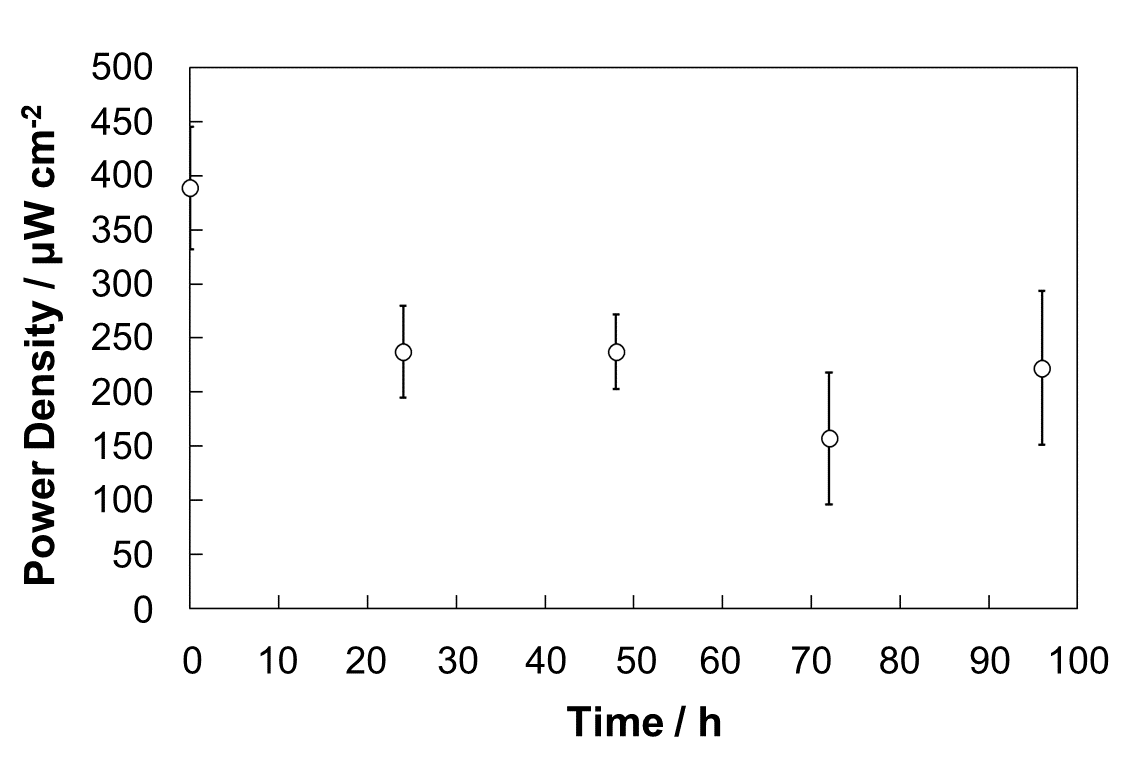
Yokohama, Kanagawa 230-0045, Japan

4 Division of Materials Sciences, Faculty of Pure and Applied Sciences, University of

Tsukuba,1-1-1Tennodai, Tsukuba, Ibaraki, 305-8573, Japan

\* Corresponding author: shitanda@rs.tus.ac.jp, ‡: N. L and I. S. are equal contributors.

**S1**



**Fig. S1.** Storage stability of BFCs. Power density of biofuel cell fabricated using MgOC inks with CMC and bilirubin as guide for BOD immobilization and stored for 24, 48, 72, or 96 h. Storage conditions: room temperature; ambient humidity. Evaluation conditions: 1 M phosphate buffer, pH 7.0; 100 mM lactate; humidity 70%; temperature 36 ºC. Biocathode enzyme: BOD; bioanode enzyme: LOx; bioanode mediator: 1,2-NQ.