

Table S1. The presence and copies of chvD homologous in Mycobacterium species with whole genome sequence

Species	Genebank ID	presence of chvD homologous	No. of copies	Reference strain No.
Mycobacteroides chelonae (Bergey et al. 1923) Gupta et al. 2018	GCA_001632805.1	Yes	single	CCUG 47445
Mycobacterium acidiphilus Xia et al. 2022	GCA_018455725.1	Yes	single	M1
Mycobacterium algericus (Sahraoui et al. 2011) Gupta et al. 2018	GCA_002086455.1	Yes	single	DSM 45454
Mycobacterium arupensis (Cloud et al. 2006) Gupta et al. 2018	GCA_002086515.1	Yes	single	DSM 44942
Mycobacterium engbaekii (Tortoli et al. 2013) Gupta et al. 2018	GCA_002101585.1	Yes	single	ATCC 27353
Mycobacterium heraklionensis (Tortoli et al. 2013) Gupta et al. 2018	GCA_019645815.1	Yes	single	JCM 30995
Mycobacterium hiberniae (Kazda et al. 1993) Gupta et al. 2018	GCA_010729485.1	Yes	single	JCM 13571
Mycobacterium icosiummassiliensis Gupta et al. 2018	GCA_900078685.2	Yes	single	8WA6
Mycobacterium longobardus (Tortoli et al. 2013) Gupta et al. 2018	GCA_002102265.1	Yes	single	DSM 45394
Mycobacterium minnesotensis (Hannigan et al. 2013) Gupta et al. 2018	GCA_010731755.1	Yes	single	JCM 17932
Mycobacterium nonchromogenicus (Tsukamura 1965) Gupta et al. 2018	GCA_002101775.1	Yes	single	DSM 44164
Mycobacterium sensuensis (Mun et al. 2008) Gupta et al. 2018	GCA_010723225.1	Yes	single	JCM 16017
Mycobacterium sinensis Gupta et al. 2018	GCA_000214155.1	Yes	single	JDM601
Mycobacterium terrae (Wayne 1966) Gupta et al. 2018	GCA_900187145.1	Yes	single	NCTC10856
Mycobacterium obuense (Tsukamura and Mizuno 1981) Gupta et al. 2018	GCA_004359005.1	Yes	single	22DIII
Mycobacterium parafortuitum (Tsukamura 1966) Gupta et al. 2018	GCA_010725485.1	Yes	single	JCM 6367
Mycobacterium phlei (Lehmann and Neumann 1899) Gupta et al. 2018	GCA_900453675.1	Yes	single	NCTC8156
Mycobacterium poriferae (Padgett and Moshier 1987) Gupta et al. 2018	GCA_025822745.1	Yes	single	DSM 44585
Mycobacterium psychrotolerans (Trujillo et al. 2004) Gupta et al. 2018	GCA_010728325.1	Yes	single	JCM 12603
Mycobacterium pyrenivorans (Derz et al. 2004) Gupta et al. 2018	GCA_025821625.1	Yes	single	DSM 44605
Mycobacterium rufum (Hennessee et al. 2009) Gupta et al. 2018	GCA_022374875.3	Yes	single	JCM 16372
Mycobacterium smegmatis (Trevisan 1889) Gupta et al. 2018	GCA_013349145.1	Yes	single	FDAARGOS_679
Mycobacterium tusciae (Tortoli et al. 1999) Gupta et al. 2018	GCA_002086795.1	Yes	single	DSM 44338
Mycobacterium vanbaalenii (Khan et al. 2002) Gupta et al. 2018	GCA_000015305.1	Yes	single	PYR-1
Mycobacterium xanthum Pan et al. 2022	GCA_019710635.1	Yes	single	Y57
Mycobacterium terrae Wayne 1966 (Approved Lists 1980)	GCA_900187145.1	Yes	single	NCTC10856
Mycobacterium thermoresistibile Tsukamura 1966 (Approved Lists 1980)	GCA_900187065.1	Yes	single	NCTC10409
Mycobacterium timonense Ben Salah et al. 2009	GCA_010723675.1	Yes	single	JCM 30726
Mycobacterium tuberculosis (Zopf 1883) Lehmann and Neumann 1896	GCA_000195955.2	Yes	single	H37Rv
Mycobacterium tusciae Tortoli et al. 1999	GCA_002086795.1	Yes	single	DSM 44338
Mycobacterium uberis Benjak et al. 2018	GCA_003408705.1	Yes	single	Jura
Mycobacterium vanbaalenii Khan et al. 2002	GCA_000015305.1	Yes	single	PYR-1
Mycobacterium yongonense Kim et al. 2013	GCA_001686645.1	Yes	single	E3170
Mycobacterium acapulcense Gupta et al. 2018	GCA_001499915.1	Yes	single	GA-1331
Mycobacterium agri (Tsukamura 1981) Gupta et al. 2018	GCA_010722915.1	Yes	single	JCM 6377
Mycobacterium aichiense (Tsukamura 1981) Gupta et al. 2018	GCA_010726245.1	Yes	single	JCM 6376
Mycobacterium alvei (Ausina et al. 1992) Gupta et al. 2018	GCA_010727325.1	Yes	single	JCM 12272
Mycobacterium anagense (Kim et al. 2015) Gupta et al. 2018	GCA_010731855.1	Yes	single	JCM 30275
Mycobacterium aurantiacum Pan et al. 2022	GCA_019710595.1	Yes	single	3033
Mycobacterium aurum (Tsukamura 1966) Gupta et al. 2018	GCA_900637195.1	Yes	single	NCTC10437
Mycobacterium bacteremicum (Brown-Elliott et al. 2012) Gupta et al. 2018	GCA_002086115.1	Yes	single	DSM 45578
Mycobacterium boenickei (Schinsky et al. 2004) Gupta et al. 2018	GCA_010731295.1	Yes	single	JCM 15653
Mycobacterium brumae (Luquin et al. 1993) Gupta et al. 2018	GCA_025215495.1	Yes	single	ATCC 51384
Mycobacterium canariensis (Jiménez et al. 2004) Gupta et al. 2018	GCA_002101555.1	Yes	single	CCUG 47953
Mycobacterium chlorophenolicum (Apajalahti et al. 1986) Gupta et al. 2018	GCA_001552315.1	Yes	single	NBRC 15527
Mycobacterium chubuense (Tsukamura 1981) Gupta et al. 2018	GCA_900453455.1	Yes	single	NCTC10819
Mycobacterium cosmeticum (Cooksey et al. 2004) Gupta et al. 2018	GCA_000613185.1	Yes	single	DSM 44829
Mycobacterium diernhoferi (Tsukamura et al. 1983) Gupta et al. 2018	GCA_019456655.1	Yes	single	ATCC 19340
Mycobacterium fallax (Lévy-Frèbault et al. 1983) Gupta et al. 2018	GCA_010726955.1	Yes	single	JCM 6405
Mycobacterium flavescens (Bojalil et al. 1962) Gupta et al. 2018	GCA_001722335.1	Yes	single	M6
Mycobacterium gadium (Casal and Calero 1974) Gupta et al. 2018	GCA_010728295.1	Yes	single	JCM 12688
Mycobacterium gilvum (Stanford and Gunthorpe 1971) Gupta et al. 2018	GCA_000184435.1	Yes	single	Spyr1
Mycobacterium goodii (Brown et al. 1999) Gupta et al. 2018	GCA_022370755.2	Yes	single	ATCC 700504
Mycobacterium helvum (Tran and Dahl 2016) Gupta et al. 2018	GCA_010731895.1	Yes	single	JCM 30396
Mycobacterium insubricum (Tortoli et al. 2009) Gupta et al. 2018	GCA_010731615.1	Yes	single	JCM 16366
Mycobacterium komanii (Geebe et al. 2018) Gupta et al. 2018	GCA_001050035.1	Yes	single	GPk 1020
Mycobacterium litorale (Zhang et al. 2012) Gupta et al. 2018	GCA_010731695.1	Yes	single	JCM 17423
Mycobacterium lutetiense (Koniak et al. 2016) Gupta et al. 2018	GCA_017876775.1	Yes	single	DSM 46713
Mycobacterium mageritense (Domenech et al. 1997) Gupta et al. 2018	GCA_010727475.1	Yes	single	JCM 12375
Mycobacterium vinylchloridicum Cortes-Albayay et al. 2021	GCA_013404075.1	Yes	single	CECT 8761
Mycobacterium acapulcensis Bojalil et al. 1962	GCA_001499915.1	Yes	single	GA-1331
Mycobacterium africanum Castets et al. 1969 (Approved Lists 1980)	GCA_002982335.1	Yes	single	ATCC 25420
Mycobacterium agri (ex Tsukamura 1972) Tsukamura 1981	GCA_010722915.1	Yes	single	JCM 6377
Mycobacterium aichiense (ex Tsukamura 1973) Tsukamura 1981	GCA_010726245.1	Yes	single	JCM 6376
Mycobacterium algericum Sahraoui et al. 2011	GCA_010723515.1	Yes	single	JCM 30723
Mycobacterium alvei Ausina et al. 1992	GCA_010727325.1	Yes	single	JCM 12272
Mycobacterium anyangense Kim et al. 2015	GCA_010731855.1	Yes	single	JCM 30275
Mycobacterium arupense Cloud et al. 2006	GCA_002086515.1	Yes	single	DSM 44942
Mycobacterium attenuatum Tagini et al. 2019	GCA_900566065.1	Yes	single	MK136
Mycobacterium aurum Tsukamura 1966 (Approved Lists 1980)	GCA_900637195.1	Yes	single	NCTC10437
Mycobacterium avium Chester 1901 (Approved Lists 1980)	GCA_002175585.1	Yes	single	OCU889s_P11_4s
Mycobacterium bacteremicum Brown-Elliott et al. 2012	GCA_002086115.1	Yes	single	DSM 45578
Mycobacterium basiliense Seth-Smith et al. 2019	GCA_900292015.1	Yes	single	0:00:00
Mycobacterium boenickei Schinsky et al. 2004	GCA_010731295.1	Yes	single	JCM 15653
Mycobacterium bohemicum Reischl et al. 1998	GCA_002102025.1	Yes	single	DSM 44277
Mycobacterium bovis Karlson and Lessel 1970 (Approved Lists 1980)	GCA_000729745.1	Yes	single	09-1191
Mycobacterium brumae Luquin et al. 1993	GCA_025215495.1	Yes	single	ATCC 51384
Mycobacterium canariensis Jiménez et al. 2004	GCA_002101555.1	Yes	single	CCUG 47953
Mycobacterium canetti van Soolingen et al. 1997	GCA_000253375.1	Yes	single	CIFT 140010059
Mycobacterium chelonae corrig. Bergey et al. 1923 (Approved Lists 1980)	GCA_001632805.1	Yes	single	CCUG 47445
Mycobacterium chelonae Bergey et al. 1923 (Approved Lists 1980)	GCA_001632805.1	Yes	single	CCUG 47445
Mycobacterium chimera Tortoli et al. 2004	GCA_001307335.1	Yes	single	MCIMRL2
Mycobacterium chlorophenolicum (Apajalahti et al. 1986) Häggblom et al.	GCA_001552315.1	Yes	single	NBRC 15527
Mycobacterium chubuense (ex Tsukamura 1973) Tsukamura 1981	GCA_900453455.1	Yes	single	NCTC10819
Mycobacterium cookii Kazda et al. 1990	GCA_010727945.1	Yes	single	JCM 12404
Mycobacterium cosmeticum Cooksey et al. 2004	GCA_000613185.1	Yes	single	DSM 44829
Mycobacterium crocinum Hennessee et al. 2009	GCA_025822435.1	Yes	single	DSM 45433
Mycobacterium decipiens Brown-Elliott et al. 2018	GCA_002104675.1	Yes	single	TBL 1200985
Mycobacterium diernhoferi (ex Bönicke and Juhasz 1965) Tsukamura et al.	GCA_019456655.1	Yes	single	ATCC 19340
Mycobacterium eburneum Nouioui et al. 2017	GCA_004354905.1	Yes	single	DSM 44358
Mycobacterium engbaekii Tortoli et al. 2013	GCA_002101585.1	Yes	single	ATCC 27353
Mycobacterium fallax Lévy-Frèbault et al. 1983	GCA_010726955.1	Yes	single	JCM 6405
Mycobacterium flavescens Bojalil et al. 1962 (Approved Lists 1980)	GCA_001722335.1	Yes	single	M6
Mycobacterium mungi Alexander et al. 2010	LXTB00000000.1	Yes	single	BM22813
Mycobacterium nonchromogenicum Tsukamura 1965 (Approved Lists 1980)	GCA_002101775.1	Yes	single	DSM 44164
Mycobacterium noviomagense van Ingen et al. 2009	GCA_010731635.1	Yes	single	JCM 16367
Mycobacterium obuense (ex Tsukamura and Mizuno 1971) Tsukamura and	GCA_004359005.1	Yes	single	22DIII
Mycobacterium oryzae van Ingen et al. 2012	GCA_006385035.1	Yes	single	NIRTAH144
Mycobacterium paraffinicum (ex Davis et al. 1956) Toney et al. 2010	GCA_025822865.1	Yes	single	DSM 44181
Mycobacterium parafortuitum Tsukamura 1966 (Approved Lists 1980)	GCA_010725485.1	Yes	single	JCM 6367
Mycobacterium phlei Lehmann and Neumann 1899 (Approved Lists 1980)	GCA_900453675.1	Yes	single	NCTC8156
Mycobacterium pinnipedii Cousins et al. 2003	GCA_002982275.1	Yes	single	ATCC BAA-688
Mycobacterium poriferae Padgett and Moshier 1987	GCA_010728325.1	Yes	single	JCM 12603
Mycobacterium psychrotolerans Trujillo et al. 2004	GCA_010729305.1	Yes	single	JCM 13323

<i>Mycobacterium pyrenivorans</i> Derz <i>et al.</i> 2004	GCA_025821625.1	Yes	single	DSM 44605
<i>Mycobacterium rhizamassiliense</i> Bouam <i>et al.</i> 2018	GCA_900157375.1	Yes	single	AB57
<i>Mycobacterium rufum</i> Hennessee <i>et al.</i> 2009	GCA_022374875.3	Yes	single	JCM 16372
<i>Mycobacterium senuense</i> Mun <i>et al.</i> 2008	GCA_010723225.1	Yes	single	JCM 16017
<i>Mycobacterium shimoidae</i> (ex Tsukamura <i>et al.</i> 1975) Tsukamura 1982	GCA_025822885.1	Yes	single	DSM 44152
<i>Mycobacterium shinjukuense</i> Saito <i>et al.</i> 2011	GCA_010730055.1	Yes	single	JCM 14233
<i>Mycobacterium simulans</i> Tortoli <i>et al.</i> 2010	GCA_900232995.1	Yes	single	FI-09026
<i>Mycobacterium sinense</i> Zhang <i>et al.</i> 2013	GCA_000214155.1	Yes	single	JDM601
<i>Mycobacterium smegmatis</i> (Trevisan 1889) Lehmann and Neumann 1899	GCA_013349145.1	Yes	single	FDAARGOS_679
<i>Mycobacterium gadium</i> Casal and Calero 1974 (Approved Lists 1980)	GCA_010728925.1	Yes	single	JCM 12688
<i>Mycobacterium gallinarum</i> Tsukamura <i>et al.</i> 1967	GCA_010726765.1	Yes	single	JCM 6399
<i>Mycobacterium genavense</i> Böttger <i>et al.</i> 1993	GCA_000526915.1	Yes	single	ATCC 51234
<i>Mycobacterium gilvum</i> Stanford and Gunthorpe 1971 (Approved Lists 1980)	GCA_000184435.1	Yes	single	Spyr1
<i>Mycobacterium globetum</i> Gray 1928	GCA_008125105.1	Yes	single	DSM 44596
<i>Mycobacterium goodii</i> Brown <i>et al.</i> 1999	GCA_022370755.2	Yes	single	ATCC 700504
<i>Mycobacterium gordonae</i> Bojalil <i>et al.</i> 1962 (Approved Lists 1980)	GCA_002101675.1	Yes	single	DSM 44160
<i>Mycobacterium hackensackense</i> Hong <i>et al.</i> 2003	GCA_025822555.1	Yes	single	DSM 44833
<i>Mycobacterium heidelbergense</i> Haas <i>et al.</i> 1998	GCA_010730745.1	Yes	single	JCM 14842
<i>Mycobacterium helvum</i> Tran and Dahl 2016	GCA_010731895.1	Yes	single	JCM 30396
<i>Mycobacterium heraklionense</i> Tortoli <i>et al.</i> 2013	GCA_019645815.1	Yes	single	JCM 30995
<i>Mycobacterium hiberniae</i> Kazda <i>et al.</i> 1993	GCA_010729485.1	Yes	single	JCM 13571
<i>Mycobacterium icosium</i> massiliensis Djouadi <i>et al.</i> 2016	GCA_900078685.2	Yes	single	8WA6
<i>Mycobacterium insubricum</i> Tortoli <i>et al.</i> 2009	GCA_010731615.1	Yes	single	JCM 16366
<i>Mycobacterium intermedium</i> Meier <i>et al.</i> 1993	GCA_001722345.1	Yes	single	HMC2_M5
<i>Mycobacterium intracellulare</i> (Cuttino and McCabe 1949) Runyon 1965	GCA_020736005.1	Yes	single	FDAARGOS_1564
<i>Mycobacterium komaniense</i> Gcebe <i>et al.</i> 2018	GCA_001050035.1	Yes	single	GPk 1020
<i>Mycobacterium komanii</i> Gcebe <i>et al.</i> 2016	GCA_001050035.1	Yes	single	GPk 1020
<i>Mycobacterium kyogaense</i> Nouiouei <i>et al.</i> 2018	GCA_003254575.1	Yes	single	NCTC 11659
<i>Mycobacterium kyorinense</i> Okazaki <i>et al.</i> 2009	GCA_001439515.1	Yes	single	HF1629
<i>Mycobacterium lacus</i> Turenne <i>et al.</i> 2002	GCA_010731535.1	Yes	single	JCM 15657
<i>Mycobacterium lentiflavum</i> Springer <i>et al.</i> 1996	GCA_001373395.1	Yes	single	CSUR P1491
<i>Mycobacterium lepromatosis</i> Han <i>et al.</i> 2008	GCA_000975265.2	Yes	single	FJ924
<i>Mycobacterium litorale</i> Zhang <i>et al.</i> 2012	GCA_010731695.1	Yes	single	JCM 17423
<i>Mycobacterium longobardum</i> Tortoli <i>et al.</i> 2013	GCA_002102265.1	Yes	single	DSM 45394
<i>Mycobacterium lutetiense</i> Konjek <i>et al.</i> 2016	GCA_017876775.1	Yes	single	DSM 46713
<i>Mycobacterium mageritense</i> Domenech <i>et al.</i> 1997	GCA_010727475.1	Yes	single	JCM 12375
<i>Mycobacterium malmoense</i> Schröder and Juhlin 1977 (Approved Lists 1980)	GCA_019645855.1	Yes	single	ATCC 29571
<i>Mycobacterium marseillense</i> Ben Salah <i>et al.</i> 2009	GCA_002285715.1	Yes	single	FLAC0026
<i>Mycobacterium microti</i> Reed 1957 (Approved Lists 1980)	GCA_002982215.1	Yes	single	ATCC 19422
<i>Mycobacterium minnesotense</i> Hannigan <i>et al.</i> 2013	GCA_010731755.1	Yes	single	JCM 17932

Note: The mycobacterium species were retrieved from LPSN

Table S2: Sequence pair distances of 60 type/reference strains of *Mycobacterium* and 1 out-group strain determined by using the multiple alignment in the Nussli package/version 10.1.0; DNA STR, Indian, 1