

**Table S3.** The NCBI accession numbers of genes used for phylogenetic reconstructions and the calculation of pairwise identity (in the study used *Sarcina* spp. isolates and their obtained NCBI accession numbers are marked in bold).

Strains	<i>ileS</i> (position)	<i>pheT</i> (position)	<i>pyrG</i> (position)	<i>rplB</i> (position)	<i>rplC</i> (position)	<i>rpsC</i> (position)	16S rRNA (position)
<i>Clostridium butyricum</i> DSM 10702 <sup>T</sup>	CP040626 (3838109-3841037)	CP040626 (1549315-1551693)	CP040626 (3450461-3452068)	CP040626 (3708046-3708876)	CP040626 (3709883-3710512)	CP040626 (3706662-3707330)	NR113244
<i>C. carnis</i> NCTC 10913 <sup>T</sup>	UYIN01000001 (1153251-1156364)	NZUYIN01000006 (c73540-71162)	UYIN01000001 (1274954-1276567)	UYIN01000020 (183618-184448)	UYIN01000020 (181987-182616)	UYIN01000020 (185167-185832)	UYIN01000001 (c823776-822274)
<i>C. celatum</i> DSM 1785 <sup>T</sup>	KB291597 (28127-31237)	NZKB291681 (20477-22855)	NZKB291625 (29267-30865)	NZKB291623 (2861-3694)	NZKB291623 (1232-1861)	NZKB291623 (4422-5090)	NZKB291630 (1-1430)
<i>C. chauvoei</i> DSM 7528 <sup>T</sup>	CP018624 (c2523240-2520130)	CP018624 (979516-981894)	CP018624 (164148-165754)	CP018624 (c2374593-2373760)	CP018624 (c2376226-2375597)	CP018624 (c2373030-2372362)	CP018624 (121222-122735)
<i>C. intestinale</i> DSM 6191 <sup>T</sup>	NZFQXU01000008 (195030-198140)	NZFQXU01000007 (c207130-204752)	NZFQXU01000007 (c30086-28479)	NZFQXU01000011 (3021-3854)	NZFQXU01000011 (1392-2021)	NZFQXU01000011 (4581-5246)	NZFQXU01000002 (1-1415)
<i>C. isatidis</i> DSM 15098 <sup>T</sup>	CP016786 (77419-80535)	CP016786 (805456-807796)	CP016786 (2585438-2587011)	CP016786 (253228-254061)	CP016786 (251601-252230)	CP016786 (254786-255457)	CP016786 (9316-10836)
<i>C. perfringens</i> ATCC 13124 <sup>T</sup>	CP000246 (3131476-3134386)	CP000246 (c2383355-2380974)	CP000246 (2742022-2743592)	CP000246 (2972427-2973260)	CP000246 (2974247-2974876)	CP000246 (2971023-2971691)	NR121697
<i>C. scatologenes</i> DSM 25775 <sup>T</sup>	CP009933 (c4315282-4312178)	CP009933 (5160306-5162649)	CP009933 (4249831-4251414)	CP009933 (4636370-4637197)	CP009933 (4634742-4635371)	CP009933 (4637918-4638589)	CP009933 (4591775-4593274)
<i>C. septicum</i> DSM 7534 <sup>T</sup>	CP023671 (1850871-1853893)	CP023671 (3173739-3176079)	CP023671 (2208761-2210368)	CP023671 (2011697-2012520)	CP023671 (2010064-2010693)	CP023671 (2013261-2013920)	AB971813
<i>C. tarantellae</i> DSM 3997 <sup>T</sup>	NZWHJC01000341 (c3249-139)	NZWHJC01000015 (c5308-2927)	NZWHJC01000033 (18162-19769)	NZWHJC01000022 (3494-4327)	NZWHJC01000022 (1869-2498)	NZWHJC01000022 (5069-5734)	NZWHJC01000270 (82-1591)
<i>C. tertium</i> DSM 2485 <sup>T</sup>	NZJAGGJY010000004 (c97853-94743)	NZJAGGJY010000007 (c53080-50702)	NZJAGGJY010000021 (42455-44056)	NZJAGGJY010000005 (c183396-182563)	NZJAGGJY010000005 (c185025-184396)	NZJAGGJY010000005 (c181833-181165)	Y18174
<i>Sarcina maxima</i> DSM 316 <sup>T</sup>	<b>OK032175</b>	<b>OK032219</b>	<b>OK032245</b>	<b>OK032271</b>	<b>OK032297</b>	<b>OK032323</b>	<b>NR026147</b>
<i>S. maxima</i> 5a	<b>OK032177</b>	<b>OK032221</b>	<b>OK032247</b>	<b>OK032273</b>	<b>OK032299</b>	<b>OK032325</b>	<b>MZ970332</b>
<i>S. maxima</i> 7	<b>OK032200</b>	<b>OK032244</b>	<b>OK032270</b>	<b>OK032296</b>	<b>OK032322</b>	<b>OK032348</b>	<b>MZ970355</b>
<i>S. ventriculi</i> D3-1	<b>OK032199</b>	<b>OK032243</b>	<b>OK032269</b>	<b>OK032295</b>	<b>OK032321</b>	<b>OK032347</b>	<b>MZ970354</b>

<i>S. ventriculi</i> DSM 286 <sup>T</sup>	OK032176	OK032220	OK032246	OK032272	OK032298	OK032324	MZ970331
<i>S. ventriculi</i> NCTC 12966 <sup>T</sup>	UAUL01000007 (c267254-264144)	NZUAUL01000008 (37282-39660)	NZUAUL01000009 (19794-21398)	NZUAUL01000007 (c141122-140289)	NZUAUL01000007 (c142746-142117)	NZUAUL01000007 (c139552-138887)	NZUAUL01000001 (c554186-552677)
<i>S. ventriculi</i> Sa2	OK032195	OK032239	OK032265	OK032291	OK032317	OK032343	MZ970350
<i>S. ventriculi</i> SIAM 3/5c	OK032196	OK032240	OK032266	OK032292	OK032318	OK032344	MZ970351
<i>S. ventriculi</i> 14	NZBCMV01000019 (c60031-56921)	NZBCMV01000024 (10607-12985)	NZBCMV01000005 (c11072-9468)	NZBCMV01000016 (2473-3306)	NZBCMV01000016 (849-1478)	NZBCMV01000016 (4043-4708)	LC101491
<i>S. ventriculi</i> 17	NZBCMW01000010 (c60041-56931)	NZBCMW01000003 (c374642-372264)	NZBCMW01000007 (17112-18716)	NZBCMW01000017 (2483-3316)	NZBCMW01000017 (859-1488)	NZBCMW01000017 (4053-4718)	LC101492
<i>S. ventriculi</i> 12/4b	OK032197	OK032241	OK032267	OK032293	OK032319	OK032345	MZ970352
<i>S. ventriculi</i> 13/5a	OK032198	OK032242	OK032268	OK032294	OK032320	OK032346	MZ970353
<i>S. ventriculi</i> 39/7a	OK032178	OK032222	OK032248	OK032274	OK032300	OK032326	MZ970333
<i>S. ventriculi</i> 39/7b	OK032179	OK032223	OK032249	OK032275	OK032301	OK032327	MZ970334
<i>S. ventriculi</i> 46/5b	OK032180	OK032224	OK032250	OK032276	OK032302	OK032328	MZ970335
<i>S. ventriculi</i> 47/5b	OK032181	OK032225	OK032251	OK032277	OK032303	OK032329	MZ970336
<i>S. ventriculi</i> 48/3	OK032182	OK032226	OK032252	OK032278	OK032304	OK032330	MZ970337
<i>S. ventriculi</i> 51/4a	OK032183	OK032227	OK032253	OK032279	OK032305	OK032331	MZ970338
<i>S. ventriculi</i> 51/4c	OK032184	OK032228	OK032254	OK032280	OK032306	OK032332	MZ970339
<i>S. ventriculi</i> 52/3c	OK032185	OK032229	OK032255	OK032281	OK032307	OK032333	MZ970340
<i>S. ventriculi</i> 60/3c	OK032186	OK032230	OK032256	OK032282	OK032308	OK032334	MZ970341
<i>Candidatus</i> <i>Sarcina troglodydae</i> JB2	CP051754 (2211988-2214898)	CP051754 (1703988-1706366)	CP051754 (1949002-1950564)	CP051754 (2088199-2089022)	CP051754 (2090017-2090646)	CP051754 (2086795-2087451)	CP051754 (9441-10960)
<i>Sarcina</i> sp. D3/3C	OK032187	OK032231	OK032257	OK032283	OK032309	OK032335	MZ970342
<i>Sarcina</i> sp. K1/7A	OK032188	OK032232	OK032258	OK032284	OK032310	OK032336	MZ970343
<i>Sarcina</i> sp. K3/7B	OK032189	OK032233	OK032259	OK032285	OK032311	OK032337	MZ970344

<i>Sarcina</i> sp. N13/4e	OK032190	OK032234	OK032260	OK032286	OK032312	OK032338	MZ970345
<i>Sarcina</i> sp. S1/3c	OK032191	OK032235	OK032261	OK032287	OK032313	OK032339	MZ970346
<i>Sarcina</i> sp. S2/2b	OK032192	OK032236	OK032262	OK032288	OK032314	OK032340	MZ970347
<i>Sarcina</i> sp. S8/2c	OK032193	OK032237	OK032263	OK032289	OK032315	OK032341	MZ970348
<i>Sarcina</i> sp. S10/2a	OK032194	OK032238	OK032264	OK032290	OK032316	OK032342	MZ970349