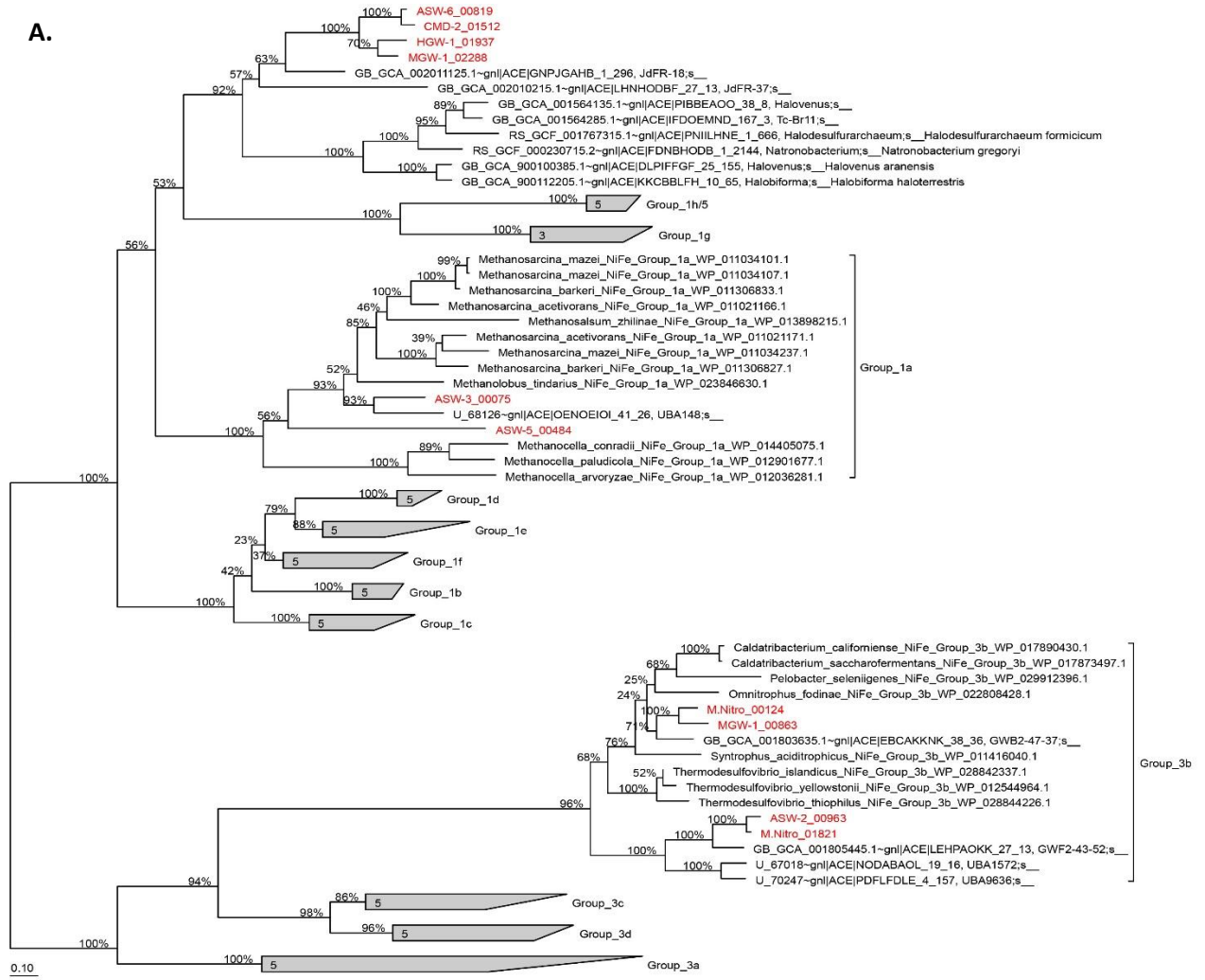


A.



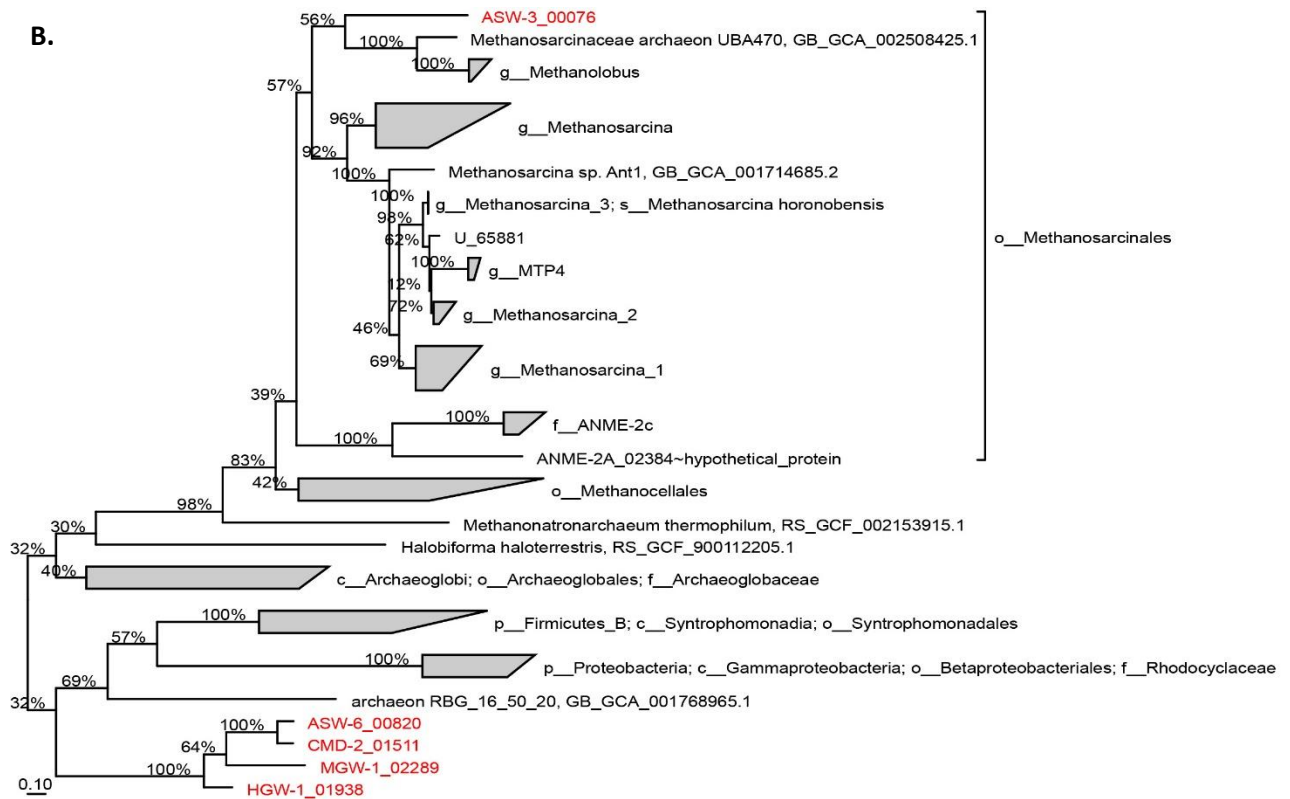


Figure S4. Phylogenetic analysis of the subunits of the NiFe hydrogenases annotated in the *Methanoperedenaceae* genomes. A. Analysis of the catalytic subunits of the energy-converting NiFe hydrogenases. **B.** Analysis of the b-type cytochrome in the Group 1 NiFe hydrogenases. Putative genes recovered from the *Methanoperedenaceae* are highlighted in red. The gene trees were inferred using maximum likelihood and support values calculated via non-parametric bootstrapping. The reference sequences of Group 1 and Group 3 NiFe hydrogenases were acquired from Greening *et al.*, (C. Greening, A. Biswas, C. R. Carere, C. J. Jackson, M. C. Taylor, M. B. Stott, G. M. Cook and S. E. Morales, ISME J 10: 761-777, 2016, <https://doi.org/10.1038/ismej.2015.153>) and the GTDB v83 reference sequences (D.H. Parks, M. Chuvochina, D. W. Waite, C. Rinke, A. Skarshewski, P.-A. Chaumeil and P. Hugenholtz, Nat Biotechnol 36: 996-1004, 2018, <https://doi.org/10.1038/nbt.4229>). The scale bar represents amino acid changes.