***eLife’s* transparent reporting form**

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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
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Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

Not applicable to this paper. In this paper we imaged hundreds of cells from *Shewanella oneidensis, Legionella pneumophila* and *Pseudomonas aeruginosa*. The information related to image processing and sub-tomogram averaging are detailed in the materials and methods section.

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* You should report how often each experiment was performed
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Hundreds of cells from each species investigated in this study were imaged as explained in the materials and methods section.

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* Statistical analysis methods should be described and justified
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Raw Blast results of the bioinformatics analysis performed in this study are shown in the supplementary information (Supplementary tables S1 and S2).

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

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The motors imaged in this paper were selected based on their stator system type. This is explained in detailed in many parts of this paper (abstract, introduction and results and discussion sections).

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Not applicable to this paper.