**Table S1. Bacterial strains**

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| **Strains** | **Relevant genotype** | **Reference or source** |
| *Thiorhodospira sibirica* ATCC 700588T | Wild type | (*Bryantseva et al., 1999*) |
| *Thioalkalivibrio* sp. K90 mix | Wild type | (*Muyzer et al., 2011*) |
| *Hyphomicrobium denitrificans* XT  (ATCC 51888) | Wild type | (*Urakami et al., 1995*) |
| *H. denitrificans* Sm200 | Smr, spontaneous streptomycin-resistant mutant of *H. denitrificans* ATCC 51888T | (*Koch and Dahl, 2018*) |
| *H. denitrificans* ∆*lbpA* | Smr, *in-frame* deletion of *lbpA2* (Hden\_0696) in *H. denitrificans* Sm200 | This work |
| *H. denitrificans* ∆*hdr* | Smr, Tcr, Hden\_0691-Hden\_0692::ΩTet (in Sm200) | (*Koch and Dahl, 2018*) |
| *H. denitrificans hdr*+ | Tcr, Kmrr *H. denitrificans* wt with plasmid pBBR1p264HdenHdrTet | (*Koch and Dahl, 2018*) |
| *Escherichia coli* DH5α | *fhuA2 Δ(argF-lacZ)U169 phoA glnV44 Φ80 Δ(lacZ)M15 gyrA96 recA1 relA1 endA1 thi-1 hsdR17* | (*Hanahan, 1983*) |
| *E. coli* NEB 10β | Δ(*ara-leu) 7697 araD139 fhuA* Δ*lacX74 galK16 galE15 e14-* ϕ*80*d*lacZ*Δ*M15 recA1 relA1 endA1 nupG rpsL* (Strr) *rph spoT1* Δ*(mrr-hsdRMS-mcrBC)* | New England Biolabs |
| *E. coli* BL21 DE3 | *B dcm ompT hsdS(rB-mB-) gal* | Novagen |
| *E. coli* MG1655 | *rph-1* | CGSCa |
| *E. coli* QC146 | Δ*lplA*::*FRT* Δ*lipB*::*FRT* | (*Christensen and Cronan, 2009*) |
| *E. coli* DK574 | *metB1 relA1 spoT1* λ- λr *gyrA216 panD2 zad-220*::Tn*10 F-* withpMS421and pMR19 | (*Keating et al., 1995*) |
| *E. coli* BL21 (DE3) Δ*iscR* | F- *ompT* *hsdS*B(rB-mB-) *gal dcm* Δ*iscR*::Kan (DE3) | (*Akhtar and Jones, 2008*) |
| *Bacillus subtilis* JH642 | *trpC2 pheA1* | Lab stock |
| *B. subtilis* NM20 | JH642 *gcvH*::Km | (*Christensen et al., 2011*) |

aCGSG denotes the *E. coli* Genetic Stock Center

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