Supplementary data for

**Bidirectional extracellular electron transfer and electroautotrophic metabolism in *Fundidesulfovibrio terrae***

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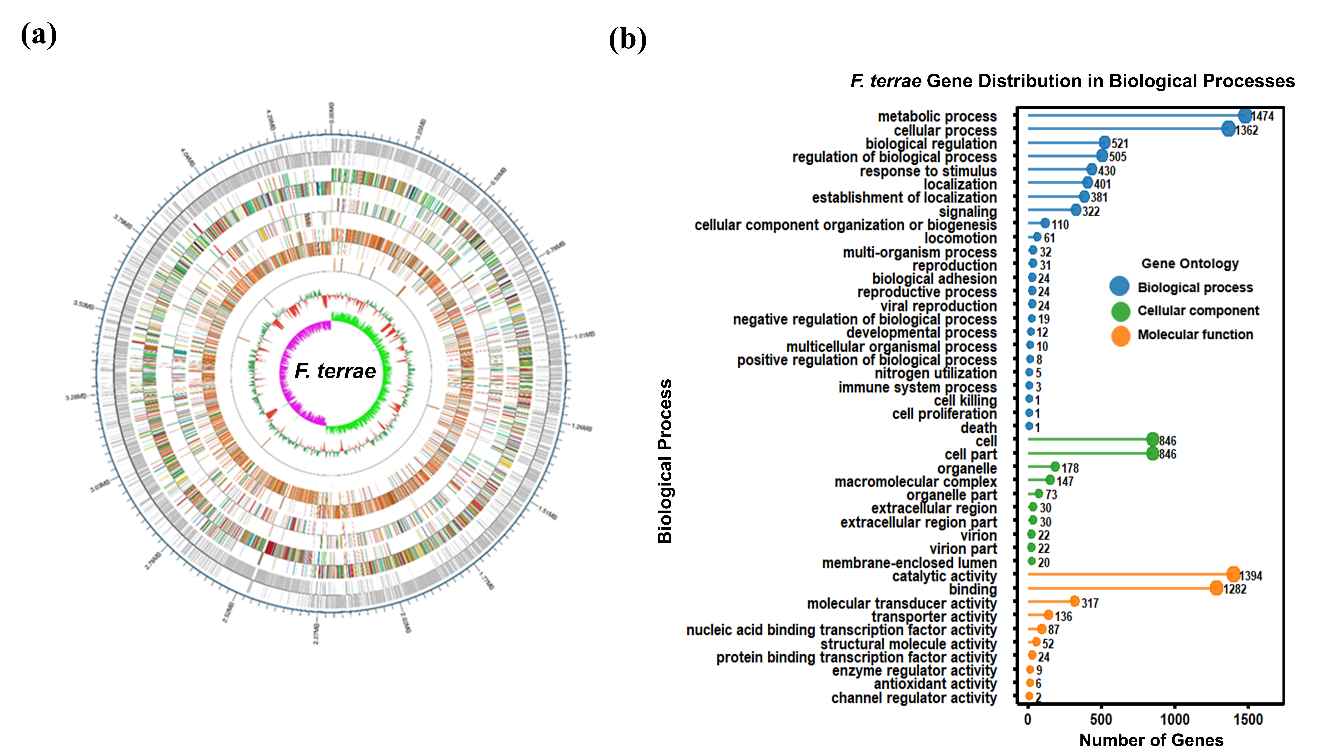
**Supplementary Fig. S1** Schematic diagram of a three-electrode BES designed to study bidirectional electron transfer. (**a**) Electron transfer at the anodic reactor; (**b**) Electron transfer at the cathodic reactor.



**Supplementary Fig. S2** Anaerobic reduction of ferrihydrite and growth of *F. terrae***.** (**a**) Schematic illustration of the experimental setup with ferrihydrite as the sole electron acceptor; (**b**) The growth curve of F. terrae; (**c**) Fe(III) reduction rate at different initial ferrihydrite concentrations; (**d**) The final total iron concentration measured after the incubation period for each ferrihydrite treatment. Data are presented as mean ± standard deviation from n = 3 independent replicates.



**Supplementary Fig. S3** UV-visible absorbance spectra of *F. terrae* cells under different redox conditions**.**(**a**) Cells in the reduced state; (**b**) Cells in the oxidized state.



**Supplementary Fig. S4** Genome annotation and functional characterization of *F. terrae*.(**a**) Circular genome map of *F. terrae*; (**b**) Functional classification of *F. terrae* genes based on Gene Ontology.



**Supplementary Fig. S5** Functional classification of *F. terrae* genes based on KEGG annotation.

**Table S1** Composition of basal medium

|  |  |
| --- | --- |
| **Component** | **Concentration (g/L)** |
| Fumaric acid | 4.64 g |
| NaHCO3 | 1.8 g |
| Na2CO3 | 0.427 g |
| Sodium lactate | 1.12 g |
| CaCl2·2H2O | 0.04 g |
| MgSO4·7H2O | 0.1 g |
| 1 mM Na2SeO3 | 1 mL |
| 100 × NB salts\* | 10 mL |
| Trace mineral elements\* | 10 mL |
| 1 mM vitamin solution\* | 15 mL |
| 0.1% Resazurin | 0.5 mL |
| pH | 7 |
|  |  |
| **100 × NB salts\*** |  |
| **Component** | **Concentration (g/L)** |
| KH2PO4 | 42 |
| K2HPO4 | 22 |
| NH4Cl | 20 |
| KCl | 38 |
|  |  |
| **Trace mineral elements\*** |  |
| **Component** | **Concentration (g/L)** |
| Trisodium nitrilotriacetate | 1.5 |
| MgSO4·7H2O | 3 |
| MnSO4·H2O | 0.5 |
| NaCl | 1 |
| FeSO4·7H2O | 0.1 |
| CaCl2 | 0.1 |
| CoCl2·6H2O | 0.1 |
| ZnSO4·7H2O | 0.1 |
| CuSO4·5H2O | 0.01 |
| KAl(SO4)2 •12H2O | 0.01 |
|  |  |
| **1 mM vitamin solution\*** |  |
| **Component** | **Concentration (mg/L)** |
| Biotin | 2 |
| Folic acid | 2 |
| Pyridoxine hydrochloride | 10 |
| Riboflavin | 5 |
| Thiamine | 5 |
| Niacin | 5 |
| Pantothenic acid | 5 |
| Cobalamin | 0.1 |
| Para-aminobenzoic acid | 5 |
| Lipoic acid | 5 |