

Table S1. Potential ecological distributions of 16S rRNA gene sequences closely related to strains W99^T, S113^T, and S268^T, assessed using the Integrated Microbial Next-Generation Sequencing (IMNGS) platform at a 99.0% sequence similarity threshold. “Matched no. (Prevalence)” represents the number (percentage) of datasets containing 16S rRNA gene sequences showing $\geq 99.0\%$ sequence similarity to the respective query sequences of strain W99^T, S113^T, and S268^T, and “ARA” denotes the average relative abundance of the matched sequences within the datasets. Prevalence values below 0.5% for all three query sequences are not shown. –, not detected.

Source/host	No. of datasets	Strain W99 ^T		Strain S113 ^T		Strain S268 ^T	
		Matched no. (prevalence, %)	ARA (%)	Matched no. (prevalence, %)	ARA (%)	Matched no. (prevalence, %)	ARA (%)
<i>Capasa incensata</i>	1	–	–	1 (100)	0.003	–	–
Sea anemone metagenome	43	33 (76.7)	3.082	33 (76.7)	3.082	–	–
<i>Tripneustes gratilla</i>	26	14 (53.8)	0.045	18 (69.2)	0.166	6 (23.1)	0.060
<i>Seminavis robusta</i>	9	4 (44.4)	0.251	8 (88.9)	0.574	1 (11.1)	0.033
<i>Leptogorgia sarmentosa</i>	3	–	–	1 (33.3)	0.008	–	–
<i>Cancer borealis</i>	31	7 (22.6)	0.001	3 (9.7)	< 0.001	1 (3.2)	< 0.001
<i>Panulirus ornatus</i>	20	3 (15.0)	0.346	4 (20.0)	0.501	–	–
<i>Fungia</i>	41	–	–	2 (4.9)	0.192	1 (2.4)	0.190
Rumen bacterium 1/9293-11A	12	1 (8.3)	0.001	–	–	–	–
<i>Calliphora terraenovae</i>	31	1 (3.2)	0.001	–	–	–	–
Coral metagenome	2,795	85 (3.0)	0.075	106 (3.8)	0.078	49 (1.8)	0.090
Urban metagenome	35	1 (2.9)	< 0.001	–	–	–	–
Annelid metagenome	37	1 (2.7)	< 0.001	1 (2.7)	< 0.001	–	–
Unidentified virus	77	2 (2.6)	< 0.001	–	–	–	–
Human blood metagenome	84	2 (2.4)	0.011	–	–	–	–
Shrimp gut metagenome	86	2 (2.3)	0.001	–	–	–	–

Beach sand metagenome	180	3 (1.7)	< 0.001	1 (0.6)	< 0.001	—	—
<i>Euprymna scolopes</i>	62	1 (1.6)	< 0.001	—	—	—	—
Epibiont metagenome	132	—	—	2 (1.5)	< 0.001	2 (1.5)	< 0.001
Mollusc metagenome	157	2 (1.3)	0.009	—	—	—	—
Compost metagenome	383	4 (1.0)	0.004	—	—	—	—
Sediment metagenome	4,605	46 (1.0)	< 0.001	7 (0.2)	< 0.001	17 (0.4)	< 0.001
Coral reef metagenome	161	—	—	1 (0.6)	< 0.001	—	—
Marine metagenome	37,438	129 (0.3)	0.006	217 (0.6)	0.029	91 (0.2)	0.003
<i>Crassostrea gigas</i>	1,170	—	—	6 (0.5)	< 0.001	1 (0.1)	< 0.001
Biofilm metagenome	2,953	6 (0.2)	< 0.001	4 (0.1)	< 0.001	15 (0.5)	0.003
Plant metagenome	12,101	4 (0.03)	< 0.001	1 (0.008)	< 0.001	69 (0.6)	< 0.001
Rock metagenome	169	—	—	—	—	1 (0.6)	0.005
