

Supplementary Materials

Table S1. Metadata regarding species used for the phylogenetic analysis of the NTK community strains. Strain synonyms, isolation-associated information, and type strain designation are mentioned.

Species	Strain synonyms	Isolation associated information	Type strain	Reference / GenBank accession
<i>Aliivibrio fischeri</i> ATCC 7744	BCRC 12900, CAIM 329, CCUG 13450, CCUG 16305, CECT 524, CIP 103206, CIP 75.08, DSM 507, LMG 4414, JCM 18803, KCTC 12272, KCTC 12386, NCIMB 1281, NRRL B-761, NRRL B-41164	Isolation source: fish (bioluminescent) Collection date: 1888 Location: N/A	✓	[1]
<i>Anaerobacillus macyae</i> DSM 16346	CIP 108766, JCM 12340, JMM-4	Isolation source: gold mine Collection date: 01-JAN-2004 Location: Bendigo, Victoria, Australia	✓	[2]
<i>Bacillus algalicola</i> KMM 3737	CIP 107850, KCTC 13005	Isolation source: <i>Fucus evanescens</i> (brown algae) Collection date: 1999 Location: Kraternaya Bight, Kuril Islands	✓	[3]
<i>Bacillus altitudinis</i> 41KF2b	BCRC 17879, DSM 21631, JCM 13350, MTCC 7306	Isolation source: cryogenic tube used for collecting air samples Collection date: 2001 Location: 41 km altitude, India (17.4722°/ 78.5800°)	✓	[4]
<i>Bacillus amyloliquefaciens</i> DSM 7	ATCC 23350, BCRC 11601, Campbell F, CCUG 28519, F, Fukomoto F, IFO 15535, NBRC 15535, NCCB 91058, NRRL B-14393	Isolation source: soil and industrial amylase fermentations Collection date: before 1943 Location: N/A	✓	[5]
<i>Bacillus aquimaris</i> TF-12	DSM 16205, JCM 11545, KCCM 41589	Isolation source: sea water of a tidal flat Collection date: 06-NOV-2009 Location: Yellow Sea, South Korea	✓	[6]
<i>Bacillus atrophaeus</i> 1942	Vogel	Isolation source: unknown, terrestrial Collection date: 1930s-1940s presumably Location: N/A	-	[7]
<i>Bacillus atrophaeus</i> JCM9070	ATCC 49337, BCRC 17123, CCUG 28524, DSM 7264, NBRC 15539, NCIMB 12899, NRRL-NRS 213	Isolation source: soil Collection date: 1940 Location: Colorado, USA	✓	[8]
<i>Bacillus cereus</i> ATCC 14579	BCRC 10603, CCM 2010, CCUG 7414, CIP 66.24, DSM 31, Ford 13, Gibson 971, HAMBI 1887, HAMBI 1905, IAM 12605, JCM 2152, LMG 6923, NBRC 15305, NCCB 75008, NCIMB 9373, NCTC 2599, NRRL B-3711, UCM B-5650, VKM B-504	Isolation source: air Collection date: before 1887 Location: N/A	✓	[9]
<i>Bacillus cytotoxicus</i> NVH 391-98	CIP 110041, DSM 22905	Isolation source: vegetable puree, related to food poisoning Collection date: 1998 Location: retirement house, France	✓	[10]

<i>Bacillus firmus</i> EN 5C	N/A	Isolation source: agricultural soil Collection date: N/A Location: Visakhapatnam district, Andhra Pradesh, India	-	[11]
<i>Bacillus firmus</i> NCTC 10335	ATCC 14575, BCRC 11730, CCM 2213, CCUG 7418, CIP 52.70, DSM 12, HAMBI 1886, IAM 12464, JCM 2512, LMG 7125, NBRC 15306, NCAIM B.01087, NCCB 48015, NCIMB 9366, NCTC 10335, NRRL B-14307, NRRL NRS-613, VKM B-498	Isolation source: soil Collection date: before 1933 Location: N/A	✓	[12]
<i>Bacillus gottheilii</i> WCC 4585	CCUG 59876, DSM 23668, G 6155, LMG 25856	Isolation source: clean room of production line of pharmaceutical manufacturing site for vaccines Collection date: 2008 Location: Sachsen-Anhalt, Dessau, Germany	✓	[13]
<i>Bacillus hwojinpoensis</i> 22506_14_FS	N/A	Isolation source: fleur de sel salt Collection date: N/A Location: grocery store, France	-	WMEY01000019
<i>Bacillus hwojinpoensis</i> Y2	N/A	Isolation source: salt water Collection date: 01-Feb-2019 Location: Hampton Beach, New Hampshire, USA (42.899 N / 70.81085 W)	-	SWFM01000018
<i>Bacillus infantis</i> NRRL B-14911	N/A	Isolation source: open ocean 10 m depth Collection date: JUN-1992 Location: Gulf of Mexico, near the Bimini Islands, Bahamas	-	[14]
<i>Bacillus krulwichiae</i> AM31D	DSM 18225, IAM 15000, JCM 11691, NCIMB 13904	Isolation source: aromatic-compound-contaminated garden soil Collection date: before 2003 Location: Tsukuba, Ibaraki, Japan (36.1167 N/ 140.2167 E)	✓	[15]
<i>Bacillus marisflavi</i> 151-25	N/A	Isolation source: Cd-contaminated soil (59.561 ± 3.76 mg Cd kg ⁻¹) Collection date: APR-2016 Location: Hunan, China	-	[16]
<i>Bacillus marisflavi</i> TF-11	DSM 16204, JCM 11544, KCCM 41588	Isolation source: sea water of a tidal flat Collection date: 01-JAN-2003 Location: Yellow Sea, South Korea	✓	[6]
<i>Bacillus megaterium</i> IAM 13418	ATCC 14581, BCRC 10608, CCM 2007, CCUG 1817, CIP 66.20, DSM 32, Ford 19, Gibson 1060, HAMBI 2018, JCM 2506, KCTC 3007, LMG 7127, NBRC 15308, NCCB 75016, NCIMB 9376, NCTC 10342, NRIC 1710, NRRL B-14308, VKM B-512	Isolation source: environmental sample Collection date: before 1884 Location: N/A	✓	[17]
<i>Bacillus oceanisediminis</i> 2691	KCTC 33020	Isolation source: marine sediment Collection date: AUG-1999 Location: Tae-an-gun, Chungchungnam-do, South Korea	-	[18]

<i>Bacillus oceanisediminis</i> H2	CGMCC 1.10115, DSM 24771, JCM 16506	Isolation source: marine sediment, 823 m depth Collection date: before 2010 Location: South Sea, China	✓	[19]
<i>Bacillus oryzaecorticis</i> IHB B 17121	N/A	Isolation source: saffron rhizosphere Collection date: before 2017 Location: Drussu, Jammu & Kashmir, India	-	KY933462
<i>Bacillus pseudofirmus</i> DSM 8715	ATCC 700159, C 324, NCIMB 10283, PN 3	Isolation source: lake bank soil Collection date: before 1994 Location: Holstein, Germany	✓	[20]
<i>Bacillus shackletonii</i> LMG 18435	B1724, DSM 18868, CIP 107762, KCTC 13003	Isolation source: mossy soil, eastern lava flow Collection date: 1996–1997 austral summer Location: Lucifer Hill, northern Candlemas Island, South Sandwich archipelago	✓	[21]
<i>Bacillus</i> sp. BW3PhG2	N/A	Isolation source: <i>Pyropia haitanensis</i> (red algae) phycosphere Collection date: NOV-2010 Location: China	-	[22]
<i>Bacillus</i> sp. JL-29	N/A	Isolation source: eutrophic estuary Collection date: before 2006 Location: Yangtze River, China	-	[23]
<i>Bacillus</i> sp. MN-003	N/A	Isolation source: tropical marine sediments contaminated with marine fuel oil Collection date: before 2002 Location: beach in south Singapore	-	[24]
<i>Bacillus</i> sp. N1-1	N/A	Isolation source: deep-sea water, 1133 m depth Collection date: 24-SEP-2017 Location: South China Sea, China (22.115 N 119.283 E)	-	[25]
<i>Bacillus subtilis</i> DSM10	ATCC 6051, BGSC 3A1, CCM 2216, CCUG 163, IAM 12118, IFO 13719, JCM 1465, LMG 7135, NBRC 13719, NCIB 3610, NCTC 3610, NCDO 1769, NCIMB 3610, NRRL NRS-744, Marburg	Isolation source: N/A Collection date: around 1900 Location: N/A	✓	[26]
<i>Bacillus thuringiensis</i> ATCC 10792	Berliner, CCM 19, CCUG 7429, CIP 53.137, DSM 2046, HAMBI 478, IAM 12077, LMG 7138, NCAIM B.01292, NCCB 70008, NCIB 9134, NRRL HD-735, VKM B-1544	Isolation source: <i>Ephestia kuehniella</i> (Mediterranean flour moth) Collection date: before 1915 Location: N/A	✓	[27]
<i>Bacillus toyonensis</i> BCT-7112	NCIMB 14858, CECT 876	Isolation source: soil Collection date: 01-JAN-1966 Location: Izu, Shizuoka, Japan	✓	[28]
<i>Bacillus vietnamensis</i> 151-6	N/A	Isolation source: Cd-contaminated soil (59.561 ± 3.76 mg Cd kg ⁻¹) Collection date: APR-2016 Location: Hunan, China	-	[16]

<i>Bacillus vietnamensis</i> NBRC 101237	BCRC 80102, CIP 108672, DSM 18898, HSCC 1663, JCM 11124, NRIC 0531, NRRL B-23890, LMG 24742, 15-1	Isolation source: fish sauce Collection date: before 2000 Location: Vietnam	✓	[29]
<i>Bacillus wiedmannii</i> FSL W8-0169	CIP 111364, DSM 102050, LMG 29269	Isolation source: raw milk stored in a dairy powder processing plant silo Collection date: 29-APR-2012 Location: New York state, USA	✓	[30]
<i>Celeribacter baekdonensis</i> L-6	CCUG 60799, DSM 27375, KCTC 23497	Isolation source: seawater Collection date: 2007 Location: Baekdo harbour, East Sea, Korea	✓	[31]
<i>Deftuovimonas alba</i> cai42	CGMCC 1.12518, LMG 27406	Isolation source: oil-production water Collection date: JUN-2011 Location: Xinjiang, China	✓	[32]
<i>Gemmobacter tilapia</i> Ruye-53	BCRC 80261, KCTC 23310	Isolation source: freshwater pond, used to rear tilapiine cichlid fish (<i>Tilapia rendalli</i>) Collection date: before 2013 Location: Taitung city, eastern Taiwan (22° 56' 42" N / 121° 09' 18" E)	✓	[33]
<i>Haematobacter massiliensis</i> CCUG 47968	CIP 107725, framboise	Isolation source: nose of a patient with aspiration pneumonia Collection date: 2003 Location: Marseilles, France	✓	[34]
<i>Paracoccus zeaxanthinifaciens</i> ATCC 21588	CIP 108019, IAM 15326, JCM 21774, LMG 21293, R-1512	Isolation source: seaweed Collection date: before 1975 Location: coast of the African Red Sea	✓	[35]
<i>Pararhodobacter</i> sp. CCB-MM2	N/A	Isolation source: mangrove soil, 10 cm depth Collection date: 02-OCT-2014 Location: Matang Mangrove Forest, Malaysia (4.21335 N / 100.6470899999993 E)	-	[36]
<i>Pararhodobacter</i> sp. CIC4N-9	KCTC 52336, MCCC 1A01225	Isolation source: deep-sea water, 2391 m depth Collection date: 2015-2016 Location: Southwest Indian Ridge, Indian ocean (51.06° E / 37.53° S)	-	[37]
<i>Rhodobacter aestuarii</i> JA296	CCUG 55130, DSM 19945, JCM 14887	Isolation source: mud from brown-coloured microbial mat from brackish water Collection date: 15-JUN-2007 Location: Bhitarkanika mangrove forest, Dangmal, Orissa, India (2° 49' N 8° 47' E)	✓	[38]
<i>Rhodobacter</i> sp. Bo10-19	N/A	Isolation source: <i>Oscillatoria brevis</i> (filamentous cyanobacteria) culture Collection date: between 1992 and 1994 Location: sediment of shallow coastal waters of the Baltic Sea, Boiensdorf, Germany	-	[39]

<i>Rhodobacter</i> sp. LW4	N/A	Isolation source: water Collection date: 25-AUG-2008 Location: Lonar Lake, Lonar, Buldhana district, Maharashtra, India	-	FM956479
<i>Rhodobacter</i> sp. R18	N/A	Isolation source: <i>Nannochloropsis oculata</i> (phytoplankton) Collection date: before 2011 Location: Susami Fish Nursery Center, Kinki University, Japan	-	[40]
<i>Rhodobacter sphaeroides</i> 2.4.1	ATCC 11167, ATCC 14690, ATCC 17023, CCUG 31486, CIP 60.6, DSM 158, IAM 14237, LMG 2827, NCIB 8253	Isolation source: N/A Collection date: before 1944 Location: N/A	✓	[41]
<i>Rhodobacter vinaykumarii</i> JA123	DSM 18714, CCUG 54311, CIP 109721, JCM 14544,	Isolation source: tidal seawater Collection date: 16-APR-2005 Location: Bay of Bengal, Visakhapatnam, Ramakrishna beach, India	✓	[42]
<i>Roseicitreum antarcticum</i> ZS2-28	CGMCC 1.8894, LMG 24863	Isolation source: coastal region, sandy intertidal sediment Collection date: MAR-2007 Location: Chinese Antarctic Zhongshan Station, Larsemann Hills, Princess Elizabeth Land, East Antarctica	✓	[43]
<i>Vibrio alginolyticus</i> ATCC 33787	N/A	Isolation source: seawater Collection date: 05-APR-1971 Location: Oahu, Hawaii, USA, (20.3 N 157.3 W)	-	[44]
<i>Vibrio alginolyticus</i> NBRC 15630	ATCC 17749, Baumann 118, CAIM 516, CCM 2578, CIP 75.3, CIP 103336, CCUG 4989, CCUG 13445, CCUG 16315, DSM 2171, IFO 15630, NBRC 15630, NCCB 71013, NCCB 77003, NCTC 12160, NCIMB 1903, LMG 4409, XII-53	Isolation source: spoiled horse mackerel, causing food poisoning Collection date: before 1961 Location: Japan	✓	[45]
<i>Vibrio atypicus</i> HHS02	CGMCC 1.8461, DSM 25292, LMG 24781	Isolation source: Digestive tract of healthy Chinese prawns <i>Penaeus chinensis</i> O'sbeck Collection date: before 2010 Location: Qingdao, China	✓	[46]
<i>Vibrio campbellii</i> CAIM 519	ATCC 25920, Baumann 40, CCM 2582, CCUG 4979, CCRC 12909, CECT 523, CIP 75.01, DSM 19270, Lee MV2189, NCTC 11317, IFO 15631, LMD 73.2, LMG 11216, NBRC 15631, NCIMB 1894, Verdonck VIB 285	Isolation source: seawater, 800 m depth Collection date: before 1971 Location: Hawaii, USA (20.5000°/ 157.5000°)	✓	[44]
<i>Vibrio cholerae</i> CECT 514	ATCC 14035, CCUG 9118, CDC 9060-79, CIP 62.13, DSM 100200, JCM 852, KCTC 23507, NCCB 80091, NCCB 36033, NCTC 8021	Isolation source: human fecal sample Collection date: before 1854 Location: N/A	✓	[47]
<i>Vibrio diabolis</i> FDAARGOS_105	ATCC 33810, Baumann 611, Lee 5299, LMG 11654, Shehabi 36, Verdonck VIB 383	Isolation source: human (vibrio infected) feces Collection date: before 1981 Location: Amman, Jordan	-	[48]

<i>Vibrio furnissii</i> ATCC 35016	CCUG 37301, CDC B3215, CIP 102972, DSM 19622, FDAARGOS_777, KCTC 2731, LMG 7910, NCTC 13120	Isolation source: human feces of an adult woman with gastroenteritis Collection date: 1969 Location: Japan	✓	[49]
<i>Vibrio harveyi</i> FDAARGOS_107	ATCC 43516, LMG 11755, Verdonck VIB 351	Isolation source: mouth of a shark Collection date: before 1985 Location: Bahamas	-	[50]
<i>Vibrio natriegens</i> NBRC 15636	ATCC 14048, Baumann 111, DSM 759, CCM 2575, CCUG 16371, CIP 103193, CIP 75.07, NCIMB 857	Isolation source: salt marsh mud Collection date: before 1958 Location: Sapelo Island, Georgia, USA	✓	[51]
<i>Vibrio</i> <i>parahaemolyticus</i> ATCC 17802	ATCC 17802, Baumann 113, CAIM 320, CCUG 14474, CCUG 15657, CCTM 2011, CECT 511, CDC 9062-79, CIP 75.02, DSM 10027, EB 101, FDAARGOS_115, FIRDI 806, Lee MV1424, NCIMB 1902, NCTC 10903, RIMD 2210001, USCC 2240, Verdonck VIB 304, WDCM 00037	Isolation source: shirasu (food poisoned victim) Collection date: 1951 Location: Japan	✓	[52]
<i>Vibrio</i> <i>proteolyticus</i> NBRC 13287	ATCC 15338, CAIM 511, CCUG 20302, CCEB 710, CIP 710, CIP 73.06, CIP 102892, DSM 30189, IFO 13287, NCIMB 1326, LMG 3772, KCTC 2730, Popoff 262	Isolation source: intestine of <i>Limnoria</i> <i>tripunctata</i> (wood boring isopod) from wooden pilings Collection date: before 1958 Location: Fort Johnson Marine Laboratory, Charleston, SC, USA	✓	[53]
<i>Vibrio rotiferianus</i> B64D1	N/A	Isolation source: bottom water (17.5 m) Collection date: AUG-2015 Location: Bohai Sea, China (38.23 N, 119.04 E)	-	[54]
<i>Vibrio tubiashii</i> ATCC 19109	CAIM 313, CCUG 19118, CCUG 38428, CECT 4196, CIP 102760, DSM 19142, IFO 15644, LMG 10936, NBRC 15644, NCIMB 1340, Milford 74	Isolation source: larvae from hard clams <i>Mercenaria mercenaria</i>) Collection date: 1965 Location: Long Island Sound, Connecticut, USA	✓	[55]
<i>Vibrio xiamenensis</i> G21	CGMCC 1.10228, DSM 22851	Isolation source: soil beneath mangrove Collection date: before 2010 Location: Xiamen, Fujian province, China	✓	[56]

Supplementary Table S2. 16S rRNA gene sequence information for the taxa included in phylogenetic tree reconstruction.

Species	GenBank accession number	Nucleotide region	Reference
<i>Aliivibrio fischeri</i> ATCC 7744	X74702	1 - 1467	[57]
<i>Anaerobacillus macysae</i> DSM 16346	LELK01000003	66 - 1619	[58]
<i>Bacillus algalicola</i> KMM 3737	AY228462	1 - 1545	[3]
<i>Bacillus altitudinis</i> 41KF2b	AJ831842	1 - 1506	[4]
<i>Bacillus amyloliquefaciens</i> DSM 7	FN597644	91526 - 93063	[59]
<i>Bacillus aquimaris</i> TF-12	AF483625	1 - 1507	[6]
<i>Bacillus atrophaeus</i> 1942	CP002207	3638254 - 3639812	[7]
<i>Bacillus atrophaeus</i> JCM9070	AB021181	1 - 1515	[60]
<i>Bacillus cereus</i> ATCC 14579	AE016877	9188 - 10699	[61]
<i>Bacillus cytotoxicus</i> NVH 391-98	AM747234	1 - 1532	[62]
<i>Bacillus firmus</i> EN 5C	KY399766	1 - 1522	[11]
<i>Bacillus firmus</i> NCTC 10335	UFTC01000001	102662 - 104217	Direct submission (06-JUN-2018)
<i>Bacillus gottheilii</i> WCC 4585	FN995266	1 - 1512	[13]
<i>Bacillus hwajinpoensis</i> 22506_14_FS	WMEY01000019	1 - 1466	Direct Submission (07-NOV-2019)
<i>Bacillus hwajinpoensis</i> Y2	SWFM01000018	86 - 1640	Direct Submission (24-APR-2019)
<i>Bacillus infantis</i> NRRL B-14911	CP006643	267863 - 269416	[63]
<i>Bacillus krulwichiae</i> AM31D	AB086897	1 - 1507	[15]
<i>Bacillus marisflavi</i> 151-25	CP047095	364983 - 366536	[16]
<i>Bacillus marisflavi</i> TF-11	AF483624	1 - 1506	[6]
<i>Bacillus megaterium</i> IAM 13418	D16273	1 - 1486	[64]
<i>Bacillus oceanisediminis</i> 2691	CP015506	172748 - 174302	[18]
<i>Bacillus oceanisediminis</i> H2	GQ292772	1 - 1393	[19]
<i>Bacillus oryzaecorticis</i> IHB B 17121	KY933462	1 - 1524	Direct Submission (13-APR-2017)
<i>Bacillus pseudofirmus</i> DSM 8715	X76439	1 - 1506	[65]
<i>Bacillus shackletonii</i> LMG 18435	AJ250318	1 - 1503	[21]
<i>Bacillus</i> sp. BW3PhG2	KC012849	1 - 1545	[22]
<i>Bacillus</i> sp. JL-29	AY646165	1 - 1516	[23]
<i>Bacillus</i> sp. MN-003	AF355627	1 - 1514	[24]
<i>Bacillus</i> sp. N1-1	CP046564	9504 - 11061	[25]
<i>Bacillus subtilis</i> DSM10	AJ276351	1 - 1517	Direct submission (07-MAR-2000)
<i>Bacillus thuringiensis</i> ATCC 10792	CP021061	88791 - 90346	[66]
<i>Bacillus toyonensis</i> BCT-7112	CP006863	2650827 - 2652381	[28]
<i>Bacillus vietnamensis</i> 151-6	CP047394	38967 - 40522	[16]

<i>Bacillus vietnamensis</i> NBRC 101237	BCVQ01000102	79 - 1636	Direct Submission (26-FEB-2016)
<i>Bacillus wiedmannii</i> FSL W8-0169	KU198626	1 - 1540	[30]
<i>Celeribacter baekdonensis</i> L-6	HM997022	1 - 1423	[31]
<i>Deftuviimonas alba</i> cai42	CP012661	4102517 - 4103969	[67]
<i>Gemmobacter tilapia</i> Ruye-53	HQ111526	1 - 1402	[33]
<i>Haematobacter massiliensis</i> CCUG 47968	AF452106	1 - 1414	[34]
<i>Paracoccus zeaxanthinifaciens</i> ATCC 21588	AF461158	1 - 1404	[35]
<i>Pararhodobacter</i> sp. CCB-MM2	LRRR01000059	250 - 1695	[36]
<i>Pararhodobacter</i> sp. CIC4N-9	QEYD01000020	242 - 1709	[37]
<i>Rhodobacter aestuarii</i> JA296	AM748926	1 - 1369	[38]
<i>Rhodobacter</i> sp. Bo10-19	EU839358	1 - 1431	[39]
<i>Rhodobacter</i> sp. LW4	FM956479	1 - 1445	Direct submission (09-JAN-2009)
<i>Rhodobacter</i> sp. R18	AB607872	1 - 1430	[40]
<i>Rhodobacter sphaeroides</i> 2.4.1	CP030271	1 - 1471	[68]
<i>Rhodobacter vinaykumarii</i> JA123	AM408117	1 - 1387	[42]
<i>Roseicetium antarcticum</i> ZS2-28	FJ196006	1 - 1429	[43]
<i>Vibrio alginolyticus</i> ATCC 33787	CP013484	2195014 - 2196575	[69]
<i>Vibrio alginolyticus</i> NBRC 15630	CP006718	1961445 - 1962985	[70]
<i>Vibrio atypicus</i> HHS02	FJ009624	1 - 1401	[46]
<i>Vibrio campbellii</i> CAIM 519	CP015863	649525 - 651086	Direct Submission (25-MAY-2016)
<i>Vibrio cholerae</i> CECT 514	X76337	1 - 1538	[71]
<i>Vibrio diabolicus</i> FDAARGOS_105	CP014036	427222 - 428783	[72]
<i>Vibrio furnissii</i> ATCC 35016	X76336	1 - 1546	[71]
<i>Vibrio harveyi</i> FDAARGOS_107	CP014038	1618778 - 1620338	[72]
<i>Vibrio natriegens</i> NBRC 15636	CP016345	2855557 - 2857118	[73]
<i>Vibrio parahaemolyticus</i> ATCC 17802	CP014046	900558 - 902118	[72]
<i>Vibrio proteolyticus</i> NBRC 13287	BATJ01000038	1 - 1562	Direct Submission (10-SEP-2013)
<i>Vibrio rotiferianus</i> B64D1	CP018312	4099 - 5660	[54]
<i>Vibrio tubiashii</i> ATCC 19109	CP009354	47507 - 49071	[74]
<i>Vibrio xiamenensis</i> G21	GQ397859	1 - 1475	[56]

Supplementary Table S3. Genome availability of species in NCBI used for phylogenetic analysis and comparative genomics. Included are the GenBank accession number, assembly level, and representative genome status for a given species.

Species	GenBank accession number	Assembly level	Ref. seq.	Reference
<i>Aliivibrio fischeri</i> ATCC 7744	BBEE00000000 180 contigs: BBEE01000001-BBEE01000180	◉ Contigs	-	Direct submission (18-JUN-2014)
<i>Anaerobacillus macyae</i> DSM 16346	LELK00000000 15 scaffolds: LELK01000001-LELK01000015	● Scaffolds	✓	[58]
<i>Bacillus algalicola</i> KMM 3737	No genome	○ No genome	-	N/A
<i>Bacillus altitudinis</i> 41KF2b	ASJC00000000 39 contigs: ASJC01000001-ASJC01000039	◉ Contigs	-	Direct submission (09-MAY-2013)
<i>Bacillus amyloliquefaciens</i> DSM 7	Chr: FN597644	● Complete	✓	[59]
<i>Bacillus aquimaris</i> TF-12	LQXM00000000 30 contigs: LQXM01000001-LQXM01000030	◉ Contigs	✓	[75]
<i>Bacillus atrophaeus</i> 1942	Chr: CP002207	● Complete	-	[7]
<i>Bacillus atrophaeus</i> JCM9070	LSBB00000000 23 scaffolds: LSBB01000001-LSBB01000023	● Scaffolds	-	[76]
<i>Bacillus cereus</i> ATCC 14579	Chr: CP034551; pUnnamed: CP034552	● Complete	✓	Direct submission (13-DEC-2018)
<i>Bacillus cytotoxicus</i> NVH 391-98	Chr: CP000764; pBC9801: CP000765	● Complete	✓	[77]
<i>Bacillus firmus</i> EN 5C	No genome	○ No genome	-	N/A
<i>Bacillus firmus</i> NCTC 10335	UFTC00000000 3 contigs: UFTC01000001-UFTC01000003	◉ Contigs	✓	Direct submission (06-JUN-2018)
<i>Bacillus gottheilii</i> WCC 4585	No genome	○ No genome	-	N/A
<i>Bacillus hwaajinpoensis</i> 22506_14_FS	WMEY00000000 27 contigs: WMEY01000001-WMEY01000027	◉ Contigs	-	Direct submission (07-NOV-2019)
<i>Bacillus hwaajinpoensis</i> Y2	SWFM00000000 25 contigs: SWFM01000001-SWFM01000025	◉ Contigs	✓	Direct submission (24-APR-2019)
<i>Bacillus infantis</i> NRRL B-14911	Chr: CP006643	● Complete	✓	[63]
<i>Bacillus krulwichiae</i> AM31D	Chr: CP020814	● Complete	✓	Direct submission (18-APR-2017)
<i>Bacillus marisflavi</i> TF-11	LGUE00000000 11 scaffolds: LGUE01000001-LGUE01000011	● Scaffolds	✓	[78]
<i>Bacillus marisflavi</i> 151-25	Chr: CP047095; p25: CP047096	● Complete	-	[16]
<i>Bacillus megaterium</i> IAM 13418	Chr: CP009920; pBMV_1: CP009919; pBMV_2: CP009921; pBMV_3: CP009915; pBMV_4: CP009918; pBMV_5: CP009916; pBMV_6: CP009917	● Complete	✓	[79]
<i>Bacillus oceanisediminis</i> H2	VLKI00000000 51 scaffolds: VLKI01000001-VLKI01000051	● Scaffolds	-	[80]
<i>Bacillus oceanisediminis</i> 2691	Chr: CP015506 pBO1: CP015507	● Complete	✓	[18]

<i>Bacillus oryzaecorticis</i> IHB B 17121	No genome	○ No genome	-	N/A
<i>Bacillus pseudofirmus</i> DSM 8715	No genome	○ No genome	-	N/A
<i>Bacillus shackletonii</i> LMG 18435	LJJC00000000.1 24 scaffolds: LJJC01000001-LJJC01000024	● Scaffolds	✓	[81]
<i>Bacillus</i> sp. BW3PhG2	Chr: CP046564	● Complete	-	[25]
<i>Bacillus</i> sp. JL-29	No genome	○ No genome	-	N/A
<i>Bacillus</i> sp. MN-003	No genome	○ No genome	-	N/A
<i>Bacillus</i> sp. N1-1	No genome	○ No genome	-	N/A
<i>Bacillus subtilis</i> DSM10	Chr: CP020102; pBS32: CP020103	● Complete	-	[82]
<i>Bacillus thuringiensis</i> ATCC 10792	Chr: CP021061; poh1: CP021062; poh2: CP021063; poh3: CP021064; poh4: CP021065; poh5: CP021066	● Complete	✓	[66]
<i>Bacillus toyonensis</i> BCT-7112	Chr: CP006863; pBCT77: CP006864; pBCT8: CP006865	● Complete	✓	[28]
<i>Bacillus vietnamensis</i> 151-6	Chr: CP047394 p6: CP047395	● Complete	-	[16]
<i>Bacillus vietnamensis</i> NBRC 101237	BCVQ00000000 123 contigs: BCVQ01000001-BCVQ01000123	○ Contigs	✓	Direct submission (26-FEB-2016)
<i>Bacillus wiedmannii</i> FSL W8-0169	LOBC00000000 104 contigs: LOBC01000001-LOBC01000104	○ Contigs	-	[30]
<i>Celeribacter baekdonensis</i> L-6	FNBL00000000 38 scaffolds: FNBL01000001-FNBL01000038	● Scaffolds	✓	Direct submission (11-OCT-2016)
<i>Deftuimonomas alba</i> cai42	Chr: CP012661; cai42_plasmidA: CP012662; cai42_plasmidB: CP012663; cai42_plasmidC: CP012664	● Complete	✓	[67]
<i>Gemmobacter tilapia</i> Ruye-53	No genome	○ No genome	-	N/A
<i>Haematobacter massiliensis</i> CCUG 47968	JGYG00000000 53 contigs: JGYG01000001-JGYG01000053	○ Contigs	-	Direct submission (04-MAR-2014)
<i>Paracoccus zeaxanthinifaciens</i> ATCC 21588	ATUJ00000000 35 contigs: ATUJ01000001-ATUJ01000035	○ Contigs	✓	Direct submission (02-JUL-2013)
<i>Pararhodobacter</i> sp. CIC4N-9	QEYD00000000 30 contigs: QEYD01000001-QEYD01000030	○ Contigs	-	[37]
<i>Pararhodobacter</i> sp. CCB-MM2	LRRR00000000 136 contigs: LRRR01000001-LRRR01000136	○ Contigs	-	[36]
<i>Rhodobacter aestuarii</i> JA296	FTOG00000000 31 contigs: NZ_FTOG01000001- NZ_FTOG01000031	○ Contigs	✓	Direct submission (09-JAN-2017)
<i>Rhodobacter</i> sp. Bo10-19	No genome	○ No genome	-	N/A
<i>Rhodobacter</i> sp. LW4	No genome	○ No genome	-	N/A
<i>Rhodobacter</i> sp. R18	No genome	○ No genome	-	N/A

<i>Rhodobacter sphaeroides</i> 2.4.1	Chr1: CP030271; Chr2: CP030272; pA: CP030273; pB: CP030274; pC: CP030275; pDE: CP030276	● Complete	✓	[68]
<i>Rhodobacter vinaykumarii</i> JA123	FTOM00000000 27 scaffolds: FTOM01000001-FTOM01000027	● Scaffolds	✓	Direct submission (09-JAN-2017)
<i>Roseicetium antarcticum</i> ZS2-28	FNOM00000000 77 scaffolds: FNOM01000001-FNOM01000077	● Scaffolds	✓	Direct submission (20-OCT-2016)
<i>Vibrio alginolyticus</i> ATCC 33787	Chr1: CP013484; Chr2: CP013485; pMBL96: CP013488; pMBL128: CP013486; pMBL287: CP013487	● Complete	-	[69]
<i>Vibrio alginolyticus</i> NBRC 15630	Chr1: CP006718; Chr2: CP006719	● Complete	✓	[70]
<i>Vibrio atypicus</i> HHS02	BLID00000000 66 scaffolds: BLID01000001-BLID01000066	● Scaffolds	✓	[83]
<i>Vibrio campbellii</i> CAIM 519	Chr1: CP015863; Chr2: CP015864; pUnnamend: CP015865	● Complete	-	Direct submission (25-MAY-2016)
<i>Vibrio cholerae</i> CECT 514	JHXR00000000 62 scaffolds: JHXR01000001-JHXR01000004; JHXR01000009-JHXR01000011; JHXR01000014- JHXR01000024; JHXR01000027-JHXR01000034; JHXR01000038-JHXR01000068; KK211322- KK211326	● Scaffolds	-	Direct submission (26-MAR-2014)
<i>Vibrio diabolis</i> FDAARGOS_105	Chr1: CP014036; Chr2: CP014037	● Complete	✓	[72]
<i>Vibrio furnissii</i> ATCC 35016	Chr1: CP040990; Chr2: CP040991; pUnnamend1: CP040989	● Complete	✓	[72]
<i>Vibrio harveyi</i> FDAARGOS_107	Chr1: CP014038.2; Chr2: CP014039.2	● Complete	✓	[72]
<i>Vibrio natriegens</i> NBRC 15636	Chr1: CP016345; Chr2: CP016346	● Complete	-	[73]
<i>Vibrio parahaemolyticus</i> ATCC 17802	Chr1: CP014046; Chr2: CP014047	● Complete	✓	[72]
<i>Vibrio proteolyticus</i> NBRC 13287	BATJ01000000 50 contigs: BATJ01000001-BATJ01000050	● Contigs	✓	Direct submission (10-SEP-2013)
<i>Vibrio rotiferianus</i> B64D1	Chr1: CP018311; Chr2: CP018312	● Complete	✓	[54]
<i>Vibrio tubiashii</i> ATCC 19109	Chr1: CP009354; Chr2: CP009355; p48: CP009359; p57: CP009358 p123: CP009357; p251: CP009356	● Complete	✓	[74]
<i>Vibrio xiamenensis</i> G21	FNDD00000000 82 scaffolds: FNDD01000001-FNDD01000082	● Scaffolds	✓	Direct submission (12-OCT-2016)

Supplementary Table S4. Properties of the genomes used for the *Bacillaceae* comparative genomics analysis with Anvi'o. NTK strains are marked with a (◀).

Species	Number gene clusters	Singleton gene clusters	Completion (%)	GC-content	Total length (bp)
<i>Bacillus</i> sp. NTK034 ◀	5617	838	100	0.409657	5599963
<i>Bacillus oceanisediminis</i> 2691	5850	1089	100	0.408836	5848607
<i>Bacillus oceanisediminis</i> H2	5590	1343	100	0.408821	5634660
<i>Bacillus infantis</i> NRRL B-14911	5031	1622	98.59	0.460333	4884713
<i>Bacillus firmus</i> NCTC 10335	4541	599	100	0.417216	4803910
<i>Bacillus vietnamensis</i> NBRC 101237	4538	366	100	0.437364	4410879
<i>Bacillus vietnamensis</i> 151-6	4694	542	100	0.436474	4597807
<i>Bacillus</i> sp. NTK074B ◀	4668	846	100	0.435474	4250699
<i>Bacillus aquimaris</i> TF-12	3862	690	100	0.373054	4035445
<i>Bacillus marisflavi</i> TF-11	4390	1170	100	0.485657	4312088
<i>Bacillus</i> sp. NTK071 ◀	4136	344	100	0.398513	4164462
<i>Bacillus hwajinpoensis</i> Y2	4020	242	100	0.397388	4091520
<i>Anaerobacillus macyae</i> DSM 16346	4149	315	100	0.398453	4256776
<i>Bacillus</i> sp. N1-1	4389	332	100	0.404822	4497340
<i>Bacillus hwajinpoensis</i> 22506_14_FS	4415	355	100	0.402183	4362982

Supplementary Table S5. Pangenomic analysis properties of the *Rhodobacteraceae* genomes that were compared with NTK community NTK016B (◀).

Species	Number gene clusters	Singleton gene clusters	Completion (%)	GC-content	Total length (bp)
<i>Rhodobacter sphaeroides</i> 2.4.1	4361	2074	100	0.687717	4629754
<i>Defluviimonas alba</i> cai42	4770	2257	100	0.665331	4987611
<i>Roseicetium antarcticum</i> ZS2-28	4046	1845	100	0.631032	4250016
<i>Rhodobacter</i> sp. NTK016B ◀	4644	790	100	0.653535	4854159
<i>Pararhodobacter</i> sp. CIC4N-9	4299	499	100	0.667462	4486134
<i>Pararhodobacter</i> sp. CCB-MM2	4813	1431	100	0.659524	5149122

Supplementary Table S6. Properties of genomes used for the *Vibrionaceae* pangenomic analysis with the NTK community strains (◀).

Species	Number gene clusters	Singleton gene clusters	Completion (%)	GC-content	Total length (bp)
<i>Vibrio furnissii</i> ATCC 35016	4544	1044	100	0.505984	4993326
<i>Vibrio proteolyticus</i> NBRC 13287 ◀	4342	747	100	0.500146	4745539
<i>Vibrio tubiashii</i> ATCC 19109	4979	1210	100	0.450052	5540337
<i>Vibrio atypicus</i> HHS02	4303	685	100	0.438952	4835723
<i>Vibrio parahaemolyticus</i> ATCC 17802	4557	340	100	0.45330	5152461
<i>Vibrio diabolis</i> FDAARGOS_105	4834	489	100	0.44815	5426154
<i>Vibrio alginolyticus</i> NBRC 15630	4506	142	100	0.446793	5146637
<i>Vibrio alginolyticus</i> ATCC 33787 ◀	5174	778	100	0.445122	5724939
<i>Vibrio natriegens</i> NBRC 15636	4500	811	100	0.450796	5168686
<i>Vibrio rotiferianus</i> B64D1	4602	443	100	0.448405	5277859
<i>Vibrio harveyi</i> FDAARGOS_107	5332	745	100	0.449027	6038929
<i>Vibrio campbellii</i> CAIM 519	4667	624	100	0.450805	5178103

Supplementary Table S7. Amino acid sequences of the extracellular PHA depolymerase candidates.

Species	Annotated protein name	Amino acid sequence
<i>Bacillus</i> sp. NTK074B	Hypothetical protein	MIKKISMTVLALFLLPSWSHAGSWTKDPSGVPQWYVGTTPSSVAPSKQPILFVHGLN SSSNTWWNDNNMYDTAYQNGYETAFIGDLYPTRNMWDNGTLLSQKIRDIYNYGKQV VIVAHSKGGIDVQSALVHYGAYPYVSRVITLSTPHYGSQLADLAYSSWAGWLAGILGSK NEATYSLQTGYMSYFREEDQANAVTKVPFYTFGGTKWGSFSSLYWGGLYLSGYGSN DGAVTVNSSRLPYATELVGGWNHYTIKESSTFNLFKGYLNETTNNSSGAVTQSASF NNDADSFRRGGGYSGETQEKILVEEGARSVTFDWMSSSPSSRLVLKDPKKNKYSSFDVS KDNSDYFNAGYHHTLTINTPNPGEWTLSEASQSTETLLNVSFDSIMNNAVSMSEQD QISLKKKSDSVSIQQDMTIEYYKNGKLEKSKLKSNGLLKLPSSLGEGVYNVTIDIKGKKG KNAFNRTLIKTIYVDDKGRIFGE
<i>Vibrio alginolyticus</i> ATCC 33787	Lipase precursor (EC 3.1.1.3)	MKLKFIALLMLFTLVTPITSVSAATGYTQTKYPIVLVHGLFGFDLAGVDYFFGIPHSLT KDGATVYVAQVSATNSSEVRGEQLLAQVETLLAATGAEKVNLIHSHGGPTTRYVASV RPDLVASVTSIGGVNKGSKVADLVRGTVSEGSSEQLAVKLAQGLTTLINLLSGGSDLD QDPLASLATLTTEGSLAFNQHYPEGVPTSECGNDLLASNGVYYYSWTGSSTFTNVFDP TDAAMMVLGLAFDGPNDGLVGACSTHLGKVIRDDYQMNHLDEINGLLGIHHLFETD PVTLYRQHARLKLQGL
<i>Vibrio proteolyticus</i> NBRC 13287	Lipase precursor (EC 3.1.1.3)	MKLYLVALCLFSPFVLASTASALDNTGYTQTRYPIVLVHGLFGFDLAGVDYFYSIPHS LTKDGASVYVAQVSATNSSELRGEQLLSQVEMLLAATGAEKVNLIHSHGGPTARYV ASVRPDLVASVTSVGGVNKGSKVADLVRGAVADGSAGEAIAVKLAEGLVTLINLLSGG SDLEQDPLASLAALTTEGSLAFNQHYPEGVPTSECGDGEFLADNGVYYYSWTGSSTFTN LLDPTDAAMTILGLAFDGPNDGLVGACSTHLGKVIRDDYQMNHLDEINGLLGVHHLF ETDPVTLYRQHARLKLQGL

Supplementary Table S8. Positions of conserved sites in known extracellular PHA depolymerases and closely related lipases, with candidate extracellular PhaZs (◀). Proteins with experimentally validated positions are marked bold. If no experimental evidence was published on the proteins, signal peptides were predicted by SignalP and conserved sites were aligned visually with the validated proteins.

Protein	NCBI Protein Accession	Species	Signal peptide	Oxyanion hole	Lipase box	Catalytic triad (S-H-A)	Reference
Hypothetical protein ▶	MBN8191285	<i>Bacillus</i> sp. NTK074B	1-22	57-57	119-123	121-223-256	This study
Hypothetical protein sed_3530	ABV38134	<i>Shewanella sediminis</i> HAW-EB3	1-23	67-73	160-164	162-269-331	[84]
Lipase A	P37957	<i>Bacillus subtilis</i> strain 168	1-31	36-42	106-110	108-164-187	[85]
Lipase class 2	ABZ77296	<i>Shewanella halifaxensis</i> HAW-EB4	1-23	67-73	160-164	162-269-331	[84]
Lipase precursor ▶	ALR91050	<i>Vibrio alginolyticus</i> ATCC 33787	1-23	33-39	104-108	106-253-275	Direct Submission (08-DEC-2015)
Lipase precursor ▶	GAD66740	<i>Vibrio proteolyticus</i> NBRC 13287	1-23	35-41	106-110	108-255-277	Direct submission (10-SEP-2013)
PhaZ7	Q939Q9	<i>Paucimonas lemoignei</i>	1-38	80-86	172-176	174-280-344	[86-88]
Thermostable lipase	Q842J9	<i>Geobacillus zalihae</i> T1	1-28	37-43	139-143	141-345-386	[89,90]
Triacylglycerol lipase	WP_005101273	<i>Acinetobacter</i> multispecies	1-29	50-56	125-129	127-280-302	[91]
Triacylglycerol lipase	WP_005101276	<i>Acinetobacter</i> multispecies	1-23	44-50	120-124	122-267-289	[91]
Triacylglycerol lipase	WP_064094572	<i>Acinetobacter</i> multispecies	1 - 21	42-48	117-121	119-266-288	[91]
Triacylglycerol lipase	P22088	<i>Burkholderia cepacia</i> ATCC 21808	1-44	54-60	129-133	131-308-330	[92,93]
Triacylglycerol lipase	Q05489	<i>Burkholderia glumae</i> ATCC 6918	1-39	49-55	124-128	126-302-324	[94,95]
Triacylglycerol lipase	P26876	<i>Pseudomonas aeruginosa</i> PAO1	1-26	35-41	106-110	108-255-277	[96,97]

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