**Chapter 10**

**General**

Baker, I. R. *et al*. (2022). Evidence for horizontal and vertical transmission of Mtr-mediated extracellular electron transfer among the bacteria. *mBio* **13**(1), e02904-21. <https://journals.asm.org/doi/abs/10.1128/mbio.02904-21>

Kochetkova, T. V. *et al*. (2022). Diversity of thermophilic prokaryotes inhabiting Russian natural hot springs. *Microbiology-Moscow* **91**(1), 1-27. <https://doi.org/10.1134/S0026261722010064>

**Reverse electron transport**

**Nitrification**

Chawley, P. *et al*. (2022). Envisioning role of ammonia oxidizing bacteria in bioenergy production and its challenges: a review*. Critical Reviews in Biotechnology* **42**(6), 931-952. <https://doi.org/10.1080/07388551.2021.1976099>

Dong, L. *et al*. (2022). Characteristics and mechanism of heterotrophic nitrification/aerobic denitrification in a novel *Halomonas piezotolerans* strain. *Journal of Basic Microbiology* **62**(2), 124-134. <https://doi.org/10.1002/jobm.202100446>

Duan, S. *et al*. (2022). Heterotrophic nitrifying bacteria in wastewater biological nitrogen removal systems: A review. *Critical Reviews in Environmental Science & Technology* **52**(13), 2302-2338. <https://doi.org/10.1080/10643389.2021.1877976>

Gupta, R. K. *et al*. (2022). Role of heterotrophic nitrifiers and aerobic denitrifiers in simultaneous nitrification and denitrification process: a nonconventional nitrogen removal pathway in wastewater treatment. *Letters in Applied Microbiology* **74**(2), 159-184. <https://doi.org/10.1111/lam.13553>

Kraft, B. *et al*. (2022). Oxygen and nitrogen production by an ammonia-oxidizing archaeon. *Science* **375**(6576), 97-100. <https://www.science.org/doi/abs/10.1126/science.abe6733>

Palomo, A. *et al*. (2022). Evolutionary ecology of natural comammox *Nitrospira* populations. *mSystems* **7**(1), e01139-21. <https://journals.asm.org/doi/abs/10.1128/msystems.01139-21>

Wu, L. *et al*. (2022). Nitrogen removal by a novel heterotrophic nitrification and aerobic denitrification bacterium *Acinetobacter calcoaceticus* TY1 under low temperatures. *Bioresource Technology* **353**, 127148. <https://doi.org/10.1016/j.biortech.2022.127148>

Wu, M.-R. *et al*. (2021). Novel *Alcaligenes ammonioxydans* sp. nov. from wastewater treatment sludge oxidizes ammonia to N2 with a previously unknown pathway. *Environmental Microbiology* **23**(11), 6965-6980. <https://doi.org/10.1111/1462-2920.15751>

Xu, S.-Q. *et al*. (2022). Genetic foundations of direct ammonia oxidation (Dirammox) to N2 and MocR-like transcriptional regulator DnfR in *Alcaligenes faecalis* strain JQ135. *Applied & Environmental Microbiology* **88**(6), e02261-21. <https://journals.asm.org/doi/abs/10.1128/aem.02261-21>

**Colourless sulfur bacteria**

Du, R. *et al*. (2022). Heterotrophic sulfur oxidation of *Halomonas titanicae* SOB56 and its habitat adaptation to the hydrothermal environment. *Frontiers in Microbiology* **13**, 888833. <https://www.frontiersin.org/article/10.3389/fmicb.2022.888833>

Geerlings, N. M. J. *et al*. (2022). Polyphosphate dynamics in cable bacteria. *Frontiers in Microbiology* **13**, 883807. <https://www.frontiersin.org/article/10.3389/fmicb.2022.883807>

Huang, X. *et al*. (2022). Transforming heterotrophic to autotrophic denitrification process: Insights into microbial community, interspecific interaction and nitrogen metabolism. *Bioresource Technology* **345**, 126471. <https://www.sciencedirect.com/science/article/pii/S0960852421018137>

Napieralski, S. A. *et al*. (2022). Microbial chemolithotrophic oxidation of pyrite in a subsurface shale weathering environment: Geologic considerations and potential mechanisms. *Geobiology* **20**(2), 271-291. <https://doi.org/10.1111/gbi.12474>

Sachs, C. *et al*. (2022). Tracing long-distance electron transfer and cable bacteria in freshwater sediments by agar pillar gradient columns. *FEMS Microbiology Ecology* **98**(5), fiac042 <https://doi.org/10.1093/femsec/fiac042>

Schulz, H. N. *et al*. (1999). Dense populations of a giant sulfur bacterium in Namibian shelf sediments. *Science* **284**(5413), 493-495. <https://www.science.org/doi/abs/10.1126/science.284.5413.493>

Singh, R. *et al*. (2022). Bioelectrocatalytic sulfide oxidation by a haloalkaliphilic electroactive microbial community dominated by *Desulfobulbaceae*. *Electrochimica Acta* **423**, 140576. <https://doi.org/10.1016/j.electacta.2022.140576>

Sun, X. *et al*. (2022). *Desulfurivibrio* spp. mediate sulfur-oxidation coupled to Sb(V) reduction, a novel biogeochemical process. *The ISME Journal* **16**(6), 1547-1556. <https://doi.org/10.1038/s41396-022-01201-2>

Volland, J.-M. *et al*. (2022). A centimeter-long bacterium with DNA contained in metabolically active, membrane-bound organelles. *Science* **376**(6600), 1453-1458. <https://www.science.org/doi/abs/10.1126/science.abb3634>

Yuan, Y. *et al*. (2022). Effects of different reduced sulfur forms as electron donors in the start-up process of short-cut sulfur autotrophic denitrification*. Bioresource Technology* **354**, 127194. <https://doi.org/10.1016/j.biortech.2022.127194>

**Ferrous iron and other metal oxides**

Huang, J. *et al*. (2022). Salinity impact on composition and activity of nitrate-reducing Fe(II)-oxidizing microorganisms in saline lakes. *Applied & Environmental Microbiology* **88**(10), e00132-22. <https://journals.asm.org/doi/abs/10.1128/aem.00132-22>

Malik, L. & Hedrich, S. (2022). Ferric iron reduction in extreme acidophiles. *Frontiers in Microbiology* **12**, 818414. <https://www.frontiersin.org/article/10.3389/fmicb.2021.818414>

Napieralski, S. A. *et al*. (2022). Microbial chemolithotrophic oxidation of pyrite in a subsurface shale weathering environment: Geologic considerations and potential mechanisms. *Geobiology* **20**(2), 271-291. <https://doi.org/10.1111/gbi.12474>

Zhou, N. *et al*. (2022). Unraveling Fe(II)-oxidizing mechanisms in a facultative Fe(II) oxidizer, *Sideroxydans lithotrophicus* strain ES-1, via culturing, transcriptomics, and reverse transcription-quantitative PCR. *Applied & Environmental Microbiology* **88**(2), e01595-21. <https://journals.asm.org/doi/abs/10.1128/AEM.01595-21>

**Hydrogen oxidizers and carboxydobacteria**

Greening, C. *et al*. (2022). Hydrogen is a major lifeline for aerobic bacteria. *Trends in Microbiology* **30**(4), 330-337. <https://doi.org/10.1016/j.tim.2021.08.004>

**Other inorganic electron donors**

Lovley, D. R. (2022). Electrotrophy: Other microbial species, iron, and electrodes as electron donors for microbial respirations. *Bioresource Technology* **345**, 126553. <https://doi.org/10.1016/j.biortech.2021.126553>

Ostermeyer, P. *et al*. (2022). Electrified bioreactors: the next power-up for biometallurgical wastewater treatment. *Microbial Biotechnology* **15**(3), 755-772. <https://doi.org/10.1111/1751-7915.13992>

Pillot, G. *et al*. (2022). Optimization of growth and electrosynthesis of PolyHydroxyAlkanoates by the thermophilic bacterium *Kyrpidia spormannii*. *Bioresource Technology Reports* **17**, 100949. <https://doi.org/10.1016/j.biteb.2022.100949>

Sackett, J. D. *et al*. (2022). Genome-scale mutational analysis of cathode-oxidizing *Thioclava electrotropha* ElOx9T. *Frontiers in Microbiology* **13**, 909824. <https://www.frontiersin.org/article/10.3389/fmicb.2022.909824>

Skipper, P. J. A. *et al*. (2022). A metagenomic analysis of the bacterial microbiome of limestone, and the role of associated biofilms in the biodeterioration of heritage stone surfaces. *Scientific Reports* **12**, 4877. <https://doi.org/10.1038/s41598-022-08851-4>

Uroz, S. *et al*. (in press). Recent progress in understanding the ecology and molecular genetics of soil mineral weathering bacteria. *Trends in Microbiology*. <https://doi.org/10.1016/j.tim.2022.01.019>

**CO2 fixation**

McNichol, J. *et al*. (2022). Genus-specific carbon fixation activity Measurements reveal distinct responses to oxygen among hydrothermal vent *Campylobacteria*. *Applied & Environmental Microbiology* **88**(2), e02083-21. <https://journals.asm.org/doi/abs/10.1128/AEM.02083-21>

**Calvin cycle**

Liu, L.-N. (2022). Advances in the bacterial organelles for CO2 fixation. *Trends in Microbiology* **30**(6), 567-580. <https://doi.org/10.1016/j.tim.2021.10.004>

**Reductive TCA cycle**

Ivanovsky, R. N. *et al*. (2022). A new glance on the mechanism of autotrophic CO2 assimilation in green sulfur bacteria. *Microbiology-Moscow* **91**(3), 225-234. <https://doi.org/10.1134/S0026261722300026>

**Acetyl-CoA pathway**

Piatek, P. *et al*. (2022). Agr quorum sensing influences the Wood-Ljungdahl pathway in *Clostridium autoethanogenum*. *Scientific Reports* **12**, 411. <https://doi.org/10.1038/s41598-021-03999-x>

**3-hydroxypropionate cycle**

**4-hydroxybutyrate cycles**