

Supplementary Table 1: Bacterial taxonomic classification from SILVA version 123 database

Taxonomy

k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Actinomycetales|f_Actinomycetales|g_Actinomycetes
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Bifidobacteriales|f_Bifidobacteriaceae|g_Alloscardovia
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Bifidobacteriales|f_Bifidobacteriaceae|g_Bifidobacterium
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Bifidobacteriales|f_Bifidobacteriaceae|g_Parascardovia
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Bifidobacteriales|f_Bifidobacteriaceae|g_Scardovia
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Corynebacteriales|f_Corynebacteriaceae|g_Corynebacterium
k_Bacteria|p_Actinobacteria|c_Actinobacteria|o_Micrococcales|f_Micrococcaceae|g_Rothia
k_Bacteria|p_Actinobacteria|c_Coriobacteriia|o_Coriobacteriales|f_Coriobacteriaceae|g_Atopobium
k_Bacteria|p_Actinobacteria|c_Coriobacteriia|o_Coriobacteriales|f_Coriobacteriaceae|g_Cryptobacterium
k_Bacteria|p_Actinobacteria|c_Coriobacteriia|o_Coriobacteriales|f_Coriobacteriaceae|g_Olsenella
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Bacteroidaceae|g_Bacteroides
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Bacteroidales_Incertae_Sedis|g_Phocaeicola
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Porphyrimonadaceae|g_Porphyrimonas
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Porphyrimonadaceae|g_Tannerella
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Prevotellaceae|g_Alloprevotella
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Prevotellaceae|g_Prevotella
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Prevotellaceae|g_Prevotella_2
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Prevotellaceae|g_Prevotella_6
k_Bacteria|p_Bacteroidetes|c_Bacteroidia|o_Bacteroidales|f_Prevotellaceae|g_Prevotella_7
k_Bacteria|p_Bacteroidetes|c_Flavobacteriia|o_Flavobacteriales|f_Flavobacteriaceae|g_Bergeyella
k_Bacteria|p_Bacteroidetes|c_Flavobacteriia|o_Flavobacteriales|f_Flavobacteriaceae|g_Capnocytophaga
k_Bacteria|p_Bacteroidetes|c_Flavobacteriia|o_Flavobacteriales|f_Flavobacteriaceae|g_Cloacibacterium
k_Bacteria|p_Firmicutes|c_Bacilli|o_Bacillales|f_Family_XI|g_Gemella
k_Bacteria|p_Firmicutes|c_Bacilli|o_Bacillales|f_Staphylococcaceae|g_Staphylococcus
k_Bacteria|p_Firmicutes|c_Bacilli|o_Lactobacillales|f_Aerococcaceae|g_Abiotrophia
k_Bacteria|p_Firmicutes|c_Bacilli|o_Lactobacillales|f_Carnobacteriaceae|g_Granulicatella
k_Bacteria|p_Firmicutes|c_Bacilli|o_Lactobacillales|f_Lactobacillaceae|g_Lactobacillus
k_Bacteria|p_Firmicutes|c_Bacilli|o_Lactobacillales|f_Streptococcaceae|g_Streptococcus
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Clostridiales_vadinBB60_group
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Defluviitaleaceae|g_Defluviitaleaceae_UCG-011
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Eubacteriaceae|g_Pseudoramibacter
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XI|g_Parvimonas
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XIII|g_Family_XIII_UCG-001
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XIII|g_Incertae_Sedis
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XIII|g_Mogibacterium
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XIII|g_[Eubacterium]_brachy_group
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Family_XIII|g_[Eubacterium]_nodatum_group
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Butyrvibrio_2
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Catonella
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Johnsonella
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Lachnoanaerobaculum
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Oribacterium
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Shuttleworthia
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Lachnospiraceae|g_Stomatobaculum
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Peptococcaceae|g_Peptococcus
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Peptostreptococcaceae|g_Filifactor
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Peptostreptococcaceae|g_Peptoclostridium
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Peptostreptococcaceae|g_Peptostreptococcus
k_Bacteria|p_Firmicutes|c_Clostridia|o_Clostridiales|f_Ruminococcaceae|g_Ruminococcaceae_UCG-014
k_Bacteria|p_Firmicutes|c_Erysipelotrichia|o_Erysipelotrichales|f_Erysipelotrichaceae|g_Bulleidia
k_Bacteria|p_Firmicutes|c_Erysipelotrichia|o_Erysipelotrichales|f_Erysipelotrichaceae|g_Eggerthia
k_Bacteria|p_Firmicutes|c_Erysipelotrichia|o_Erysipelotrichales|f_Erysipelotrichaceae|g_Erysipelotrichaceae_UCG-006
k_Bacteria|p_Firmicutes|c_Erysipelotrichia|o_Erysipelotrichales|f_Erysipelotrichaceae|g_Solobacterium
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Anaeroglobus
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Dialister
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Megasphaera
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Selenomonas
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Selenomonas_3
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Selenomonas_4
k_Bacteria|p_Firmicutes|c_Negativicutes|o_Selenomonadales|f_Veillonellaceae|g_Veillonella
k_Bacteria|p_Fusobacteria|c_Fusobacteriia|o_Fusobacteriales|f_Fusobacteriaceae|g_Fusobacterium
k_Bacteria|p_Fusobacteria|c_Fusobacteriia|o_Fusobacteriales|f_Leptotrichiaceae|g_Leptotrichia
k_Bacteria|p_Fusobacteria|c_Fusobacteriia|o_Fusobacteriales|f_Leptotrichiaceae|g_Streptobacillus
k_Bacteria|p_Proteobacteria|c_Betaproteobacteria|o_Burkholderiales|f_Burkholderiaceae|g_Lautropia
k_Bacteria|p_Proteobacteria|c_Betaproteobacteria|o_Burkholderiales|f_Burkholderiaceae|g_Ralstonia
k_Bacteria|p_Proteobacteria|c_Betaproteobacteria|o_Burkholderiales|f_Comamonadaceae
k_Bacteria|p_Proteobacteria|c_Betaproteobacteria|o_Burkholderiales|f_Comamonadaceae|g_Ottowia
k_Bacteria|p_Proteobacteria|c_Betaproteobacteria|o_Neisseriales|f_Neisseriaceae|g_Alysiella

k__Bacteria|p__Proteobacteria|c__Betaproteobacteria|o__Neisseriales|f__Neisseriaceae|g__Eikenella
k__Bacteria|p__Proteobacteria|c__Betaproteobacteria|o__Neisseriales|f__Neisseriaceae|g__Kingella
k__Bacteria|p__Proteobacteria|c__Betaproteobacteria|o__Neisseriales|f__Neisseriaceae|g__Neisseria
k__Bacteria|p__Proteobacteria|c__Deltaproteobacteria|o__Desulfobacterales|f__Desulfobulbaceae|g__Desulfobulbus
k__Bacteria|p__Proteobacteria|c__Epsilonproteobacteria|o__Campylobacterales|f__Campylobacteraceae|g__Campylobacter
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Cardiobacteriales|f__Cardiobacteriaceae|g__Cardiobacterium
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Enterobacteriales|f__Enterobacteriaceae|g__Escherichia/Shigella
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pasteurellales|f__Pasteurellaceae|g__Actinobacillus
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pasteurellales|f__Pasteurellaceae|g__Aggregatibacter
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pasteurellales|f__Pasteurellaceae|g__Haemophilus
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pasteurellales|f__Pasteurellaceae|g__Mannheimia
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pseudomonadales|f__Moraxellaceae|g__Acinetobacter
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pseudomonadales|f__Moraxellaceae|g__Moraxella
k__Bacteria|p__Proteobacteria|c__Gammaproteobacteria|o__Pseudomonadales|f__Pseudomonadaceae|g__Pseudomonas
k__Bacteria|p__Saccharibacteria|c__Unknown_Class|o__Unknown_Order|f__Unknown_Family|g__Candidatus_Saccharimonas
k__Bacteria|p__Spirochaetae|c__Spirochaetes|o__Spirochaetales|f__Spirochaetaceae|g__Treponema_2
k__Bacteria|p__Synergistetes|c__Synergistia|o__Synergistales|f__Synergistaceae|g__Fretibacterium
k__Bacteria|p__Tenericutes|c__Mollicutes|o__Mycoplasmatales|f__Mycoplasmataceae|g__Mycoplasma

Case	Eikenella	0,00021	0,00085	17,56631	386,2731	0,00000	0,00000	0,00000	0,00022	0,01999		
Control	Eikenella	0,00028	0,00451	36,55588	1447,00611	0,00000	0,00000	0,00000	0,00015	0,18673		
											0,006	0,014
Case	Erysipelotrichaceae_UCG-006	0,00008	0,00021	6,18331	51,83577	0,00000	0,00000	0,00000	0,00007	0,00256		
Control	Erysipelotrichaceae_UCG-006	0,00007	0,0002	6,27523	55,44782	0,00000	0,00000	0,00000	0,00005	0,00261		
											0,384	0,499
Case	Escherichia/Shigella	0,00029	0,00383	24,00714	614,56054	0,00000	0,00000	0,00000	0,00000	0,10046		
Control	Escherichia/Shigella	0,00032	0,0043	24,32926	703,32104	0,00000	0,00000	0,00000	0,00000	0,14492		
											<0.001	<0.001
Case	Family_XIII_UCG-001	0,00016	0,0003	3,76417	18,91733	0,00000	0,00000	0,00003	0,00018	0,00279		
Control	Family_XIII_UCG-001	0,0001	0,00022	5,78981	53,99604	0,00000	0,00000	0,00000	0,00011	0,00345		
											<0.001	<0.001
Case	Filifactor	0,00262	0,00473	3,10391	12,07879	0,00000	0,00000	0,00062	0,00295	0,03498		
Control	Filifactor	0,00148	0,00321	4,41851	27,77403	0,00000	0,00000	0,00012	0,00152	0,03664		
											<0.001	<0.001
Case	Fretibacterium	0,00099	0,00201	6,15284	62,50018	0,00000	0,00000	0,00029	0,00110	0,02886		
Control	Fretibacterium	0,00062	0,00147	6,08467	55,06034	0,00000	0,00000	0,00011	0,00061	0,01986		
											<0.001	<0.001
Case	Fusobacterium	0,03208	0,02592	1,62755	3,9075	0,00000	0,01362	0,02588	0,04448	0,19246		
Control	Fusobacterium	0,02654	0,02293	2,30494	11,45978	0,00000	0,01045	0,02151	0,03593	0,26484		
											0,102	0,167
Case	Gemella	0,04121	0,03566	1,67986	4,45614	0,00000	0,01490	0,03270	0,05876	0,26604		
Control	Gemella	0,04274	0,03517	1,84951	6,91211	0,00000	0,01799	0,03554	0,05912	0,36225		
											0,012	0,026
Case	Granulicatella	0,02205	0,01471	1,41001	3,50957	0,00000	0,01173	0,02027	0,02925	0,09597		
Control	Granulicatella	0,02389	0,01638	2,15287	13,90038	0,00000	0,01285	0,02106	0,03129	0,22611		
											<0.001	<0.001
Case	Haemophilus	0,04691	0,04498	2,56043	12,12206	0,00000	0,01475	0,03788	0,06497	0,4094		
Control	Haemophilus	0,05364	0,04487	1,40406	3,7006	0,00000	0,01896	0,04548	0,07643	0,41312		
											<0.001	<0.001
Case	Incertae_Sedis	0,00099	0,00226	4,0894	22,9056	0,00000	0,00000	0,00000	0,00087	0,02314		
Control	Incertae_Sedis	0,00056	0,00169	5,68493	44,68854	0,00000	0,00000	0,00000	0,00025	0,02524		
											0,004	0,01
Case	Johnsonella	0,00029	0,00125	16,08803	319,46952	0,00000	0,00000	0,00000	0,00024	0,02753		
Control	Johnsonella	0,00023	0,00064	5,62117	43,45952	0,00000	0,00000	0,00000	0,00016	0,00791		
											0,274	0,391
Case	Kingella	0,00055	0,00102	4,43596	27,19733	0,00000	0,00000	0,00021	0,00065	0,00995		
Control	Kingella	0,00065	0,00307	37,17691	1564,45686	0,00000	0,00000	0,00023	0,00063	0,13061		
											0,556	0,64
Case	Lachnoanaerobaculum	0,00236	0,00256	3,02307	16,54662	0,00000	0,00070	0,00175	0,00305	0,02662		
Control	Lachnoanaerobaculum	0,00246	0,00281	3,82777	29,23402	0,00000	0,00071	0,00175	0,00322	0,03666		
											0,036	0,068
Case	Lactobacillus	0,00675	0,02352	6,03994	41,93818	0,00000	0,00000	0,00016	0,00292	0,22307		
Control	Lactobacillus	0,00614	0,0265	9,10227	107,72838	0,00000	0,00000	0,00011	0,00161	0,48538		
											0,24	0,355
Case	Lautropia	0,00107	0,00264	7,6073	80,05195	0,00000	0,00000	0,00027	0,00111	0,03696		
Control	Lautropia	0,00106	0,00218	5,25058	41,69322	0,00000	0,00000	0,00032	0,00118	0,03164		
											0,858	0,883
Case	Leptotrichia	0,01984	0,02186	5,4126	63,51367	0,00000	0,00692	0,01410	0,02562	0,34241		
Control	Leptotrichia	0,02013	0,02116	2,85037	13,75322	0,00000	0,00670	0,01394	0,02636	0,22771		
											0,242	0,355
Case	Mannheimia	0,00104	0,00507	10,93548	156,58606	0,00000	0,00000	0,00000	0,00000	0,09035		
Control	Mannheimia	0,00102	0,00414	10,01586	165,05501	0,00000	0,00000	0,00000	0,00000	0,096		
											0,706	0,771
Case	Megasphaera	0,00605	0,00746	2,53193	9,7055	0,00000	0,00115	0,00338	0,00831	0,06581		
Control	Megasphaera	0,00593	0,00689	2,19523	7,00592	0,00000	0,00113	0,00355	0,00821	0,05727		
											0,007	0,016
Case	Mogibacterium	0,00319	0,00325	1,93601	5,5055	0,00000	0,00087	0,00211	0,00458	0,02282		
Control	Mogibacterium	0,00275	0,00281	2,17301	8,8852	0,00000	0,00075	0,00192	0,00394	0,02949		
											0,819	0,851
Case	Moraxella	0,00017	0,00108	10,36841	126,86377	0,00000	0,00000	0,00000	0,00000	0,0168		
Control	Moraxella	0,00027	0,00392	25,6013	736,17967	0,00000	0,00000	0,00000	0,00000	0,13143		
											<0.001	<0.001
Case	Mycoplasma	0,00104	0,00222	5,29412	41,99663	0,00000	0,00000	0,00026	0,00107	0,02773		
Control	Mycoplasma	0,00066	0,0015	5,58435	49,42985	0,00000	0,00000	0,00011	0,00062	0,02192		
											0,028	0,055
Case	Neisseria	0,02217	0,03211	2,54246	9,16146	0,00000	0,00138	0,00888	0,03087	0,26879		
Control	Neisseria	0,02436	0,03356	2,44029	8,12448	0,00000	0,00199	0,01125	0,03347	0,29119		
											<0.001	<0.001
Case	Olsenella	0,00021	0,00048	5,06556	39,57276	0,00000	0,00000	0,00000	0,00022	0,006		
Control	Olsenella	0,00015	0,0006	11,10529	167,68798	0,00000	0,00000	0,00000	0,00009	0,01251		
											0,404	0,509
Case	Oribacterium	0,00314	0,00317	2,46862	9,87922	0,00000	0,00113	0,00228	0,00419	0,02587		
Control	Oribacterium	0,00325	0,00323	2,34675	9,58559	0,00000	0,00100	0,00249	0,00453	0,02845		
											0,379	0,499
Case	Ottowia	0,00028	0,00434	26,36998	711,73746	0,00000	0,00000	0,00000	0,00000	0,118		
Control	Ottowia	0,00031	0,00493	37,86992	1567,43896	0,00000	0,00000	0,00000	0,00000	0,20902		
											<0.001	<0.001
Case	Parascardovia	0,00036	0,00147	10,61431	155,91273	0,00000	0,00000	0,00000	0,00015	0,02684		
Control	Parascardovia	0,00025	0,00116	12,47493	245,75322	0,00000	0,00000	0,00000	0,00000	0,03022		
											<0.001	<0.001
Case	Parvimonas	0,00728	0,00898	2,73287	12,25746	0,00000	0,00138	0,00406	0,01002	0,08419		
Control	Parvimonas	0,00535	0,00747	3,72706	23,48596	0,00000	0,00087	0,00285	0,00705	0,09427		

Case	Peptoclostridium	0,0004	0,00092	6,04997	55,37572	0,00000	0,00000	0,00007	0,00040	0,01257	<0.001	<0.001
Control	Peptoclostridium	0,00024	0,0005	4,17801	23,96588	0,00000	0,00000	0,00000	0,00026	0,00506		
Case	Peptococcus	0,00092	0,00167	5,5009	59,40977	0,00000	0,00000	0,00026	0,00111	0,02481	<0.001	<0.001
Control	Peptococcus	0,0006	0,00122	6,66429	83,46825	0,00000	0,00000	0,00015	0,00074	0,02381		
Case	Peptostreptococcus	0,00436	0,00641	3,59405	18,9345	0,00000	0,00045	0,00231	0,00548	0,05677	<0.001	<0.001
Control	Peptostreptococcus	0,00319	0,0045	2,69247	10,42145	0,00000	0,00022	0,00147	0,00437	0,04309		
Case	Phocaeicola	0,00017	0,00048	6,89863	66,32745	0,00000	0,00000	0,00000	0,00014	0,00616	<0.001	<0.001
Control	Phocaeicola	0,00011	0,0004	10,5768	159,46636	0,00000	0,00000	0,00000	0,00007	0,00836		
Case	Porphyromonas	0,02031	0,02174	3,1809	22,88843	0,00000	0,00486	0,01436	0,02938	0,26373	<0.001	<0.001
Control	Porphyromonas	0,01616	0,01765	2,31545	8,65247	0,00000	0,00373	0,01087	0,02292	0,16106		
Case	Prevotella	0,02611	0,0229	2,67684	15,02678	0,00000	0,01049	0,02058	0,03534	0,24231	0,03	0,058
Control	Prevotella	0,02385	0,02022	2,00581	7,64631	0,00000	0,00971	0,01949	0,03288	0,1982		
Case	Prevotella_2	0,0017	0,00218	4,22623	35,88457	0,00000	0,00035	0,00103	0,00227	0,02873	<0.001	<0.001
Control	Prevotella_2	0,00147	0,0022	6,59146	86,46095	0,00000	0,00024	0,00085	0,00193	0,04093		
Case	Prevotella_6	0,0065	0,01051	8,0016	113,0529	0,00000	0,00119	0,00366	0,00793	0,18411	0,084	0,143
Control	Prevotella_6	0,00666	0,00823	3,07695	16,02295	0,00000	0,00145	0,00396	0,00911	0,08324		
Case	Prevotella_7	0,08186	0,05721	1,03384	1,05004	0,00000	0,03967	0,07178	0,11148	0,3267	0,586	0,66
Control	Prevotella_7	0,08248	0,05645	1,02684	1,39559	0,00000	0,04039	0,07247	0,11492	0,37674		
Case	Pseudomonas	0,00042	0,00554	22,39227	541,40677	0,00000	0,00000	0,00000	0,00000	0,14009	0,73	0,778
Control	Pseudomonas	0,00028	0,00653	42,73664	1883,28994	0,00000	0,00000	0,00000	0,00000	0,29009		
Case	Pseudoramibacter	0,00014	0,00033	4,05595	20,37649	0,00000	0,00000	0,00000	0,00011	0,00304	<0.001	<0.001
Control	Pseudoramibacter	0,00011	0,00053	13,26598	245,47493	0,00000	0,00000	0,00000	0,00003	0,01246		
Case	Ralstonia	0,00009	0,00093	23,95509	614,64976	0,00000	0,00000	0,00000	0,00000	0,02443	0,127	0,198
Control	Ralstonia	0,00021	0,00456	36,10253	1382,04744	0,00000	0,00000	0,00000	0,00000	0,18522		
Case	Rothia	0,10923	0,08582	2,0561	7,51688	0,00000	0,05132	0,09126	0,14205	0,67375	<0.001	<0.001
Control	Rothia	0,12537	0,09459	2,28593	8,93384	0,00000	0,06443	0,10335	0,16214	0,88493		
Case	Ruminococcaceae_UCG-014	0,00151	0,00205	3,37068	17,76243	0,00000	0,00017	0,00089	0,00206	0,0188	0,291	0,404
Control	Ruminococcaceae_UCG-014	0,00162	0,00235	4,8006	39,21707	0,00000	0,00023	0,00093	0,00217	0,03063		
Case	Scardovia	0,00181	0,00595	7,72775	78,03966	0,00000	0,00000	0,00022	0,00107	0,08337	0,041	0,074
Control	Scardovia	0,00153	0,00689	17,89196	471,56868	0,00000	0,00000	0,00015	0,00089	0,21425		
Case	Selenomonas	0,0011	0,00218	4,59647	28,36367	0,00000	0,00006	0,00038	0,00117	0,02026	<0.001	<0.001
Control	Selenomonas	0,00069	0,00165	8,86785	126,1667	0,00000	0,00000	0,00021	0,00066	0,03236		
Case	Selenomonas_3	0,00172	0,00259	4,72771	33,76522	0,00000	0,00033	0,00088	0,00216	0,02873	0,023	0,046
Control	Selenomonas_3	0,00154	0,00241	6,29292	77,82857	0,00000	0,00025	0,00083	0,00188	0,04447		
Case	Selenomonas_4	0,00017	0,00041	5,29092	38,36786	0,00000	0,00000	0,00000	0,00017	0,00452	<0.001	<0.001
Control	Selenomonas_4	0,0001	0,0003	9,68253	156,92717	0,00000	0,00000	0,00000	0,00008	0,00693		
Case	Shuttleworthia	0,00026	0,00055	4,08513	21,70675	0,00000	0,00000	0,00000	0,00029	0,00488	0,003	0,008
Control	Shuttleworthia	0,00021	0,00061	9,37015	143,25972	0,00000	0,00000	0,00000	0,00019	0,01316		
Case	Solobacterium	0,0032	0,00359	2,85734	14,28117	0,00000	0,00088	0,00203	0,00434	0,03454	0,128	0,198
Control	Solobacterium	0,00298	0,00347	3,23883	17,11573	0,00000	0,00083	0,00199	0,00388	0,03463		
Case	Staphylococcus	0,00025	0,00458	27,09819	739,52289	0,00000	0,00000	0,00000	0,00000	0,12586	0,375	0,499
Control	Staphylococcus	0,00008	0,00043	13,24773	240,83775	0,00000	0,00000	0,00000	0,00000	0,0103		
Case	Stomatobaculum	0,00282	0,00282	1,87194	4,61041	0,00000	0,00079	0,00202	0,00379	0,0193	0,624	0,696
Control	Stomatobaculum	0,00289	0,00302	2,56962	11,57809	0,00000	0,00086	0,00209	0,00402	0,02915		
Case	Streptobacillus	0,00056	0,00313	9,46587	99,22419	0,00000	0,00000	0,00000	0,00000	0,04155	0,04	0,074
Control	Streptobacillus	0,00032	0,00171	9,82092	120,53949	0,00000	0,00000	0,00000	0,00000	0,02977		
Case	Streptococcus	0,31696	0,1297	0,82301	2,96658	0,00000	0,24283	0,30361	0,38473	0,92385	0,103	0,167
Control	Streptococcus	0,32174	0,12683	0,43715	2,13934	0,00000	0,24855	0,31890	0,38961	0,95546		
Case	Tannerella	0,00152	0,00265	8,03257	109,35685	0,00000	0,00022	0,00077	0,00186	0,04542	<0.001	<0.001
Control	Tannerella	0,00105	0,00168	4,08304	24,91582	0,00000	0,00009	0,00048	0,00133	0,01964		
Case	Treponema_2	0,00681	0,01033	3,19964	16,98753	0,00000	0,00052	0,00270	0,00872	0,10927	<0.001	<0.001
Control	Treponema_2	0,0045	0,00893	5,52746	52,66113	0,00000	0,00014	0,00107	0,00504	0,12706		
Case	Veillonella	0,06095	0,03686	1,3639	4,09779	0,00000	0,03358	0,05605	0,08131	0,25812	0,247	0,357
Control	Veillonella	0,06235	0,03594	1,00246	1,83101	0,00000	0,03682	0,05744	0,08050	0,27892		

Supplementary Table 3: Linear discriminant analysis (LDA) of microbial communities between Case and Control groups

Biomarker names	Log10AverageAbundance	EnrichedGroups	LDA	KW	Pvalue
k_Bacteria.p_Actinobacteria.c_Actinobacteria.o_Micrococcales.f_Micrococcaceae.g_Rothia	5,099	Control	3,926	0,000E+00	
k_Bacteria.p_Proteobacteria.c_Gammaproteobacteria.o_Pasteurellales.f_Pasteurellaceae.g_Haemophi	4,731	Control	3,549	5,000E-05	
k_Bacteria.p_Fusobacteria.c_Fusobacteriia.o_Fusobacteriales.f_Fusobacteriaceae.g_Fusobacterium	4,509	Case	3,476	0,000E+00	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Porphyromonadaceae.g_Porphyromonas	4,310	Case	3,338	0,000E+00	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Prevotellaceae.g_Prevotella	4,420	Case	3,130	2,694E-02	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Peptostreptococcaceae	3,871	Case	3,104	0,000E+00	
k_Bacteria.p_Spirochaetae.c_Spirochaetes.o_Spirochaetales.f_Spirochaetaceae.g_Treponema_2	3,837	Case	3,066	0,000E+00	
k_Bacteria.p_Spirochaetae.c_Spirochaetes	3,837	Case	3,066	0,000E+00	
k_Bacteria.p_Spirochaetae.c_Spirochaetes.o_Spirochaetales	3,837	Case	3,066	0,000E+00	
k_Bacteria.p_Spirochaetae.c_Spirochaetes.o_Spirochaetales.f_Spirochaetaceae	3,837	Case	3,066	0,000E+00	
k_Bacteria.p_Proteobacteria.c_Betaproteobacteria.o_Neisseriales	4,407	Control	3,056	4,742E-02	
k_Bacteria.p_Proteobacteria.c_Betaproteobacteria.o_Neisseriales.f_Neisseriaceae.g_Neisseria	4,388	Control	3,035	2,939E-02	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XI.g_Parvimonas	3,864	Case	3,027	0,000E+00	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XI	3,864	Case	3,027	0,000E+00	
k_Bacteria.p_Firmicutes.c_Bacilli.o_Lactobacillales.f_Carnobacteriaceae.g_Granulicatella	4,380	Control	2,988	1,234E-02	
k_Bacteria.p_Firmicutes.c_Bacilli.o_Lactobacillales.f_Carnobacteriaceae	4,380	Control	2,988	1,234E-02	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Prevotellaceae.g_Alloprevotella	4,318	Case	2,878	8,784E-03	
k_Bacteria.p_Fusobacteria.c_Fusobacteriia.o_Fusobacteriales.f_Leptotrichiaceae	3,614	Case	2,867	3,631E-03	
k_Bacteria.p_Proteobacteria.c_Gammaproteobacteria.o_Pasteurellales.f_Pasteurellaceae.g_Aggregatit	3,792	Case	2,794	4,231E-02	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Peptostreptococcaceae.g_Peptostreptococcus	3,642	Case	2,785	0,000E+00	
k_Bacteria.p_Firmicutes.c_Bacilli.o_Lactobacillales.f_Lactobacillaceae.g_Lactobacillus	3,837	Case	2,779	3,759E-02	
k_Bacteria.p_Firmicutes.c_Bacilli.o_Lactobacillales.f_Lactobacillaceae	3,837	Case	2,779	3,759E-02	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Peptostreptococcaceae.g_Filifactor	3,422	Case	2,764	0,000E+00	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Prevotellaceae	3,325	Case	2,666	0,000E+00	
k_Bacteria.p_Firmicutes.c_Negativicutes.o_Selenomonadales.f_Veillonellaceae.g_Dialister	3,488	Case	2,624	0,000E+00	
k_Bacteria.p_Proteobacteria.c_Gammaproteobacteria.o_Pasteurellales.f_Pasteurellaceae.g_Actinobaci	3,634	Control	2,549	2,206E-02	
k_Bacteria.p_Proteobacteria.c_Epsilonproteobacteria.o_Campylobacteriales.f_Campylobacteriaceae.g_C	3,741	Case	2,532	3,545E-03	
k_Bacteria.p_Proteobacteria.c_Epsilonproteobacteria	3,741	Case	2,532	3,545E-03	
k_Bacteria.p_Proteobacteria.c_Epsilonproteobacteria.o_Campylobacteriales	3,741	Case	2,532	3,545E-03	
k_Bacteria.p_Proteobacteria.c_Epsilonproteobacteria.o_Campylobacteriales.f_Campylobacteriaceae	3,741	Case	2,532	3,545E-03	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XIII.g_Eubacterium_nodatum_group	3,382	Case	2,496	3,000E-05	
k_Bacteria.p_Actinobacteria.c_Actinobacteria.o_Bifidobacteriales	3,577	Case	2,437	9,367E-03	
k_Bacteria.p_Actinobacteria.c_Actinobacteria.o_Bifidobacteriales.f_Bifidobacteriaceae	3,577	Case	2,437	9,367E-03	
k_Bacteria.p_Bacteroidetes.c_Flavobacteriia.o_Flavobacteriales.f_Flavobacteriaceae.g_Bergeyella	3,480	Control	2,401	3,579E-02	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Porphyromonadaceae.g_Tannerella	3,185	Case	2,399	0,000E+00	
k_Bacteria.p_Firmicutes.c_Erysipelotrichia	3,607	Case	2,370	1,962E-02	
k_Bacteria.p_Firmicutes.c_Erysipelotrichia.o_Erysipelotrichales	3,607	Case	2,370	1,962E-02	
k_Bacteria.p_Firmicutes.c_Erysipelotrichia.o_Erysipelotrichales.f_Erysipelotrichaceae	3,607	Case	2,370	1,962E-02	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XIII.g_Eubacterium_brachy_group	3,227	Case	2,367	2,227E-04	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XIII.g_Incertae_Sedis	2,999	Case	2,362	0,000E+00	
k_Bacteria.p_Tenericutes	3,097	Case	2,359	0,000E+00	
k_Bacteria.p_Tenericutes.c_Mollicutes	3,097	Case	2,359	0,000E+00	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Family_XIII.g_Mogibacterium	3,506	Case	2,358	6,472E-03	
k_Bacteria.p_Firmicutes.c_Negativicutes.o_Selenomonadales.f_Veillonellaceae.g_Selenomonas	3,045	Case	2,322	0,000E+00	
k_Bacteria.p_Tenericutes.c_Mollicutes.o_Mycoplasmatales.f_Mycoplasmataceae.g_Mycoplasma	3,021	Case	2,316	0,000E+00	
k_Bacteria.p_Tenericutes.c_Mollicutes.o_Mycoplasmatales	3,021	Case	2,316	0,000E+00	
k_Bacteria.p_Tenericutes.c_Mollicutes.o_Mycoplasmatales.f_Mycoplasmataceae	3,021	Case	2,316	0,000E+00	
k_Bacteria.p_Firmicutes.c_Negativicutes.o_Selenomonadales.f_Veillonellaceae.g_Anaeroglobus	3,145	Case	2,311	0,000E+00	
k_Bacteria.p_Synergistetes.c_Synergistia.o_Synergistales.f_Synergistaceae.g_Fretibacterium	2,998	Case	2,292	0,000E+00	
k_Bacteria.p_Synergistetes	2,998	Case	2,292	0,000E+00	
k_Bacteria.p_Synergistetes.c_Synergistia	2,998	Case	2,292	0,000E+00	
k_Bacteria.p_Synergistetes.c_Synergistia.o_Synergistales	2,998	Case	2,292	0,000E+00	
k_Bacteria.p_Synergistetes.c_Synergistia.o_Synergistales.f_Synergistaceae	2,998	Case	2,292	0,000E+00	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Peptococcaceae.g_Peptococcus	2,964	Case	2,230	1,000E-05	
k_Bacteria.p_Firmicutes.c_Clostridia.o_Clostridiales.f_Peptococcaceae	2,964	Case	2,230	1,000E-05	
k_Bacteria.p_Actinobacteria.c_Actinobacteria.o_Bifidobacteriales.f_Bifidobacteriaceae.g_Scardovia	3,259	Case	2,228	4,103E-02	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Porphyromonadaceae	3,176	Case	2,144	2,702E-03	
k_Bacteria.p_Bacteroidetes.c_Bacteroidia.o_Bacteroidales.f_Prevotellaceae.g_Prevotella_2	3,232	Case	2,128	2,314E-04	
k_Bacteria.p_Fusobacteria.c_Fusobacteriia.o_Fusobacteriales.f_Leptotrichiaceae.g_Streptobacillus	2,747	Case	2,010	4,010E-02	

Supplementary Table 4: The difference genus between the Wilcoxon test,LEfSe, and STMAP method.

Wilcoxon	LDA	STAMP	Common elements
Actinobacillus	Actinobacillus	Aggregatibacter	Anaeroglobus
Alloprevotella	Aggregatibacter	Anaeroglobus	Campylobacter
Alysiella	Alloprevotella	Campylobacter	Dialister
Anaeroglobus	Anaeroglobus	Catonella	Filifactor
Bifidobacterium	Bergeyella	Defluviitaleaceae_UCG-011	Fretibacterium
Bulleidia	Campylobacter	Desulfobulbus	Fusobacterium
Campylobacter	Dialister	Dialister	Granulicatella
Catonella	Filifactor	Eggerthia	Haemophilus
Defluviitaleaceae_UCG-011	Fretibacterium	Family_XIII_UCG-001	Mogibacterium
Desulfobulbus	Fusobacterium	Filifactor	Mycoplasma
Dialister	Granulicatella	Fretibacterium	Parvimonas
Eggerthia	Haemophilus	Fusobacterium	Peptococcus
Eikenella	Lactobacillus	Granulicatella	Peptostreptococcus
Erysipelotrichaceae_UCG-006	Mogibacterium	Haemophilus	Porphyromonas
Family_XIII_UCG-001	Mycoplasma	Mogibacterium	Prevotella_2
Filifactor	Neisseria	Mycoplasma	Rothia
Fretibacterium	Parvimonas	Olsenella	Selenomonas
Fusobacterium	Peptococcus	Parvimonas	Tannerella
Granulicatella	Peptostreptococcus	Peptoclostridium	Treponema_2
Haemophilus	Porphyromonas	Peptococcus	
Johnsonella	Prevotella	Peptostreptococcus	
Mogibacterium	Prevotella_2	Phocaeicola	
Mycoplasma	Rothia	Porphyromonas	
Olsenella	Scardovia	Prevotella	
Parascardovia	Selenomonas	Prevotella_2	
Parvimonas	Streptobacillus	Rothia	
Peptoclostridium	Tannerella	Selenomonas	
Peptococcus	Treponema_2	Selenomonas_4	
Peptostreptococcus		Tannerella	
Phocaeicola		Treponema_2	
Porphyromonas			
Prevotella_2			
Pseudoramibacter			
Rothia			
Selenomonas			
Selenomonas_3			
Selenomonas_4			
Shuttleworthia			
Tannerella			
Treponema_2			