

Table 1. Reduction potentials and free energies of relevant compounds and proteins

| Reduction pair | E_{env}^* (volts) ^a | ΔG (kJ/mol) ^b | Refs |
|--|----------------------------------|----------------------------------|---------|
| Terminal electron acceptors | | | |
| Fe ³⁺ /Fe ²⁺ (pH 2) | +0.77 | -74.2 | [74] |
| Fe(III)-citrate/Fe(II)-citrate | +0.385 | -37.1 | [74] |
| Fe(III)-NTA/Fe(II)-NTA | +0.372 | -35.9 | [74] |
| Ferrihydrite _{solid} /Fe ²⁺ | +0.1 to -0.1 | -9.6 to 9.6 | [74] |
| α -FeOOH _{solid} /Fe ²⁺ | -0.274 | 26.4 | [74] |
| α -Fe ₂ O _{3solid} /Fe ²⁺ | -0.287 | 55.4 | [74] |
| Fe ₃ O _{4solid} /Fe ²⁺ | -0.314 | 60.6 | [74] |
| Fumarate/succinate | +0.033 | -6.4 | [75] |
| Electron donors relevant to Figures 1-4 | | | |
| CO ₂ /acetate | -0.29 | 223.8 | [75] |
| NAD ⁺ /NADH | -0.32 | 61.7 | [75] |
| Electron carriers relevant to Figure 1 | | | |
| Cyc2 (pH 4.8) | +0.56 | -54 | [76] |
| Rusticyanin (pH 3.2) | +0.680 | -65.6 | [77] |
| Cyc1 (pH 3) | +0.385; +0.48 | -37.1; -46.3 | [78] |
| CycA1 (pH 4) | +0.51; +0.43 | -49.2; -41.5 | [72] |
| Components of photosynthetic electron transport chains relevant to Figure 2 | | | |
| P _{B70} | +0.45 | -43.4 | [16] |
| P _{B70} [*] | -1.1 | 106.1 | [16] |
| Bph | -0.6 | 57.9 | [16] |
| UQ _A | -0.2 | 38.6 | [16] |
| UQ _B | +0.08 | -15.4 | [16] |
| Cytochrome <i>bc</i> ₁ (<i>b</i>) | +0.05 and -0.09 | -4.8 / 8.7 | [79] |
| Cytochrome <i>bc</i> ₁ (<i>c</i> ₁) | +0.285 | -27.5 | [80] |
| Cytochrome <i>bc</i> ₁ (Rieske) | +0.28 | -27 | [81] |
| Cytochrome <i>c</i> ₂ | +0.365 | -35.2 | [44] |
| Membrane components of ET chains in Figures 1-4 | | | |
| Menaquinones (ox/red) | -0.067 to -0.11 | 12.9 to 21.2 | [82,83] |
| Ubiquinone(ox/red) | +0.11 | -21.2 | [75] |
| <i>Shewanella</i> cytochromes relevant to Figure 3 | | | |
| CymA (pH 6) | -0.354 to -0.075 | 7.2 to 34.1 | [47] |
| STC (pH 6) | -0.285 to -0.035 | 3.4 to 27.5 | [47] |
| MtrA (pH 6) | -0.250 to +0.05 | -4.8 to 24.1 | [47] |
| OmcA (pH 6) | -0.325 to -0.05 | 4.8 to 31.4 | [47] |
| MtrC (pH 6) | -0.275 to -0.0005 | 0 to 26.5 | [47] |
| <i>Geobacter</i> cytochromes relevant to Figure 4 | | | |
| PpcA | -0.169 | 16.3 | [84] |
| OmcB | -0.19 | 18.3 | [85] |
| OmcS | -0.212 | 20.4 | [52] |
| Endogenous and exogenous electron shuttles | | | |
| Riboflavin | -0.208 | 40.1 | [86] |
| Monoflavin nucleotide | -0.19 | 36.7 | [75] |
| AQDS | -0.184 | 35.5 | [87] |
| Humic substances | -0.2 to +0.3 | -77 to 19 | [87] |

^a E_{env}^* indicates environmentally relevant midpoint potentials: pH 7 except where noted, standard concentrations except for solid Fe minerals, for which Fe²⁺ is 100 μ M.

^b ΔG calculations assume standard conditions and pH 7, except in the case of iron minerals where [Fe²⁺] is assumed to be 100 μ M.