Supplementary Information

Improved oxygen reduction reaction activity of three-dimensional porous N-doped graphene from soft-template synthesis strategy in microbial fuel cells

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Fig. S1. Zeta potentials of GO-CTAB mixed solutions with different CTAB dosage.

Fig. S2. SEM images of PNG-0 (a and b), PNG-5 (c and d), PNG-10 (e and f) and PNG-20 (g and h).

Fig. S3. High resolution of N1s of PNG-0 (a), PNG-5 (b), PNG-10 (c) and PNG-20 (d); N1: pyridinic N, N2: pyrrolic N, N3: graphitic N.

Fig. S4. Cyclic voltammograms of PNG-0 (a), PNG-5 (b), PNG-10 (c), PNG-20 (d) and Pt/C (e).

Fig. S5. Polarization curves of ORR on PNG-0 (a), PNG-5 (b), PNG-10 (c), PNG-20 (d) and Pt/C (e) at different rotary rates; inset is the Koutecky-Levich plots.

Fig. S6. Current-potential profiles (a) and corresponding \( \text{H}_2\text{O}_2 \) yield and electron transfer number results (b) at rotation rate of 1600 rpm from RRDE tests of PNG-X.

Fig. S7. Time-course variations of maximum voltage output and power density of MFCs equipped with different cathode electrocatalysts.

Fig. S8. Photographs of the raw and 70-day used air cathode of Pt/C (a, b), PNG-15 (c, d) and PNG-0 (e, f), respectively.

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Fig. S1.
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