

Supplementary Table S1. Genomes used in the oral microbiome database. It contains 500 genomes from 283 species of Bacteria and 1 species of Archaea.

Abiotrophia defectiva ATCC 49176	Klebsiella pneumoniae subsp rhinoscleromatis ATCC 13884	Propionibacterium acnes SK137
Achromobacter xylosoxidans A8	Kytococcus sedentarius DSM 20547	Propionibacterium avidum ATCC 25577
Achromobacter xylosoxidans AXX-A	Lachnospiraceae bacterium oral taxon 082 str F0431	Propionibacterium propionicum F0230a
Acinetobacter baumannii AB0057	Lachnospiraceae oral taxon 107 str F0167	Proteus mirabilis ATCC 29906
Acinetobacter baumannii AB307-0294	Lactobacillus acidophilus ATCC 4796	Proteus mirabilis HI4320
Acinetobacter baumannii AB900	Lactobacillus acidophilus NCFM	Pseudomonas aeruginosa LESB58
Acinetobacter baumannii ACICU	Lactobacillus brevis ATCC 367	Pseudomonas aeruginosa PA7
Acinetobacter baumannii ATCC 17978	Lactobacillus brevis subsp gravesensis ATCC 27305	Pseudomonas aeruginosa UCBPP-PA14
Acinetobacter baumannii ATCC 19606	Lactobacillus buchneri ATCC 11577	Pseudomonas fluorescens Pf-5
Acinetobacter baumannii AYE	Lactobacillus buchneri NRRL B-30929	Pseudomonas fluorescens Pf0-1
Acinetobacter baumannii SDF	Lactobacillus casei ATCC 334	Pseudomonas fluorescens SBW25
Actinomyces naeslundii Howell 279	Lactobacillus casei BL23	Pseudomonas pseudoalcaligenes KF707
Actinomyces naeslundii MG1	Lactobacillus casei str Zhang	Pseudomonas stutzeri A1501
Actinomyces odontolyticus ATCC 17982	Lactobacillus coleohominis 101-4-CHN	Pseudomonas stutzeri ATCC 17588 = LMG 11199
Actinomyces odontolyticus F0309	Lactobacillus crispatus 125-2-CHN	Pseudoramibacter alactolyticus ATCC 23263
Actinomyces oris K20	Lactobacillus crispatus JV-V01	Pyramidobacter piscolens W5455
Actinomyces sp oral taxon 170 str F0386	Lactobacillus crispatus MV-1A-US	Ralstonia pickettii 12D
Actinomyces sp oral taxon 171 str F0337	Lactobacillus crispatus MV-3A-US	Rhodobacter capsulatus SB1003
Actinomyces sp oral taxon 175 str F0384	Lactobacillus fermentum 28-3-CHN	Rothia aera F0474
Actinomyces sp oral taxon 178 str F0338	Lactobacillus fermentum ATCC 14931	Rothia dentocariosa ATCC 17931
Actinomyces sp oral taxon 180 str F0310	Lactobacillus gasseri 202-4	Rothia dentocariosa M567
Actinomyces sp oral taxon 448 str F0400	Lactobacillus gasseri 224-1	Rothia mucilaginosa ATCC 25296
Actinomyces sp oral taxon 848 str F0332	Lactobacillus gasseri ATCC 33323	Rothia mucilaginosa DY-18
Actinomyces sp oral taxon 849 str F0330	Lactobacillus gasseri JV-V03	Sanguibacter keddieii DSM 10542
Actinomyces viscosus C505	Lactobacillus gasseri MV-22	Scardovia inopinata F0304
Afipia sp 1NLS2	Lactobacillus iners AB-1	Scardovia wiggisiae F0424
Aggregatibacter actinomycetemcomitans ANH9381	Lactobacillus iners ATCC 55195	Selenomonas artemidis F0399
Aggregatibacter actinomycetemcomitans D11S-1	Lactobacillus iners DSM 13335	Selenomonas flueggei ATCC 43531
Aggregatibacter actinomycetemcomitans D17P-2	Lactobacillus iners SPIN 1401G	Selenomonas infelix ATCC 43532
Aggregatibacter actinomycetemcomitans D17P-3	Lactobacillus jensenii 115-3-CHN	Selenomonas noxia ATCC 43541
Aggregatibacter actinomycetemcomitans D7S-1	Lactobacillus jensenii 1153	Selenomonas noxia F0398
Aggregatibacter actinomycetemcomitans RhAA1	Lactobacillus jensenii JV-V16	Selenomonas sp oral taxon 137 str F0430
Aggregatibacter actinomycetemcomitans serotype a str H5P1	Lactobacillus jensenii SJ-7A-US	Selenomonas sp oral taxon 149 str 67H29BP
Aggregatibacter actinomycetemcomitans serotype b str I23C	Lactobacillus johnsonii ATCC 33200	Selenomonas sputigena ATCC 35185
Aggregatibacter actinomycetemcomitans serotype b str SCC1398	Lactobacillus johnsonii FI9785	Shuttleworthia satelles DSM 14600
Aggregatibacter actinomycetemcomitans serotype c str SCC2302	Lactobacillus johnsonii NCC 533	Simonsiella muelleri ATCC 29453

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Aggregatibacter actinomycetemcomitans serotype d str I63B	Lactobacillus oris F0423	Slackia exigua ATCC 700122
Aggregatibacter actinomycetemcomitans serotype e str SC1083	Lactobacillus oris PB013-T2-3	Solobacterium moorei F0204
Aggregatibacter actinomycetemcomitans serotype e str SCC393	Lactobacillus paracasei subsp paracasei 8700-2	Staphylococcus aureus A5937
Aggregatibacter actinomycetemcomitans serotype f str D18P1	Lactobacillus paracasei subsp paracasei ATCC 25302	Staphylococcus aureus subsp aureus ATCC 51811
Aggregatibacter aphrophilus NJ8700	Lactobacillus pentosus KCA1	Staphylococcus aureus subsp aureus ATCC BAA-39
Aggregatibacter segnis ATCC 33393	Lactobacillus plantarum JDM1	Staphylococcus caprae C87
Agrobacterium tumefaciens str C58	Lactobacillus plantarum subsp plantarum ATCC 14917	Staphylococcus epidermidis ATCC 12228
Anaerococcus lactolyticus ATCC 51172	Lactobacillus reuteri 100-23	Staphylococcus epidermidis BCM-HMP0060
Anaerococcus prevotii ACS-065-V-Col13	Lactobacillus reuteri DSM 20016	Staphylococcus warneri L37603
Anaerococcus prevotii DSM 20548	Lactobacillus reuteri JCM 1112	Stenotrophomonas maltophilia K279a
Anaerococcus tetradius ATCC 35098	Lactobacillus reuteri MM2-3	Stenotrophomonas maltophilia R551-3
Anaeroglobus geminatus F0357	Lactobacillus rhamnosus GG	Stenotrophomonas sp SKA14
Arcanobacterium haemolyticum DSM 20595	Lactobacillus rhamnosus HN001	Streptococcus agalactiae 2603VR
Atopobium parvulum DSM 20469	Lactobacillus rhamnosus Lc 705	Streptococcus agalactiae 515
Atopobium rimae ATCC 49626	Lactobacillus rhamnosus LMS2-1	Streptococcus agalactiae A909
Atopobium vaginae DSM 15829	Lactobacillus salivarius ACS-116-V-Col5a	Streptococcus agalactiae CJB111
Atopobium vaginae PB189-T1-4	Lactobacillus salivarius ATCC 11741	Streptococcus agalactiae COH1
Bacillus anthracis str A0174	Lactobacillus salivarius CECT 5713	Streptococcus agalactiae H36B
Bacillus anthracis str Sterne	Lactobacillus salivarius GJ-24	Streptococcus agalactiae NEM316
Bacillus clausii KSM-K16	Lactobacillus salivarius NIAS840	Streptococcus anginosus 1 2 62CV
Bacillus subtilis subsp spizizenii str W23	Lactobacillus salivarius UCC118	Streptococcus anginosus F0211
Bacillus subtilis subsp subtilis str NCIB 3610	Lactobacillus sp oral taxon 418 str F0439	Streptococcus australis ATCC 700641
Bacillus subtilis subsp subtilis str SMY	Lactobacillus sp oral taxon 424 str F0435	Streptococcus constellatus subsp constellatus SK53
Bacteroidetes oral taxon 274 str F0058	Lactobacillus vaginalis ATCC 49540	Streptococcus cristatus ATCC 51100
Bifidobacterium breve DPC 6330	Lactococcus lactis subsp cremoris MG1363	Streptococcus downei F0415
Bifidobacterium breve UCC2003	Lactococcus lactis subsp cremoris SK11	Streptococcus gordonii str Challis substr CH1
Bifidobacterium dentium ATCC 27678	Lactococcus lactis subsp lactis II1403	Streptococcus infantarius subsp infantarius ATCC BAA-102
Bifidobacterium dentium ATCC 27679	Lactococcus lactis subsp lactis KF147	Streptococcus infantis ATCC 700779
Bifidobacterium dentium Bd1	Lautropia mirabilis ATCC 51599	Streptococcus infantis SK1302
Bifidobacterium dentium JCVIHMP022	Leptotrichia buccalis DSM 1135	Streptococcus intermedius F0395
Bifidobacterium longum subsp infantis ATCC 15697	Leptotrichia goodfellowii F0264	Streptococcus intermedius F0413
Bifidobacterium longum subsp longum BBMN68	Leptotrichia hofstadii F0254	Streptococcus intermedius JTH08
Bordetella pertussis Tohama I	Listeria monocytogenes 10403S	Streptococcus intermedius SK54
Bradyrhizobium elkanii 587	Listeria monocytogenes Clip81459	Streptococcus mitis ATCC 6249
Brevundimonas diminuta ATCC 11568	Listeria monocytogenes FSL N1-017	Streptococcus mitis B6

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Bulleidia extracta W1219	Lysinibacillus fusiformis ZC1	Streptococcus mitis bv 2 str F0392
Burkholderia cepacia GG4	Megasphaera micronuciformis F0359	Streptococcus mitis bv 2 str SK95
Campylobacter concisus 13826	Mesorhizobium loti MAFF303099	Streptococcus mitis NCTC 12261
Campylobacter curvus 52592	Methanobrevibacter smithii ATCC 35061 (Archaea)	Streptococcus mitis SK1073
Campylobacter gracilis RM3268	Methanobrevibacter smithii DSM2374 (Archaea)	Streptococcus mitis SK1080
Campylobacter rectus RM3267	Mitsuokella multacida DSM 20544	Streptococcus mitis SK321
Campylobacter showae RM3277	Mobiluncus mulieris 28-1	Streptococcus mitis SK564
candidate division TM7 genomosp GTL1	Mobiluncus mulieris ATCC 35239	Streptococcus mitis SK569
candidate division TM7 single-cell isolate TM7a	Mobiluncus mulieris ATCC 35243	Streptococcus mitis SK575
candidate division TM7 single-cell isolate TM7b	Moraxella catarrhalis RH4	Streptococcus mitis SK579
candidate division TM7 single-cell isolate TM7c	Mycobacterium leprae Br4923	Streptococcus mitis SK597
Capnocytophaga gingivalis ATCC 33624	Mycobacterium leprae TN	Streptococcus mitis SK616
Capnocytophaga ochracea DSM 7271	Mycobacterium tuberculosis CDC1551	Streptococcus mitis SPAR10
Capnocytophaga ochracea F0287	Mycobacterium tuberculosis CPHL A	Streptococcus mutans GS-5
Capnocytophaga sp oral taxon 329 str F0087	Mycoplasma fermentans JER	Streptococcus mutans NN2025
Capnocytophaga sp oral taxon 335 str F0486	Mycoplasma fermentans M64	Streptococcus mutans TCI-101
Capnocytophaga sp oral taxon 338 str F0234	Mycoplasma genitalium G37	Streptococcus mutans TCI-109
Capnocytophaga sp oral taxon 412 str F0487	Mycoplasma hominis	Streptococcus mutans TCI-11
Capnocytophaga sputigena ATCC 33612	Mycoplasma pneumoniae M129	Streptococcus mutans TCI-110
Cardiobacterium hominis ATCC 15826	Neisseria bacilliformis ATCC BAA-1200	Streptococcus mutans TCI-116
Cardiobacterium valvarum F0432	Neisseria elongata subsp glycolytica ATCC 29315	Streptococcus mutans TCI-239
Catonella morbi ATCC 51271	Neisseria flavescens NRL30031H210	Streptococcus mutans TCI-242
Centipeda periodontii DSM 2778	Neisseria flavescens SK114	Streptococcus mutans TCI-243
Chlamydomphila pneumoniae AR39	Neisseria gonorrhoeae DGI18	Streptococcus mutans UA159
Chlamydomphila pneumoniae CWL029	Neisseria gonorrhoeae PID24-1	Streptococcus oralis ATCC 35037
Chlamydomphila pneumoniae J138	Neisseria lactamica ATCC 23970	Streptococcus oralis SK10
Chlamydomphila pneumoniae TW-183	Neisseria lactamica ST-640	Streptococcus oralis SK100
Comamonas testosteroni ATCC 11996	Neisseria meningitidis alpha14	Streptococcus oralis SK1074
Comamonas testosteroni NBRC 100989	Neisseria meningitidis Z2491	Streptococcus oralis SK255
Corynebacterium diphtheriae NCTC 13129	Neisseria mucosa ATCC 25996	Streptococcus oralis SK304
Corynebacterium matruchotii ATCC 14266	Neisseria mucosa C102	Streptococcus oralis SK313
Corynebacterium matruchotii ATCC 33806	Neisseria polysaccharea ATCC 43768	Streptococcus oralis SK610
Corynebacterium urealyticum DSM 7109	Neisseria polysaccharea NS342	Streptococcus oralis Uo5
Cronobacter sakazakii ATCC BAA-894	Neisseria sicca ATCC 29256	Streptococcus parasanguinis ATCC 15912
Cronobacter sakazakii E899	Neisseria sicca DS1	Streptococcus parasanguinis ATCC 903
Cryptobacterium curtum DSM 15641	Neisseria sp oral taxon 014 str F0314	Streptococcus parasanguinis F0405
Delftia acidovorans SPH-1	Neisseria subflava NJ9703	Streptococcus peroris ATCC 700780

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Dialister invisus DSM 15470	Neisseria weaveri ATCC 51223	Streptococcus pneumoniae 670-6B
Dialister microaerophilus DSM 19965	Ochrobactrum anthropi ATCC 49188	Streptococcus pneumoniae BS458
Dialister microaerophilus UPII 345-E	Olsenella sp oral taxon 809 str F0356	Streptococcus pneumoniae CCRI 1974M2
Dolosigranulum pigrum ATCC 51524	Olsenella uli DSM 7084	Streptococcus pyogenes ATCC 10782
Eggerthella lenta DSM 2243	Oribacterium sinus F0268	Streptococcus pyogenes M1 GAS
Eikenella corrodens ATCC 23834	Oribacterium sp oral taxon 078 str F0262	Streptococcus pyogenes M49 591
Enterobacter cancerogenus ATCC 35316	Oribacterium sp oral taxon 108 str F0425	Streptococcus salivarius 571
Enterobacter hormaechei ATCC 49162	Paenibacillus sp oral taxon 786 str D14	Streptococcus salivarius CCHSS3
Enterococcus casseliflavus EC10	Parascardovia denticolens DSM 10105	Streptococcus salivarius JIM8777
Enterococcus casseliflavus EC20	Parascardovia denticolens F0305	Streptococcus salivarius K12
Enterococcus casseliflavus EC30	Parvimonas micra ATCC 33270	Streptococcus salivarius M18
Enterococcus faecalis AR01DG	Parvimonas sp oral taxon 110 str F0139	Streptococcus salivarius PS4
Enterococcus faecalis ATCC 29200	Parvimonas sp oral taxon 393 str F0440	Streptococcus salivarius SK126
Enterococcus faecalis ATCC 4200	Peptoniphilus indolicus ATCC 29427	Streptococcus sanguinis ATCC 29667
Enterococcus italicus DSM 15952	Peptoniphilus lacrimalis 315-B	Streptococcus sanguinis SK36
Enterococcus saccharolyticus 30 1	Peptoniphilus sp oral taxon 375 str F0436	Streptococcus sanguinis VMC66
Escherichia coli E24377A	Peptoniphilus sp oral taxon 386 str F0131	Streptococcus sobrinus TCI-107
Eubacterium infirmum F0142	Peptoniphilus sp oral taxon 836 str F0141	Streptococcus sobrinus TCI-118
Eubacterium limosum KIST612	Peptostreptococcus anaerobius 653-L	Streptococcus sobrinus TCI-119
Eubacterium saburreum DSM 3986	Peptostreptococcus stomatis DSM 17678	Streptococcus sobrinus TCI-121
Eubacterium saphenum ATCC 49989	Porphyromonas asaccharolytica DSM 20707	Streptococcus sobrinus TCI-124
Eubacterium yurii subsp margaretae ATCC 43715	Porphyromonas asaccharolytica PR426713P-I	Streptococcus sobrinus TCI-157
Filifactor alocis ATCC 35896	Porphyromonas endodontalis ATCC 35406	Streptococcus sobrinus TCI-336
Finegoldia magna ATCC 29328	Porphyromonas gingivalis ATCC 33277	Streptococcus sobrinus TCI-345
Finegoldia magna ATCC 53516	Porphyromonas gingivalis TDC60	Streptococcus sobrinus TCI-349
Finegoldia magna BVS033A4	Porphyromonas gingivalis W50	Streptococcus sobrinus TCI-355
Fusobacterium gonidiaformans ATCC 25563	Porphyromonas gingivalis W83	Streptococcus sobrinus TCI-363
Fusobacterium necrophorum subsp funduliforme ATCC 51357	Porphyromonas sp oral taxon 279 str F0450	Streptococcus sobrinus TCI-373
Fusobacterium nucleatum subsp fusiforme ATCC 51190	Prevotella bivia JCVIHP010	Streptococcus sobrinus TCI-384
Fusobacterium nucleatum subsp nucleatum ATCC 23726	Prevotella buccae ATCC 33574	Streptococcus sobrinus TCI-53
Fusobacterium nucleatum subsp nucleatum ATCC 25586	Prevotella buccae D17	Streptococcus sobrinus TCI-79
Fusobacterium nucleatum subsp polymorphum ATCC 10953	Prevotella buccalis ATCC 35310	Streptococcus sobrinus TCI-9
Fusobacterium nucleatum subsp polymorphum F0401	Prevotella dentalis DSM 3688	Streptococcus sp oral taxon 056 str F0418
Fusobacterium nucleatum subsp vincentii ATCC 49256	Prevotella denticola CRIS 18C-A	Streptococcus sp oral taxon 058 str F0407
Fusobacterium periodonticum ATCC 33693	Prevotella denticola F0289	Streptococcus sp oral taxon 071 str 73H25AP
Fusobacterium periodonticum D10	Prevotella histicola F0411	Streptococcus vestibularis ATCC 49124
Fusobacterium sp oral taxon 370 str	Prevotella intermedia 17	Streptococcus vestibularis F0396

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F0437		
Gardnerella vaginalis 409-05	Prevotella maculosa OT 289	Synergistetes bacterium SGP1
Gardnerella vaginalis ATCC 14018	Prevotella marshii DSM 16973	Tannerella forsythia ATCC 43037
Gardnerella vaginalis ATCC 14019	Prevotella melaninogenica ATCC 25845	Treponema denticola ATCC 35405
Gemella haemolysans ATCC 10379	Prevotella melaninogenica D18	Treponema denticola F0402
Gemella haemolysans M341	Prevotella micans F0438	Treponema lecithinolyticum OMZ 684T
Gemella moribillum M424	Prevotella multiformis DSM 16608	Treponema pallidum subsp pallidum SS14
Gemella sanguinis M325	Prevotella multisaccharivorax DSM 17128	Treponema pallidum subsp pallidum str Nichols
Granulicatella adiacens ATCC 49175	Prevotella nigrescens ATCC 33563	Treponema vincentii ATCC 35580
Granulicatella elegans ATCC 700633	Prevotella oralis ATCC 33269	Turicella otitidis ATCC 51513
Haemophilus aegyptius ATCC 11116	Prevotella oris C735	Variovorax paradoxus EPS
Haemophilus ducreyi 35000HP	Prevotella oris F0302	Variovorax paradoxus S110
Haemophilus haemolyticus M19107	Prevotella oulorum F0390	Veillonella atypica ACS-049-V-Sch6
Haemophilus haemolyticus M21639	Prevotella pallens ATCC 700821	Veillonella atypica ACS-134-V-Col7a
Haemophilus influenzae PittAA	Prevotella salivae DSM 15606	Veillonella dispar ATCC 17748
Haemophilus influenzae PittHH	Prevotella sp oral taxon 299 str F0039	Veillonella parvula ACS-068-V-Sch12
Haemophilus parainfluenzae ATCC 33392	Prevotella sp oral taxon 302 str F0323	Veillonella parvula ATCC 17745
Haemophilus sp oral taxon 851 str F0397	Prevotella sp oral taxon 306 str F0472	Veillonella parvula DSM 2008
Helicobacter pylori B38	Prevotella sp oral taxon 317 str F0108	Veillonella sp oral taxon 158 str F0412
Johnsonella ignava ATCC 51276	Prevotella sp oral taxon 472 str F0295	Veillonella sp oral taxon 780 str F0422
Jonquetella anthropi DSM 22815	Prevotella tanneriae ATCC 51259	
Kingella denitrificans ATCC 33394	Prevotella veroralis F0319	
Kingella kingae ATCC 23330	Propionibacterium acnes J139	
Kingella oralis ATCC 51147	Propionibacterium acnes KPA171202	