Tropodithietic acid (TDA)-producing *Ruegeria mobilis* strains of the Roseobacter clade have primarily been isolated from marine aquaculture and have probiotic potential due to inhibition of fish pathogens. We hypothesized that TDA producers with additional novel features are present in the oceanic environment. We isolated 42 TDA-producing *R. mobilis* strains during a global marine research cruise. While highly similar on the 16S ribosomal RNA gene level (99–100% identity), the strains separated into four sub-clusters in a multilocus sequence analysis. They were further differentiated to the strain level by average nucleotide identity using pairwise genome comparison. The four sub-clusters could not be associated with a specific environmental niche, however, correlated with the pattern of sub-typing using co-isolated phages, the number of prophages in the genomes and the distribution in ocean provinces. Major genomic differences within the sub-clusters include prophages and toxin-antitoxin systems. In general, the genome of *R. mobilis* revealed adaptation to a particle-associated life style and querying TARA ocean data confirmed that *R. mobilis* is more abundant in the particle-associated fraction than in the free-living fraction occurring in 40% and 6% of the samples, respectively. Our data and the TARA data, although lacking sufficient data from the polar regions, demonstrate that *R. mobilis* is a globally distributed marine bacterial species found primarily in the upper open oceans. It has preserved key phenotypic behaviors such as the production of TDA, but contains diverse sub-clusters, which could provide new capabilities for utilization in aquaculture.

**General information**

Publication status: Published
Organisations: Department of Systems Biology, Bacterial Ecophysiology and Biotechnology, Metabolomics Platform, National Institute of Aquatic Resources, Hellenic Centre for Marine Research, Miguel Hernández University, Helmholtz Centre for Infection Research, University of Copenhagen
Number of pages: 15
Pages: 569–583
Publication date: 2017
Peer-reviewed: Yes

**Publication information**
Journal: The ISME Journal
Volume: 11
Issue number: 2
ISSN (Print): 1751-7362
Ratings:
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 9.5 SJR 4.813 SNIP 2.33
Web of Science (2017): Impact factor 9.52
Web of Science (2017): Indexed yes
Keywords: Ecology, Evolution, Behavior and Systematics, Microbiology
DOI:
10.1038/ismej.2016.111

**Bibliographical note**
Corrigendum: The ISME Journal (2017) 11, 588; doi:10.1038/ismej.2016.125
Source: FindIt
Source ID: 2341981246
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review