

## Supplementary information

**A survey of putative quorum sensing genes in nitrifying bacteria reveals acyl-homoserine lactone production in ammonia- and nitrite-oxidizing bacteria from the genera *Nitrospira*, *Nitrobacter*, and *Nitrospira*.**

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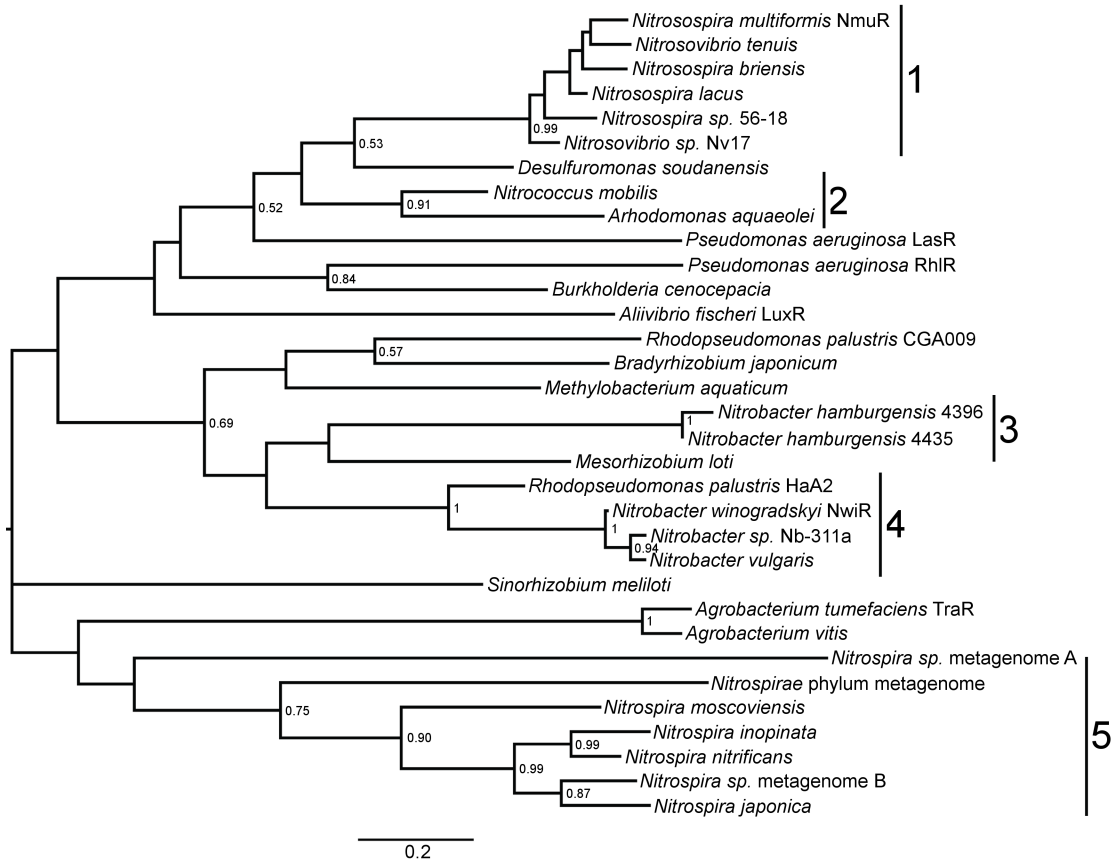
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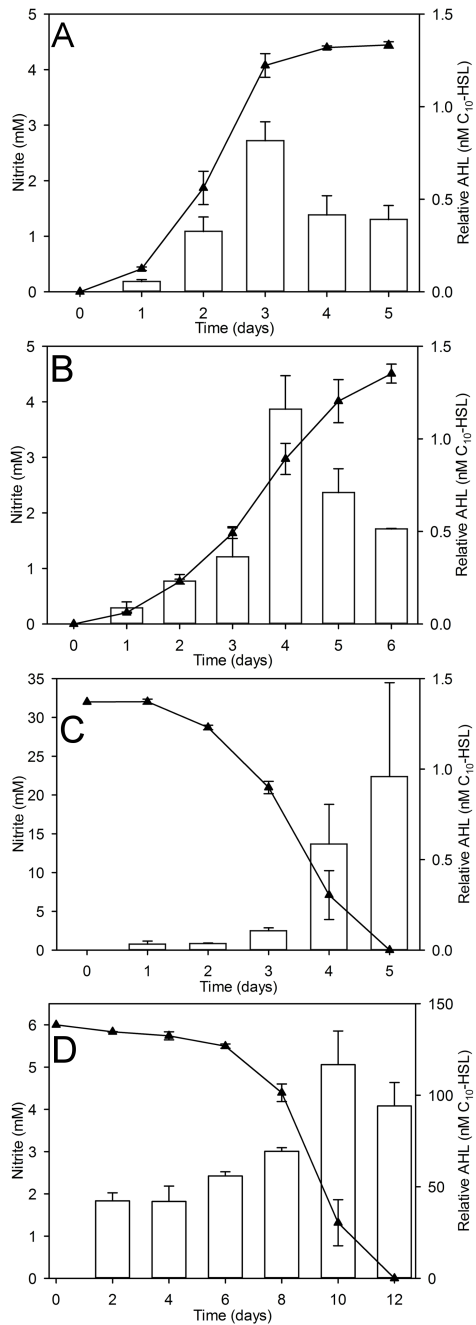
Supplementary Figure 1

Supplementary Figure 2

Supplementary References



**Figure S1.** Phylogenetic tree of selected LuxR homologues from nitrifiers and other bacteria. The scale bar indicates the mean number of substitutions per site. Bootstrap values from 500 resamplings are shown only for nodes with 0.5 or greater. Numbered bars indicate clades 1 through 5 described in results. The protein name or gene number of the LuxR homolog follows the genus, species, and strain designation, if applicable.



**Figure S2.** AHL production during growth in batch culture. AHLs were detected by bioassay during batch culture of NH<sub>3</sub> oxidizers, *N. multiformis* (A) and *N. briensis* (B), and NO<sub>2</sub><sup>-</sup> oxidizers, *N. vulgaris* (C) and *N. moscoviensis* (D). Triangles (—▲—, line graph) indicate nitrite concentration (mM, left y-axis) and bars represent relative AHL concentration detected (equivalent to nM C<sub>10</sub>-HSL, left y-axis) over time (days, x-axis).

Relative AHL concentrations were quantified based on C<sub>10</sub>-HSL standards as previously reported, but actual concentrations vary depending on the AHL being measured (1, 2). Values are the mean of three independent biological replicates. Error bars indicate the standard deviation of the mean.

## **SUPPLEMENTARY REFERENCES**

1. **Mellbye BL, Giguere AT, Bottomley PJ, Sayavedra-Soto LA.** 2016. Quorum Quenching of *Nitrobacter winogradskyi* Suggests that Quorum Sensing Regulates Fluxes of Nitrogen Oxide(s) during Nitrification. *MBio* **7**.
2. **Zhu J, Chai Y, Zhong Z, Li S, Winans SC.** 2003. *Agrobacterium* bioassay strain for ultrasensitive detection of N-acylhomoserine lactone-type quorum-sensing molecules: detection of autoinducers in *Mesorhizobium huakuii*. *Appl Environ Microbiol* **69**:6949-6953.