Supporting Information

Bioscience, Biotechnology, and Biochemistry

Design of novel primer sets for easy detection of *Ruegeria* species from seawater

Supporting Figures:

Figure S1 Collection of environmental DNA from seawater. Photo of the sampling site (Nishikino-hama, Osaka, Japan). The photo was taken when the samples were collected in June 2019.

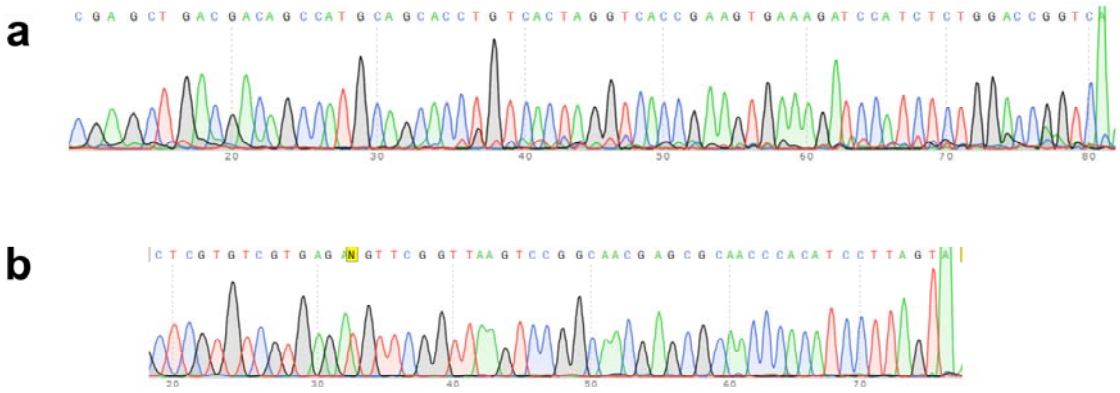

Figure S2 Results of Sanger sequence of the amplicons. a: signals of r38F-r30R amplicons. b: signals of r445F-r446R amplicons. “N” was translated to “T” according to the signals.

Supporting FASTA file: NGS reads after denoise using DADA2 on QIIME2 platform.

Summary of the sequence can be find in Table S8.

Supporting References:

Chiu JM, Li S, Li A, et al. Bacteria associated with skeletal tissue growth anomalies in the coral *Platygyra carnosus*. FEMS Microbiol Ecol. 2012 Feb;79(2):380-91. doi: 10.1111/j.1574-6941.2011.01225.x. PubMed PMID: 22066499.

Grenier F, Matteau D, Baby V, et al. Complete Genome Sequence of *Escherichia coli* BW25113. Genome Announc. 2014 Oct 16;2(5). doi: 10.1128/genomeA.01038-14. PubMed PMID: 25323716; PubMed Central PMCID: PMCPMC4200154.

Hodkinson BP, Lutzoni F. A microbiotic survey of lichen-associated bacteria reveals a new lineage from the Rhizobiales. Symbiosis. 2009;49:163-180.

Hoffmann M, Monday SR, Allard MW, et al. *Vibrio caribbeanicus* sp. nov., isolated from the marine sponge *Scleritoderma cyanea*. Int J Syst Evol Microbiol. 2012 Aug;62(Pt 8):1736-43. doi: 10.1099/ijs.0.032375-0. PubMed PMID: 21930677.

Lane DJ. 16S/23S rRNA sequencing. In: Nucleic acid techniques in bacterial systematics. In: Stackebrandt E, Goodfellow M, editors. Nucleic Acid Techniques in Bacterial Systematic. New York: John Wiley and Sons; 1991. p. 115-175.

Miura N, Motone K, Takagi T, et al. Ruegeria sp. Strains Isolated from the Reef-Building Coral *Galaxea fascicularis* Inhibit Growth of the Temperature-Dependent Pathogen *Vibrio coralliilyticus*. Mar Biotechnol (NY). 2019 Feb;21(1):1-8. doi: 10.1007/s10126-018-9853-1. PubMed PMID: 30194504.

Moran MA, Belas R, Schell MA, et al. Ecological genomics of marine Roseobacters. Appl Environ Microbiol. 2007 Jul;73(14):4559-69. doi: 10.1128/AEM.02580-06. PubMed PMID: 17526795; PubMed Central PMCID: PMCPMC1932822.

Moran MA, Buchan A, Gonzalez JM, et al. Genome sequence of *Silicibacter pomeroyi* reveals adaptations to the marine environment. Nature. 2004 Dec 16;432(7019):910-3. doi: 10.1038/nature03170. PubMed PMID: 15602564.

Rudi K, Skulberg OM, Larsen F, et al. Strain characterization and classification of oxyphotobacteria in clone cultures on the basis of 16S rRNA sequences from the variable regions V6, V7, and V8. Appl Environ Microbiol. 1997 Jul;63(7):2593-9. PubMed PMID: 9212409; PubMed Central PMCID: PMCPMC168556.

Santos Ede O, Alves N, Jr., Dias GM, et al. Genomic and proteomic analyses of the coral pathogen *Vibrio coralliilyticus* reveal a diverse virulence repertoire. ISME J. 2011 Sep;5(9):1471-83. doi: 10.1038/ismej.2011.19. PubMed PMID: 21451583; PubMed Central PMCID: PMCPMC3160677.

Sussman M, Willis BL, Victor S, et al. Coral pathogens identified for White Syndrome (WS) epizootics in the Indo-Pacific. PLoS One. 2008 Jun 18;3(6):e2393. doi: 10.1371/journal.pone.0002393. PubMed PMID: 18560584; PubMed Central PMCID: PMCPMC2409975.

Turner S, Pryer KM, Miao VP, et al. Investigating deep phylogenetic relationships among cyanobacteria and plastids by small subunit rRNA sequence analysis. J Eukaryot Microbiol. 1999 Jul-Aug;46(4):327-38. PubMed PMID: 10461381.

Weisburg WG, Barns SM, Pelletier DA, et al. 16S ribosomal DNA amplification for phylogenetic study. J Bacteriol. 1991 Jan;173(2):697-703. doi: 10.1128/jb.173.2.697-703.1991. PubMed PMID: 1987160; PubMed Central PMCID: PMCPMC207061.