

Supporting Information

Okamoto et al. 10.1073/pnas.1220823110

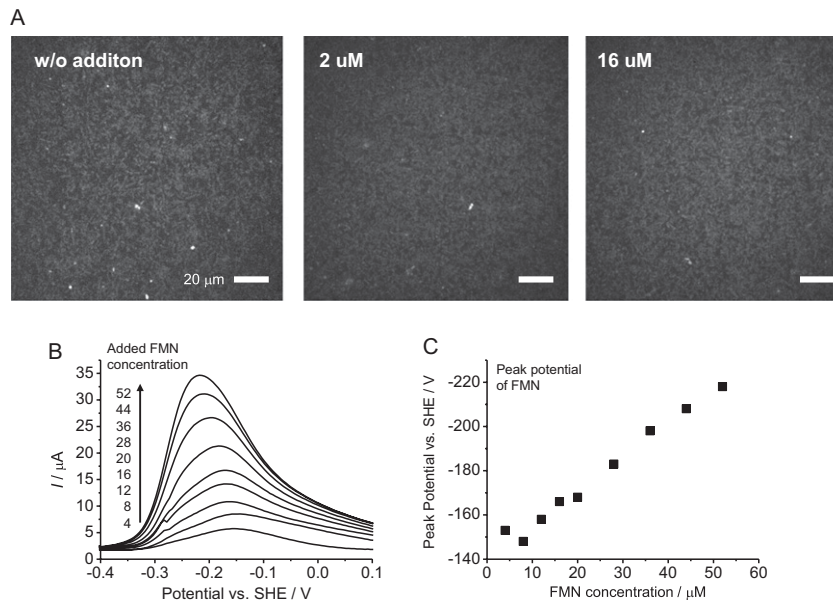


Fig. S1. (A) Confocal fluorescent images of GFP-labeled MR-1 cells attached on an indium tin-oxide (ITO) electrode surface in the presence of 0, 2, or 16 μM flavin mononucleotide (FMN) (*left*, *center*, and *right* panels in A). The number of cells attached on the surface did not change, even 1 h after the addition of 16.0 μM FMN. (B) Differential pulse (DP) voltammograms for monolayer biofilms of *Shewanella oneidensis* MR-1 on an ITO electrode surface in the presence of 4, 8, 12, 16, 20, 28, 36, 44, and 52 μM FMN. (C) Plot of the peak potential (E_p) of FMN against added FMN concentration. As the FMN concentration increased, the E_p of FMN shifted to that of free-form FMN. SHE, standard hydrogen electrode.

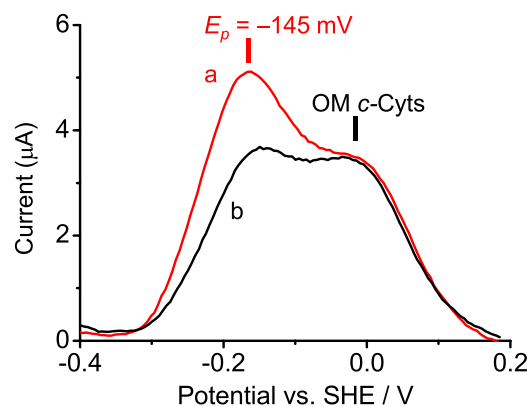


Fig. S2. DP voltammograms for monolayer biofilms of *Shewanella oneidensis* MR-1 on an ITO electrode surface in the presence of 2.0 μM FMN (a) before and (b) after the addition of 1.0 mM tocopherol. Current was normalized by the redox peak current of outer-membrane c-type cytochromes (OM c-Cyts) at $E_p = +50 \text{ mV}$.

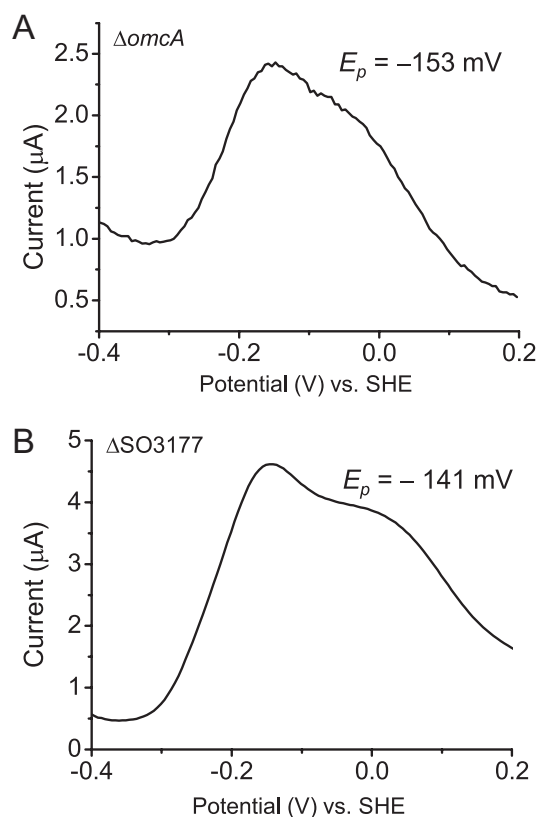


Fig. S3. DP voltammograms of a monolayer biofilm of strains $\Delta omcA$ (A) and $\Delta SO3177$ (B) in the presence of $2.0 \mu M$ flavin mononucleotide.

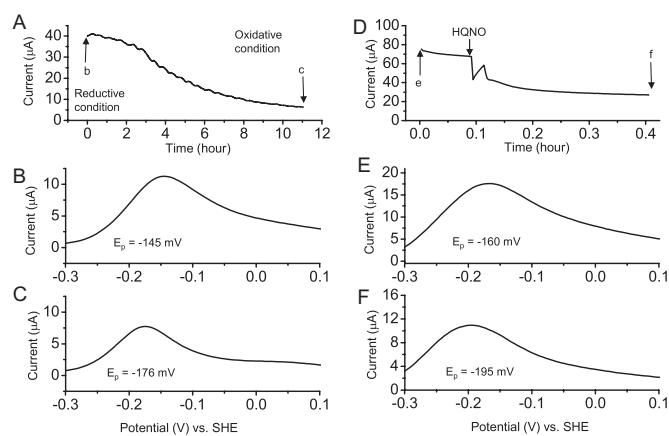


Fig. S4. (A) Current vs. time measurements of microbial current generation for strain MR-1 cells on an ITO electrode surface at $+200$ mV (vs. Ag/AgCl KCl saturated) in a reactor containing 10 mM lactate and $16.0 \mu M$ flavin mononucleotide (FMN). DP voltammetry was performed (B) before and (C) after lactate oxidation current decrease. (D) Current vs. time measurements of microbial current generation for strain MR-1 cells on an ITO electrode surface at $+200$ mV in a reactor containing 10 mM lactate and $4.0 \mu M$ FMN. DP voltammetry was performed (E) before and (F) after the lactate oxidation current decrease by the addition of 1 mM 2-heptyl 4 hydroxyquinoline *N*-oxide (HQNO). HQNO (>99% purity; Santa Cruz Biotech) was added as aliquots from a stock solution of 50 mM in ethanol/water (50/50, vol/vol). SHE, standard hydrogen electrode.

