

Supplementary Information

Supplementary Table 1. Number of sequence reads per sample.¹

Dataset	Mean \pm SD
CPSIIa	9,861 \pm 3,205
CPSIIb	9,582 \pm 2,236
PLCOa	8,670 \pm 3,156
PLCOb	11,726 \pm 2,055
Total	10,144 \pm 2,845

¹The sequence number after quality filtering, and removal of chimeric sequences, sequences that failed alignment, and singleton OTUs.

Supplementary Table 2. Coefficient of variability (CV)¹ for quality control oral wash samples across all amplification and sequencing batches.²

Dataset	Number of Subjects	Number of repeated assays per subject	Microbiome measurements		
				QC Subject 1	QC Subject 2
CPSIIa	2	3	Alpha diversity estimates (Shannon-index)	0.45	6.22
			Relative Abundance of major phyla		
			Firmicutes	13.19	8.09
			Bacteroidetes	19.52	20.14
			Proteobacteria	6.43	15.80
CPSIIb	2	22	Alpha diversity estimates (Shannon-index)	11.10	10.62
			Relative Abundance of major phyla		
			Firmicutes	8.28	6.35
			Bacteroidetes	21.79	16.47
			Proteobacteria	13.84	14.06
PLCOa	1	25	Alpha diversity estimates (Shannon-index)	3.72	NA
			Relative Abundance of major phyla		
			Firmicutes	6.29	NA
			Bacteroidetes	15.26	NA
			Proteobacteria	9.35	NA
PLCOb	2	9	Alpha diversity estimates (Shannon-index)	8.90	10.70
			Relative Abundance of major phyla		
			Firmicutes	6.50	10.50
			Bacteroidetes	26.00	41.00
			Proteobacteria	17.20	19.50

¹Coefficient of variability (CV) = the standard deviation divided by mean. Lower CV value indicates better reproducibility.

²16S rRNA gene sequences were analyzed in the QIIME pipeline.

Supplementary Table 3. Median relative abundances of major oral bacteria phyla according to smoking status in four datasets.

Taxa	CPSIIa	CPSIIb	PLCOa	PLCOb	Meta p-value ²	Meta p-value ³ (q-value ⁵)	
	(n=203)	(n=340)	(n=261)	(n=400)	(q-value ⁴)	Current vs Never	Former vs Never
Proteobacteria							
Never	13.18	13.42	10.43	7.40			
Former	10.97	12.55	7.59	7.21			
Current	7.15	2.63	3.62	4.28			
p ¹	0.02	0.003	9.29E-06	0.007	2.29E-09 (1.15E-08)	1.05E-07 (5.24E-07)	0.27 (0.60)
Fusobacteria							
Never	3.18	3.32	2.00	1.73			
Former	3.72	2.90	1.60	1.84			
Current	2.98	4.07	1.39	1.26			
p ¹	0.77	0.39	0.20	0.22	0.34 (0.57)	0.28 (0.34)	0.67 (0.84)
Bacteroidetes							
Never	12.38	8.45	9.91	10.63			
Former	12.1	8.05	9.37	10.14			
Current	13.69	10.95	8.88	9.96			
p ¹	0.92	0.70	0.35	0.80	0.75 (0.75)	0.52 (0.52)	0.36 (0.60)
Actinobacteria							
Never	10.59	10.10	15.18	11.62			
Former	11.16	9.30	13.81	11.53			
Current	13.65	13.88	17.46	11.55			
p ¹	0.35	0.62	0.36	0.71	0.47 (0.59)	0.02 (0.04)	0.87 (0.87)
Firmicutes							
Never	53.53	57.67	56.73	61.76			
Former	55.64	58.29	58.93	62.64			
Current	57.41	61.76	61.63	62.20			
p ¹	0.22	0.58	0.07	0.78	0.10 (0.25)	0.04 (0.06)	0.13 (0.60)

¹p-values are based on nonparametric Kruskal-Wallis test of current, former, and never smokers.

²Meta-analysis p-values from Kruskal-Wallis tests within each of the four datasets, calculated using Z-score methods.

³Meta-analysis p-values from polytomous logistic regression within each of the four datasets, calculated using Z-score methods. Age (continuous value) and sex (male, female) were controlled for in the polytomous regression models.

⁴False discovery rate adjusted q-values were calculated based on meta-analysis p-values from Kruskal-Wallis tests.

⁵False discovery rate adjusted q-values were calculated based on meta-analysis p-values from polytomous logistic regression models.

Supplementary Table 4. q-values for comparison of median relative abundances of oral bacterial genera according to smoking status.

Phylum	Class	Genus	Median ¹			q-value ²
			Never	Former	Current	
Actinobacteria	Actinobacteria	Corynebacterium	0.19	0.16	0.07	0.003
	Actinobacteria	Bifidobacterium	0.02	0.02	0.05	0.001
	Coriobacteriia	Atopobium	0.27	0.27	0.40	0.01
Bacteroidetes	Flavobacteriia	Capnocytophaga	0.27	0.26	0.11	0.0002
	Bacteroidia	Porphyromonas	0.90	0.71	0.32	9.22E-05
	Bacteroidia	Prevotella	0.34	0.28	0.17	0.03
Fusobacteriia	Fusobacteriia	Leptotrichia	0.84	0.86	0.40	0.02
Proteobacteria	Betaproteobacteria	Eikenella	0.02	0.02	0.00	5.70E-07
	Betaproteobacteria	Lautropia	0.05	0.05	0.00	4.57E-09
	Betaproteobacteria	Neisseria	1.73	1.57	0.09	9.21E-14
	Betaproteobacteria	NA ³	0.15	0.13	0.02	4.57E-09
	Betaproteobacteria	Kingella	0.04	0.03	0.01	0.006
	Gammaproteobacteria	Cardiobacterium	0.03	0.02	0.00	3.44E-07
	Gammaproteobacteria	Haemophilus	4.98	4.23	1.67	6.65E-05
	Gammaproteobacteria	Aggregatibacter	0.26	0.19	0.04	0.0002
Firmicutes	Bacilli	Abiotrophia	0.10	0.12	0.01	6.08E-08
	Bacilli	Lactobacillus	0.01	0.01	0.05	1.21E-06
	Bacilli	Streptococcus	43.07	44.23	46.71	0.05
	Bacilli	NA ⁴	2.08	2.00	1.46	0.0002
	Clostridia	Selenomonas	0.11	0.08	0.06	0.01
	Clostridia	Peptostreptococcus	0.08	0.06	0.02	9.22E-05

¹Median relative abundances of genera were calculated by taking the average of median relative abundances from each dataset weighted by sample size.

²False discovery rate adjusted q-values were calculated based on meta-analysis p-values; p-values for meta-analysis estimated by Kruskal-Wallis tests within each of the four datasets.

³Unclassified genus within the *Neisseriaceae* family.

⁴Unclassified genus within the *Gemellaceae* family.

Supplementary Table 5. Differentially abundant taxa at the phylum, class, order, family, and genus levels between current and never smokers, and former and never smokers, as detected by the DESeq function in the DESeq2 package. All taxa with an FDR-adjusted $q < 0.05$ are included in the table.

Taxon	baseMean	log2 Fold Change	lfcSE	pvalue	padj	Phylum	Class	Order	Family	Genus	Level	Comparison
denovo60181	30.930227	-0.917191651	0.1953	2.65E-06	4.07E-05	Actinobacteria	Actinobacteria	Actinomycetales	Corynebacteriaceae	Corynebacterium	Genus	Current vs. never smokers
denovo60181	30.91249	-0.920776518	0.1963	2.73E-06	7.54E-05	Actinobacteria	Actinobacteria	Actinomycetales	Corynebacteriaceae		Family	Current vs. never smokers
denovo53680	0.7729878	1.856653009	0.3749	7.31E-07	1.28E-05	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae		Genus	Current vs. never smokers
denovo111622	34.938481	0.680151562	0.2448	0.005465	0.02672	Actinobacteria	Actinobacteria	Bifidobacteriales			Order	Current vs. never smokers
denovo124124	0.469704	1.165503196	0.3568	0.00109	0.00559	Actinobacteria	Coriobacteriia	Coriobacteriales	Coriobacteriaceae	Slackia	Genus	Current vs. never smokers
denovo136733	1332.5378	0.548265279	0.0937	4.84E-09	6.30E-08	Actinobacteria					Phylum	Current vs. never smokers
denovo51115	89.854627	-0.83657249	0.2219	0.000163	0.00111	Bacteroidetes	Bacteroidia	Bacteroidales	[Paraprevotellaceae]	[Prevotella]	Genus	Current vs. never smokers
denovo51115	89.900754	-0.847151374	0.2233	0.000149	0.0016	Bacteroidetes	Bacteroidia	Bacteroidales	[Paraprevotellaceae]		Family	Current vs. never smokers
denovo120810	174.63425	-0.960975805	0.218	1.04E-05	0.00011	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae	Porphyromonas	Genus	Current vs. never smokers
denovo120810	187.34557	-0.888298558	0.2077	1.89E-05	0.00027	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae		Family	Current vs. never smokers
denovo91056	12.104302	-1.44343922	0.231	4.13E-10	1.62E-08	Bacteroidetes	Flavobacteriia	Flavobacteriales	[Weeksellaceae]		Family	Current vs. never smokers
denovo91056	12.091845	-1.469513649	0.2308	1.92E-10	4.72E-09	Bacteroidetes	Flavobacteriia	Flavobacteriales	[Weeksellaceae]		Genus	Current vs. never smokers
denovo116448	53.130194	-0.618167233	0.1924	0.001314	0.00647	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Capnocytophaga	Genus	Current vs. never smokers
denovo116448	53.182361	-0.626587892	0.1933	0.001191	0.00937	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae		Family	Current vs. never smokers
denovo116448	59.546696	-0.860623133	0.1802	1.78E-06	2.61E-05	Bacteroidetes	Flavobacteriia	Flavobacteriales			Order	Current vs. never smokers
denovo116448	59.486579	-0.885861993	0.1753	4.34E-07	5.87E-06	Bacteroidetes	Flavobacteriia				Class	Current vs. never smokers
denovo49656	1.2384169	1.142932504	0.245	3.07E-06	4.20E-05	Firmicutes	Bacilli	Bacillales	Staphylococcaceae	Staphylococcus	Genus	Current vs. never smokers
denovo49656	1.5514664	0.87374481	0.2721	0.001321	0.00974	Firmicutes	Bacilli	Bacillales	Staphylococcaceae		Family	Current vs. never smokers
denovo49656	1.5724798	0.790938744	0.2412	0.001041	0.00573	Firmicutes	Bacilli	Bacillales			Order	Current vs. never smokers
denovo55343	305.23878	-0.59992435	0.1508	6.92E-05	0.00082	Firmicutes	Bacilli	Gemellales	Gemellaceae		Family	Current vs. never smokers
denovo55343	296.22392	-0.600757707	0.1509	6.88E-05	0.00053	Firmicutes	Bacilli	Gemellales	Gemellaceae		Genus	Current vs. never smokers
denovo55343	296.95676	-0.611153254	0.1477	3.51E-05	0.00031	Firmicutes	Bacilli	Gemellales			Order	Current vs. never smokers
denovo80253	32.305023	-1.952813052	0.2755	1.36E-12	5.56E-11	Firmicutes	Bacilli	Lactobacillales	Aerococcaceae	Abiotrophia	Genus	Current vs. never smokers
denovo17191	32.778277	-1.959689087	0.2764	1.35E-12	7.96E-11	Firmicutes	Bacilli	Lactobacillales	Aerococcaceae		Family	Current vs. never smokers
denovo69797	2.7171311	1.742857104	0.2664	6.05E-11	1.86E-09	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Lactococcus	Genus	Current vs. never smokers
denovo52462	0.8975245	-1.408948588	0.3501	5.72E-05	0.0005	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Catonella	Genus	Current vs. never smokers
denovo40012	54.602071	-0.736673183	0.1962	0.000173	0.00112	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Oribacterium	Genus	Current vs. never smokers
denovo70029	89.129431	-0.671398033	0.1837	0.000257	0.00158	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae		Genus	Current vs. never smokers
denovo99745	2.1026201	-1.742397916	0.3799	4.52E-06	5.05E-05	Firmicutes	Clostridia	Clostridiales	Peptococcaceae	Peptococcus	Genus	Current vs. never smokers
denovo99745	2.1029262	-1.776492682	0.3881	4.72E-06	7.95E-05	Firmicutes	Clostridia	Clostridiales	Peptococcaceae		Family	Current vs. never smokers
denovo132966	27.448377	-1.465442969	0.2837	2.39E-07	4.90E-06	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Peptostreptococcus	Genus	Current vs. never smokers
denovo82018	32.310324	-1.287494271	0.2777	3.54E-06	7.54E-05	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae		Family	Current vs. never smokers
denovo106414	662.74463	0.37935426	0.1372	0.005683	0.02589	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	Genus	Current vs. never smokers
denovo58663	19.293484	-0.790801938	0.2358	0.000798	0.00689	Firmicutes	Clostridia	Clostridiales			Family	Current vs. never smokers
denovo58663	19.478074	-0.793686635	0.2343	0.000707	0.00395	Firmicutes	Clostridia	Clostridiales			Genus	Current vs. never smokers
denovo86269	6553.2054	0.427931712	0.0824	2.10E-07	9.10E-07	Firmicutes					Phylum	Current vs. never smokers
denovo43865	20.626791	-0.926727581	0.2771	0.000826	0.00442	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Lautropia	Genus	Current vs. never smokers
denovo43865	20.639998	-0.937039471	0.28	0.000817	0.00689	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae		Family	Current vs. never smokers
denovo89035	0.7410946	-1.342910296	0.4207	0.001414	0.00669	Proteobacteria	Betaproteobacteria	Burkholderiales	Comamonadaceae		Genus	Current vs. never smokers
denovo43865	19.363595	-1.237648676	0.2667	3.47E-06	3.82E-05	Proteobacteria	Betaproteobacteria	Burkholderiales			Order	Current vs. never smokers
denovo117761	5.653775	-0.96844142	0.2512	0.000116	0.00084	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Eikenella	Genus	Current vs. never smokers
denovo133650	297.54934	-1.515967154	0.2131	1.13E-12	5.56E-11	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	Genus	Current vs. never smokers
denovo87454	353.78457	-1.516321564	0.1913	2.28E-15	2.69E-13	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae		Family	Current vs. never smokers
denovo87454	39.439479	-1.76701657	0.2467	7.91E-13	5.56E-11	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae		Genus	Current vs. never smokers
denovo87454	345.47031	-1.489279945	0.19	4.58E-15	2.02E-13	Proteobacteria	Betaproteobacteria	Neisseriales			Order	Current vs. never smokers
denovo87454	365.91397	-1.473074589	0.1825	7.03E-16	1.90E-14	Proteobacteria	Betaproteobacteria				Class	Current vs. never smokers
denovo127731	0.2860555	1.727197875	0.4996	0.000546	0.0032	Proteobacteria	Deltaproteobacteria	Desulfobacterales	Desulfobulbaceae	Desulfobulbus	Genus	Current vs. never smokers
denovo127731	0.2861562	1.777579486	0.5205	0.000637	0.00626	Proteobacteria	Deltaproteobacteria	Desulfobacterales	Desulfobulbaceae		Family	Current vs. never smokers
denovo127731	0.2846689	1.833189382	0.528	0.000517	0.00325	Proteobacteria	Deltaproteobacteria	Desulfobacterales			Order	Current vs. never smokers
denovo109709	6.54039	-1.117230918	0.2432	4.34E-06	5.05E-05	Proteobacteria	Gammaproteobacteria	Cardiobacteriales	Cardiobacteriaceae	Cardiobacterium	Genus	Current vs. never smokers

Taxon	baseMean	log2 Fold Change	lfcSE	pvalue	padj	Phylum	Class	Order	Family	Genus	Level	Comparison
denovo109709	6.6181453	-1.135589503	0.2458	3.84E-06	7.54E-05	Proteobacteria	Gammaproteobacteria	Cardiobacteriales	Cardiobacteriaceae		Family	Current vs. never smokers
denovo109709	6.1868347	-1.176659197	0.2423	1.19E-06	2.61E-05	Proteobacteria	Gammaproteobacteria	Cardiobacteriales			Order	Current vs. never smokers
denovo7444	59.381096	-1.024307207	0.2572	6.80E-05	0.00053	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Aggregatibacter	Genus	Current vs. never smokers
denovo87283	1057.4336	-0.661256418	0.123	7.54E-08	4.90E-07	Proteobacteria					Phylum	Current vs. never smokers
denovo64670	20.508302	-1.313444681	0.3605	0.000269	0.00242	SR1					Class	Current vs. never smokers
denovo64670	23.659348	-1.737524984	0.408	2.06E-05	0.00027	SR1					Family	Current vs. never smokers
denovo64670	23.675389	-1.692128251	0.399	2.22E-05	0.00021	SR1					Genus	Current vs. never smokers
denovo64670	20.652872	-1.520978798	0.4046	0.000171	0.00125	SR1					Order	Current vs. never smokers
denovo64670	14.93334	-0.937093198	0.3517	0.007709	0.02004	SR1					Phylum	Current vs. never smokers
denovo2443	1.7594269	1.010143504	0.386	0.008872	0.03904	Synergistetes	Synergistia	Synergistales			Order	Current vs. never smokers
denovo2443	1.7253412	0.987314707	0.3463	0.004355	0.0294	Synergistetes	Synergistia				Class	Current vs. never smokers
denovo2443	1.5824444	1.279922607	0.3447	0.000205	0.00067	Synergistetes					Phylum	Current vs. never smokers
denovo38158	1.036802	-0.688283889	0.1816	0.00015	0.011	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae		Genus	Former vs. never smokers
denovo29264	4.110526	-1.185241333	0.2617	5.94E-06	0.00131	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Scardovia	Genus	Former vs. never smokers
denovo91056	12.104302	-0.595133665	0.1351	1.06E-05	0.00125	Bacteroidetes	Flavobacteriia	Flavobacteriales	[Weeksellaceae]		Family	Former vs. never smokers
denovo91056	12.091845	-0.593572956	0.1357	1.22E-05	0.00134	Bacteroidetes	Flavobacteriia	Flavobacteriales	[Weeksellaceae]		Genus	Former vs. never smokers
denovo132966	27.448377	-0.609397067	0.1717	0.000387	0.0213	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Peptostreptococcus	Genus	Former vs. never smokers
denovo82018	32.310324	-0.625366786	0.1666	0.000174	0.01027	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae		Family	Former vs. never smokers
denovo109709	6.54039	-0.479133575	0.1429	0.000803	0.03531	Proteobacteria	Gammaproteobacteria	Cardiobacteriales	Cardiobacteriaceae	Cardiobacterium	Genus	Former vs. never smokers
denovo109709	6.6181453	-0.474185461	0.1436	0.000962	0.03785	Proteobacteria	Gammaproteobacteria	Cardiobacteriales	Cardiobacteriaceae		Family	Former vs. never smokers

Supplementary Table 6. Differentially abundant OTUs between current and never smokers, and former and never smokers, as detected by the DESeq function in the DESeq2 package. All OTUs with an FDR-adjusted $q < 0.05$ are included in the table.

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo138806	1.6168719	1.197078	0.287	3.05E-05	0.00121	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo31107	1.7166852	1.203586	0.301	6.30E-05	0.00206	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo135253	0.1829797	1.585889	0.402	7.85E-05	0.00242	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo6011	0.3798707	1.252568	0.34	0.00023	0.0054	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo45580	0.2577259	1.335256	0.39	0.00063	0.01114	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo14034	0.5394399	1.123103	0.342	0.00103	0.01595	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo68722	80.832	0.785676	0.241	0.00113	0.01704	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo87299	0.1461447	-1.31646	0.43	0.00218	0.02827	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo5000	0.1781885	1.359316	0.448	0.00239	0.03051	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo111674	3.5982442	-0.65194	0.225	0.00379	0.04327	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo50512	2.2148655	-0.77132	0.268	0.00395	0.04435	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo82076	0.3374145	1.269053	0.449	0.00475	0.04992	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Current vs. never smokers
denovo95860	0.8395941	1.79887	0.343	1.56E-07	2.04E-05	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo66434	1.4924122	1.844369	0.356	2.17E-07	2.58E-05	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo21594	2.5588958	1.617615	0.346	2.97E-06	0.00019	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo100901	2.8108313	1.287874	0.291	9.92E-06	0.00052	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo47493	1.3166417	1.508482	0.342	1.00E-05	0.00052	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo34732	0.909877	-1.39403	0.321	1.43E-05	0.00067	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	aeria	Current vs. never smokers
denovo11725	1.4743809	1.34966	0.326	3.47E-05	0.00132	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo120132	1.4952137	1.41138	0.358	7.96E-05	0.00242	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo127874	0.5902971	-1.34224	0.348	0.00011	0.00296	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	aeria	Current vs. never smokers
denovo98576	1.1030836	1.408214	0.367	0.00012	0.00315	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo137582	0.5115929	1.566683	0.412	0.00014	0.00364	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo123688	0.2116613	1.439608	0.405	0.00038	0.00805	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo37564	0.4714518	1.277139	0.363	0.00044	0.00881	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo86420	0.3781357	1.418274	0.406	0.00048	0.00939	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo18484	0.9955673	1.020202	0.293	0.00049	0.00959	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo57921	0.4165257	1.437175	0.42	0.00061	0.01102	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo37479	0.5394198	1.157429	0.34	0.00066	0.01159	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo20015	2.9734422	1.167749	0.35	0.00084	0.01371	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo111060	0.8251222	1.027441	0.31	0.00093	0.01465	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo103859	1.2666311	1.182167	0.369	0.00134	0.01965	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo137638	0.5200801	1.164131	0.37	0.00163	0.02283	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo100239	0.4441948	1.361786	0.437	0.00184	0.02461	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo4792	0.232636	1.241955	0.412	0.00255	0.03165	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	dentocariosa	Current vs. never smokers
denovo135302	0.0982381	1.426433	0.473	0.00258	0.03165	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo97842	0.1790804	1.355364	0.47	0.00392	0.04433	Actinobacteria	Actinobacteria	Actinomycetales	Micrococcaceae	Rothia	mucilaginosa	Current vs. never smokers
denovo1248	10.237152	1.202753	0.41	0.00338	0.03954	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Bifidobacterium	longum	Current vs. never smokers
denovo72818	0.2123597	1.76636	0.509	0.00052	0.00986	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Scardovia		Current vs. never smokers
denovo62420	0.3520404	1.504727	0.45	0.00082	0.01362	Actinobacteria	Coriobacteriia	Coriobacteriales	Coriobacteriaceae	Atopobium		Current vs. never smokers
denovo15021	1.156792	1.014712	0.317	0.00136	0.01975	Actinobacteria	Coriobacteriia	Coriobacteriales	Coriobacteriaceae	Atopobium		Current vs. never smokers
denovo124124	0.5917416	1.580143	0.355	8.60E-06	0.00046	Actinobacteria	Coriobacteriia	Coriobacteriales	Coriobacteriaceae	Slackia		Current vs. never smokers
denovo125344	0.3366842	-1.38522	0.458	0.00251	0.03148	Bacteroidetes	Bacteroidia	Bacteroidales	[Paraprevotellaceae]	[Prevotella]		Current vs. never smokers
denovo45934	5.7436705	-1.52336	0.296	2.77E-07	3.15E-05	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae	Porphyromonas		Current vs. never smokers
denovo123727	80.141069	-0.90989	0.227	6.27E-05	0.00206	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae	Porphyromonas		Current vs. never smokers
denovo534	0.6984134	-1.24719	0.421	0.00305	0.03642	Bacteroidetes	Bacteroidia	Bacteroidales	Porphyromonadaceae	Porphyromonas		Current vs. never smokers
denovo75264	310.661	0.930464	0.224	3.34E-05	0.00131	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo137274	2.3463487	-1.25194	0.319	8.72E-05	0.00256	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers
denovo17931	65.526336	0.811671	0.208	9.37E-05	0.0027	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo70141	0.9816215	1.45922	0.375	9.97E-05	0.00279	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo4784	0.1780832	1.63826	0.432	0.00015	0.00382	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo123673	0.7701647	1.404948	0.391	0.00032	0.00701	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo81341	1.4704571	1.522018	0.452	0.00076	0.01298	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers
denovo97449	25.920528	-0.85546	0.261	0.00104	0.01595	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	nanceiensis	Current vs. never smokers
denovo17408	2.4373027	1.23649	0.393	0.00165	0.02295	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers
denovo110994	33.728495	-0.7717	0.246	0.00173	0.0237	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers
denovo95546	1.2644699	-1.11561	0.356	0.00174	0.02375	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Current vs. never smokers
denovo86912	1.8050403	-1.19881	0.411	0.00352	0.04093	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo15584	0.1190366	1.389945	0.482	0.00393	0.04433	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella	melaninogenica	Current vs. never smokers
denovo4266	7.2998883	-1.04937	0.259	5.10E-05	0.00178	Bacteroidetes	Flavobacteriia	Flavobacteriales	Flavobacteriaceae	Capnocytophaga		Current vs. never smokers
denovo111178	0.999024	1.588266	0.433	0.00025	0.00559	Firmicutes	Bacilli	Bacillales	Staphylococcaceae	Staphylococcus		Current vs. never smokers
denovo78098	0.554885	0.933701	0.292	0.00141	0.02025	Firmicutes	Bacilli	Bacillales	Staphylococcaceae	Staphylococcus		Current vs. never smokers
denovo15017	214.43234	-0.37289	0.124	0.00256	0.03165	Firmicutes	Bacilli	Gemellales	Gemellaceae			Current vs. never smokers
denovo52451	1.0347638	-1.02127	0.339	0.00262	0.03202	Firmicutes	Bacilli	Gemellales	Gemellaceae			Current vs. never smokers
denovo31755	20.060257	-1.72404	0.252	7.41E-12	3.23E-09	Firmicutes	Bacilli	Lactobacillales	Aerococcaceae	Abiotrophia		Current vs. never smokers
denovo15551	1.0185135	1.517718	0.427	0.00038	0.008	Firmicutes	Bacilli	Lactobacillales	Carnobacteriaceae	Granulicatella		Current vs. never smokers
denovo53872	0.3674145	-1.07951	0.376	0.00413	0.04577	Firmicutes	Bacilli	Lactobacillales	Carnobacteriaceae	Granulicatella		Current vs. never smokers
denovo59409	12.032374	0.425787	0.149	0.00425	0.04612	Firmicutes	Bacilli	Lactobacillales	Carnobacteriaceae	Granulicatella		Current vs. never smokers
denovo19218	3.2993736	1.681213	0.508	0.00093	0.01465	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Lactococcus		Current vs. never smokers
denovo6925	4.1853685	1.506039	0.211	8.46E-13	6.48E-10	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo73320	1.5817265	1.657531	0.232	9.91E-13	6.48E-10	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo125448	0.5908258	1.606746	0.254	2.55E-10	7.42E-08	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo13714	1.7975969	1.701321	0.277	8.57E-10	2.24E-07	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo62627	0.3657608	1.774522	0.294	1.50E-09	3.26E-07	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo112007	5.1346442	1.434706	0.24	2.26E-09	4.55E-07	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo116197	1.9659004	1.465715	0.261	2.07E-08	3.62E-06	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo119901	3.9215021	1.353083	0.246	3.85E-08	5.92E-06	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo15841	4.0928664	1.16302	0.214	5.50E-08	8.00E-06	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo31239	1.0469993	1.594171	0.303	1.37E-07	1.89E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo72107	3.8661209	1.368902	0.271	4.22E-07	4.25E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo43339	7.7437844	1.172401	0.236	6.53E-07	5.89E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo66367	0.3928408	1.69583	0.344	7.99E-07	6.85E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo79910	1.0937974	1.460597	0.296	8.36E-07	6.85E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo130019	1.0937177	1.447249	0.295	9.59E-07	7.60E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo68322	1.0863821	1.518752	0.312	1.13E-06	8.71E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo121567	1.1540327	1.395071	0.288	1.32E-06	9.88E-05	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo55958	0.2382323	1.788683	0.37	1.38E-06	0.0001	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo120473	0.8168022	1.591853	0.331	1.49E-06	0.00011	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo32887	0.6963969	1.585021	0.33	1.58E-06	0.00011	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo55836	1.2018406	1.430551	0.298	1.61E-06	0.00011	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo110117	0.3180047	1.641881	0.348	2.31E-06	0.00015	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo13878	1.0919864	1.403143	0.302	3.39E-06	0.00021	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo65085	0.4770545	1.699675	0.368	3.77E-06	0.00022	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo131807	0.9973764	1.381311	0.299	3.77E-06	0.00022	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo137296	5.0667476	1.0727	0.239	7.01E-06	0.00039	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo80532	0.3209068	1.585878	0.356	8.20E-06	0.00045	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo44581	0.1426784	1.511783	0.343	1.07E-05	0.00054	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo108445	0.4045268	1.337825	0.308	1.37E-05	0.00065	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo84307	21.607461	0.807821	0.188	1.65E-05	0.00074	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo71789	0.1185884	1.637316	0.389	2.61E-05	0.00107	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo79399	0.7885575	1.26547	0.302	2.77E-05	0.00112	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo30767	1.0850575	1.224663	0.295	3.40E-05	0.00131	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo1613	0.5000305	1.387066	0.336	3.71E-05	0.00139	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo66970	0.3564143	1.414564	0.344	3.99E-05	0.00147	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo61663	0.4373778	1.589529	0.388	4.22E-05	0.00153	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo103756	1.3495751	1.068235	0.263	4.80E-05	0.0017	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo51314	0.5687974	1.309684	0.325	5.59E-05	0.0019	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo106315	0.2366675	1.457746	0.371	8.47E-05	0.00252	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo65607	0.2912368	1.728766	0.442	9.23E-05	0.00268	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo40648	0.1932119	1.598594	0.412	0.00011	0.00284	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo61721	0.2272129	1.505872	0.389	0.00011	0.00284	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo116409	2.569938	0.905587	0.234	0.00011	0.00287	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo41268	0.1086598	1.578774	0.41	0.00012	0.00302	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo113836	0.3763998	1.39138	0.371	0.00018	0.00432	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo134591	0.573427	1.384114	0.376	0.00024	0.00554	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo37563	2.5587496	0.811202	0.221	0.00024	0.00554	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo37986	0.2991734	1.531819	0.417	0.00024	0.00554	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo103381	0.3454203	1.344508	0.368	0.00026	0.00588	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo120253	0.1875577	1.187676	0.331	0.00033	0.00722	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo120277	0.3369397	1.342666	0.377	0.00037	0.008	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo72104	0.3895032	1.309741	0.37	0.0004	0.00826	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo73792	1.3164595	1.089044	0.308	0.0004	0.00826	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo17274	0.1466869	1.509704	0.428	0.00042	0.00844	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo89627	0.1471418	1.261042	0.363	0.00052	0.00986	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo40389	0.2699229	0.996894	0.288	0.00053	0.01006	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo81379	0.6151756	1.220226	0.353	0.00054	0.01018	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo69447	0.270971	1.562041	0.454	0.00057	0.01064	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo107567	0.2801795	1.384844	0.403	0.00059	0.01072	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo73897	1.7880215	1.327556	0.387	0.0006	0.01087	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo46392	0.3627765	1.082333	0.315	0.0006	0.01087	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo128694	0.2457367	1.633498	0.479	0.00065	0.01146	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo11346	0.5430612	1.063091	0.312	0.00066	0.01156	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo27832	0.3820197	0.914675	0.273	0.00081	0.01362	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo64723	0.8779655	1.029443	0.309	0.00085	0.01383	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo11761	0.2914464	1.121606	0.338	0.0009	0.01458	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo29870	0.2749806	1.219462	0.368	0.00092	0.01465	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo69244	2.7250981	0.811779	0.245	0.00093	0.01465	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo58484	0.2038262	1.305032	0.402	0.00118	0.0176	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo46256	0.1333457	1.121795	0.348	0.00126	0.01874	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo30096	0.2939432	1.035564	0.322	0.00129	0.01911	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo65496	0.1517542	1.219999	0.385	0.00153	0.02194	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo45519	2.6720967	0.835895	0.264	0.00154	0.02195	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo22077	0.1337016	1.094165	0.348	0.00167	0.02307	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo36518	1.0375781	0.981858	0.321	0.00222	0.02857	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo7647	0.1964344	1.031213	0.337	0.00223	0.02857	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo32505	0.1494362	1.153619	0.381	0.00243	0.03071	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo84419	0.2689087	-0.95682	0.323	0.00306	0.03643	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo101037	0.9712388	0.823577	0.282	0.00353	0.04093	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo3241	0.2604658	1.029166	0.358	0.00408	0.04558	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo52588	0.1008683	1.258698	0.439	0.00415	0.04577	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo70215	0.1549172	1.218841	0.426	0.00419	0.04587	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo86310	0.5163645	0.979393	0.344	0.00437	0.04721	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo951	0.1791442	1.176261	0.414	0.0045	0.04805	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Current vs. never smokers
denovo46856	0.5974416	-1.37806	0.345	6.63E-05	0.00209	Firmicutes	Bacilli	Lactobacillales				Current vs. never smokers
denovo67145	1.2587258	0.647076	0.22	0.00331	0.03907	Firmicutes	Bacilli	Lactobacillales				Current vs. never smokers
denovo4863	9.7912208	1.661336	0.331	5.34E-07	5.18E-05	Firmicutes	Clostridia	Clostridiales	[Mogibacteriaceae]			Current vs. never smokers
denovo46007	12.860444	-0.96677	0.261	0.00021	0.00511	Firmicutes	Clostridia	Clostridiales	[Mogibacteriaceae]			Current vs. never smokers
denovo90699	20.739701	0.777694	0.242	0.0013	0.01915	Firmicutes	Clostridia	Clostridiales	[Tissierellaceae]	Parvimonas		Current vs. never smokers
denovo77659	0.7672465	-1.17064	0.34	0.00058	0.01064	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Catonella		Current vs. never smokers
denovo75279	14.54985	0.822688	0.25	0.00101	0.01567	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Moryella		Current vs. never smokers
denovo60973	42.198953	-0.6043	0.194	0.00184	0.02461	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Oribacterium		Current vs. never smokers
denovo6950	0.2253231	1.91306	0.492	0.0001	0.00279	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae			Current vs. never smokers
denovo87461	21.05785	-1.11729	0.316	0.00041	0.00829	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae			Current vs. never smokers
denovo84073	1.7192448	1.134114	0.359	0.0016	0.02255	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae			Current vs. never smokers
denovo42730	3.774777	-0.92847	0.324	0.00421	0.04587	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae			Current vs. never smokers
denovo2589	1.3422411	-1.56807	0.367	1.91E-05	0.00083	Firmicutes	Clostridia	Clostridiales	Peptococcaceae	Peptococcus		Current vs. never smokers
denovo65095	21.300742	-1.33197	0.267	5.85E-07	5.47E-05	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Peptostreptococcus		Current vs. never smokers
denovo119898	3.2821488	1.609435	0.351	4.56E-06	0.00027	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Dialister		Current vs. never smokers
denovo114424	0.346695	1.25987	0.363	0.00052	0.00986	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Dialister		Current vs. never smokers
denovo103772	3.2020214	-2.23729	0.288	7.86E-15	2.06E-11	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo87251	3.0468155	-2.13628	0.301	1.28E-12	6.69E-10	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo15024	1.1218594	-2.40613	0.358	1.87E-11	6.98E-09	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo47810	1.2863321	-2.26254	0.347	6.91E-11	2.26E-08	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo27433	0.8023267	-1.90424	0.373	3.20E-07	3.49E-05	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo111505	0.6053056	-1.69822	0.393	1.57E-05	0.00072	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo21383	0.4427865	-1.70237	0.404	2.57E-05	0.00107	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo65414	2.973045	-0.98312	0.246	6.56E-05	0.00209	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo96761	1.6520326	-0.99799	0.252	7.38E-05	0.0023	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo55442	0.2114755	-1.45062	0.397	0.00026	0.00586	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo96979	0.5586045	-1.20025	0.358	0.00079	0.01335	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo57346	1.1157422	1.059106	0.335	0.00156	0.02202	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo4893	0.2053061	1.244798	0.398	0.00176	0.0239	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo57621	0.6275622	-1.07349	0.356	0.00256	0.03165	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo75856	0.9687595	0.945811	0.327	0.00385	0.04384	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo105594	0.2115624	1.062366	0.371	0.00416	0.04577	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Current vs. never smokers
denovo95936	0.7809752	-0.96858	0.343	0.00471	0.04969	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	parvula	Current vs. never smokers
denovo116029	6.3335561	-1.55892	0.298	1.76E-07	2.20E-05	Firmicutes	Clostridia	Clostridiales				Current vs. never smokers
denovo98168	1.053055	1.0413	0.312	0.00083	0.01371	Fusobacteria	Fusobacteriia	Fusobacteriales	Fusobacteriaceae	Fusobacterium		Current vs. never smokers
denovo1850	0.528157	-1.64579	0.39	2.44E-05	0.00103	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Current vs. never smokers
denovo90014	3.8644165	-1.57012	0.399	8.44E-05	0.00252	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Current vs. never smokers
denovo32884	1.6826544	-1.33572	0.354	0.00016	0.00398	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Current vs. never smokers
denovo8781	0.5965036	-1.34218	0.383	0.00046	0.00912	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Current vs. never smokers
denovo135529	0.6369139	-1.33301	0.444	0.0027	0.03276	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Current vs. never smokers
denovo32130	15.190772	-1.15231	0.264	1.28E-05	0.00062	Proteobacteria	Betaproteobacteria	Burkholderiales	Burkholderiaceae	Lautropia		Current vs. never smokers
denovo46391	3.6569874	-0.87059	0.249	0.00048	0.00939	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Eikenella		Current vs. never smokers
denovo58630	169.48167	-1.61569	0.218	1.24E-13	1.63E-10	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	subflava	Current vs. never smokers
denovo35941	7.4125524	-1.50515	0.253	2.53E-09	4.73E-07	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria		Current vs. never smokers
denovo34759	1.6072874	-1.76224	0.358	8.37E-07	6.85E-05	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	subflava	Current vs. never smokers
denovo46354	5.8591639	-1.25704	0.313	5.77E-05	0.00194	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	subflava	Current vs. never smokers
denovo135489	52.373313	-0.88938	0.272	0.00106	0.01627	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria		Current vs. never smokers
denovo131521	0.5385626	-1.29147	0.415	0.00187	0.02467	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	subflava	Current vs. never smokers
denovo11022	0.5399572	-1.25406	0.405	0.00195	0.02546	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria		Current vs. never smokers

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo11687	0.2541965	-1.23118	0.406	0.00244	0.03071	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria		Current vs. never smokers
denovo130071	0.251581	-1.21414	0.418	0.00364	0.04196	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria	subflava	Current vs. never smokers
denovo3151	0.3179153	-1.21094	0.427	0.00457	0.04861	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae	Neisseria		Current vs. never smokers
denovo32383	15.917253	-1.57256	0.367	1.83E-05	0.00081	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae			Current vs. never smokers
denovo113667	11.31836	-1.13609	0.281	5.31E-05	0.00183	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae			Current vs. never smokers
denovo6558	0.7546419	-1.42167	0.468	0.0024	0.03051	Proteobacteria	Betaproteobacteria	Neisseriales	Neisseriaceae			Current vs. never smokers
denovo134571	0.4432708	2.161878	0.473	4.84E-06	0.00028	Proteobacteria	Deltaproteobacteria	Desulfobacteriales	Desulfobulbaceae	Desulfobulbus		Current vs. never smokers
denovo32252	3.9994161	-0.94277	0.265	0.00038	0.00805	Proteobacteria	Gammaproteobacteria	Cardiobacteriales	Cardiobacteriaceae	Cardiobacterium		Current vs. never smokers
denovo43550	0.8900026	2.296003	0.412	2.57E-08	4.21E-06	Proteobacteria	Gammaproteobacteria	Enterobacteriales	Enterobacteriaceae			Current vs. never smokers
denovo42986	12.676782	-1.19185	0.367	0.00117	0.01753	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Aggregatibacter		Current vs. never smokers
denovo23268	17.53875	-0.81234	0.283	0.00411	0.04574	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Aggregatibacter	segnis	Current vs. never smokers
denovo59312	2.5313463	-1.33755	0.264	4.20E-07	4.25E-05	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Haemophilus	parainfluenzae	Current vs. never smokers
denovo43006	0.6753831	-1.35686	0.452	0.00268	0.0326	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Haemophilus		Current vs. never smokers
denovo66043	514.08316	-0.47779	0.168	0.00447	0.04798	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae	Haemophilus	parainfluenzae	Current vs. never smokers
denovo62756	6.7216259	-2.20273	0.364	1.42E-09	3.26E-07	Proteobacteria	Gammaproteobacteria	Pasteurellales	Pasteurellaceae			Current vs. never smokers
denovo8951	0.2964412	1.553598	0.495	0.00169	0.02325	Proteobacteria	Gammaproteobacteria	Pseudomonadales	Moraxellaceae	Enhydrobacter		Current vs. never smokers
denovo48970	4.0679812	-1.45622	0.374	9.95E-05	0.00279	SR1						Current vs. never smokers
denovo99976	9.0894207	-1.32833	0.432	0.00211	0.02751	SR1						Current vs. never smokers
denovo58732	0.9014094	1.772442	0.419	2.38E-05	0.00102	Synergistetes	Synergistia	Synergistales	Dethiosulfovibrionaceae	TG5		Current vs. never smokers
denovo118350	1.4261138	1.57988	0.386	4.29E-05	0.00154	Synergistetes	Synergistia	Synergistales	Dethiosulfovibrionaceae	TG5		Current vs. never smokers
denovo77513	0.3377328	1.630732	0.373	1.22E-05	0.0006							Current vs. never smokers
denovo59727	0.1708981	1.432924	0.359	6.51E-05	0.00209							Current vs. never smokers
denovo23915	0.4543819	1.496962	0.385	0.0001	0.0028							Current vs. never smokers
denovo39980	0.3796374	1.60102	0.412	0.0001	0.00282							Current vs. never smokers
denovo115816	0.6492124	0.903919	0.242	0.00019	0.00464							Current vs. never smokers
denovo78842	0.2557205	1.359596	0.368	0.00022	0.0053							Current vs. never smokers
denovo38217	0.1597354	1.153112	0.314	0.00024	0.00554							Current vs. never smokers
denovo56144	0.2405345	1.483878	0.409	0.00028	0.00624							Current vs. never smokers
denovo43362	0.3441475	-1.58461	0.438	0.0003	0.00653							Current vs. never smokers
denovo126355	2.3819301	0.778761	0.224	0.00051	0.00986							Current vs. never smokers
denovo81353	0.1341211	1.355791	0.4	0.0007	0.01208							Current vs. never smokers
denovo80889	1.0303765	-1.25741	0.372	0.00071	0.01229							Current vs. never smokers
denovo132300	0.1026257	1.406776	0.418	0.00077	0.01301							Current vs. never smokers
denovo89707	0.3856884	1.133294	0.339	0.00082	0.01364							Current vs. never smokers
denovo22070	0.5711419	1.285227	0.388	0.00093	0.01465							Current vs. never smokers
denovo45436	0.1182735	1.316086	0.404	0.00111	0.01694							Current vs. never smokers
denovo111782	0.2158493	1.227439	0.384	0.0014	0.02019							Current vs. never smokers
denovo128559	0.2516665	1.191036	0.382	0.00182	0.02451							Current vs. never smokers
denovo85081	0.1691954	1.28284	0.412	0.00186	0.02467							Current vs. never smokers
denovo99510	0.6571693	-1.24281	0.4	0.00189	0.02492							Current vs. never smokers
denovo105194	1.1750567	0.883658	0.296	0.00283	0.03412							Current vs. never smokers
denovo92819	0.1348389	1.148419	0.385	0.00286	0.03432							Current vs. never smokers
denovo39778	0.4407704	-1.15934	0.394	0.00322	0.0381							Current vs. never smokers
denovo97199	0.2138042	1.185128	0.404	0.00336	0.03943							Current vs. never smokers
denovo57261	0.7851414	-1.20137	0.415	0.00376	0.04314							Current vs. never smokers
denovo24554	0.3968529	-1.24492	0.437	0.00438	0.04721							Current vs. never smokers
denovo76476	0.3893993	1.03989	0.368	0.00471	0.04969							Current vs. never smokers
denovo50512	2.2148655	-0.52033	0.159	0.00104	0.04784	Actinobacteria	Actinobacteria	Actinomycetales	Actinomycetaceae	Actinomyces		Former vs. never smokers
denovo122088	32.345195	-0.81348	0.251	0.00117	0.04784	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae	Bifidobacterium		Former vs. never smokers
denovo127061	6.2532191	-1.13105	0.302	0.00018	0.0177	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae			Former vs. never smokers
denovo33731	11.395547	-0.77472	0.221	0.00047	0.03045	Actinobacteria	Actinobacteria	Bifidobacteriales	Bifidobacteriaceae			Former vs. never smokers

OTU	log2 Fold					Phylum	Class	Order	Family	Genus	Species	Comparison
	baseMean	Change	lfcSE	pvalue	padj							
denovo12694	4.729117	-0.70223	0.172	4.51E-05	0.00781	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Former vs. never smokers
denovo31197	18.527978	-0.51831	0.154	0.00075	0.03724	Bacteroidetes	Bacteroidia	Bacteroidales	Prevotellaceae	Prevotella		Former vs. never smokers
denovo111178	0.999024	1.077488	0.309	0.00048	0.03045	Firmicutes	Bacilli	Bacillales	Staphylococcaceae	Staphylococcus		Former vs. never smokers
denovo19152	3109.3013	-0.71255	0.126	1.42E-08	9.82E-06	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Former vs. never smokers
denovo8366	0.9378836	0.348562	0.082	1.99E-05	0.00461	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Former vs. never smokers
denovo6925	4.1853685	0.459941	0.13	0.00041	0.03045	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Streptococcus		Former vs. never smokers
denovo48387	0.5085408	-1.08602	0.32	0.00069	0.03664	Firmicutes	Clostridia	Clostridiales	Lachnospiraceae	Oribacterium		Former vs. never smokers
denovo65095	21.300742	-0.63223	0.163	0.0001	0.01187	Firmicutes	Clostridia	Clostridiales	Peptostreptococcaceae	Peptostreptococcus		Former vs. never smokers
denovo57346	1.1157422	0.735132	0.215	0.00063	0.03629	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Former vs. never smokers
denovo104778	0.5122886	0.771166	0.237	0.00113	0.04784	Firmicutes	Clostridia	Clostridiales	Veillonellaceae	Veillonella	dispar	Former vs. never smokers
denovo46231	57.168869	-0.52519	0.132	7.14E-05	0.00989	Fusobacteria	Fusobacteriia	Fusobacteriales	Fusobacteriaceae	Fusobacterium		Former vs. never smokers
denovo43466	1.9313139	1.222781	0.332	0.00023	0.0203	Fusobacteria	Fusobacteriia	Fusobacteriales	Leptotrichiaceae	Leptotrichia		Former vs. never smokers
denovo138050	12.07279	-0.69792	0.151	3.67E-06	0.00127	Proteobacteria	Epsilonproteobacteria	Campylobacterales	Campylobacteraceae	Campylobacter		Former vs. never smokers

Supplementary Table 7. Differentially abundant KEGG pathways between current and never smokers, and former and never smokers, as detected by the DESeq function in the DESeq2 package. All pathways with an FDR-adjusted $q < 0.05$ are included in the table.

KEGG pathway	log2 Fold					Comparison
	baseMean	Change	lfcSE	pvalue	padj	
Cellular Processes; Cell Growth and Death; Apoptosis	1176.61429	0.084687	0.02635	0.00131	0.004715	Current vs. never smokers
Cellular Processes; Cell Growth and Death; p53 signaling pathway	1.21319586	0.0250848	0.00883	0.004512	0.012509	Current vs. never smokers
Cellular Processes; Cell Motility; Bacterial motility proteins	9489.73328	-0.1346602	0.0268	5.05E-07	7.07E-06	Current vs. never smokers
Environmental Information Processing; Membrane Transport; Bacterial secretion system	32365.1865	-0.0148325	0.00596	0.012759	0.028708	Current vs. never smokers
Environmental Information Processing; Membrane Transport; Phosphotransferase system (PTS)	47220.0527	0.0779249	0.02344	0.000885	0.003447	Current vs. never smokers
Environmental Information Processing; Membrane Transport; Secretion system	69611.9185	-0.0246258	0.00999	0.01369	0.030531	Current vs. never smokers
Environmental Information Processing; Membrane Transport; Transporters	345444.735	0.027974	0.01214	0.021155	0.042992	Current vs. never smokers
Environmental Information Processing; Signal Transduction; MAPK signaling pathway - yeast	2153.59075	-0.0585178	0.01676	0.000481	0.002055	Current vs. never smokers
Environmental Information Processing; Signal Transduction; Phosphatidylinositol signaling system	6298.26662	-0.0500596	0.01426	0.000448	0.002037	Current vs. never smokers
Environmental Information Processing; Signaling Molecules and Interaction; Ion channels	3935.89772	0.0499823	0.02005	0.012673	0.028708	Current vs. never smokers
Genetic Information Processing; Folding, Sorting and Degradation; Protein export	36371.1237	0.0208097	0.00563	0.00022	0.001109	Current vs. never smokers
Genetic Information Processing; Folding, Sorting and Degradation; Sulfur relay system	13154.8927	-0.0389989	0.0138	0.004723	0.012798	Current vs. never smokers
Genetic Information Processing; Replication and Repair; Chromosome	75315.8093	-0.0185976	0.00598	0.001886	0.006424	Current vs. never smokers
Genetic Information Processing; Replication and Repair; DNA repair and recombination proteins	158109.988	0.0099452	0.0042	0.017876	0.037539	Current vs. never smokers
Genetic Information Processing; Replication and Repair; DNA replication	37922.8365	0.0148862	0.00501	0.002959	0.009559	Current vs. never smokers
Genetic Information Processing; Replication and Repair; Non-homologous end-joining	240.515042	-0.1232216	0.02233	3.44E-08	1.44E-06	Current vs. never smokers
Genetic Information Processing; Replication and Repair; Nucleotide excision repair	20669.7128	0.0273171	0.00763	0.000344	0.001634	Current vs. never smokers
Genetic Information Processing; Transcription; RNA polymerase	11321.485	0.0240939	0.00828	0.003596	0.011187	Current vs. never smokers
Genetic Information Processing; Translation; Aminoacyl-tRNA biosynthesis	70087.4621	0.0178972	0.00568	0.001617	0.005739	Current vs. never smokers
Genetic Information Processing; Translation; Ribosome	138507.075	0.012088	0.00514	0.018712	0.038652	Current vs. never smokers
Metabolism; Amino Acid Metabolism; Arginine and proline metabolism	37892.7268	-0.0359873	0.00907	7.19E-05	0.000446	Current vs. never smokers
Metabolism; Amino Acid Metabolism; Lysine degradation	6345.36935	-0.0782646	0.01794	1.28E-05	0.000113	Current vs. never smokers
Metabolism; Amino Acid Metabolism; Phenylalanine metabolism	3972.62991	-0.0645738	0.02384	0.006755	0.016855	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; beta-Lactam resistance	956.758411	0.1396644	0.02714	2.65E-07	4.19E-06	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Flavone and flavonol biosynthesis	500.65542	0.0764146	0.02662	0.004095	0.011998	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Flavonoid biosynthesis	160.143232	-0.0604673	0.02501	0.015606	0.03408	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Penicillin and cephalosporin biosynthesis	1801.86378	0.1240777	0.02425	3.12E-07	4.63E-06	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Phenylpropanoid biosynthesis	2978.85452	0.1047417	0.02621	6.46E-05	0.000428	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Streptomycin biosynthesis	14595.3001	0.0284232	0.00943	0.002577	0.008545	Current vs. never smokers
Metabolism; Biosynthesis of Other Secondary Metabolites; Tropane, piperidine and pyridine alkaloid biosynthesis	3510.45892	-0.0679488	0.01939	0.000459	0.002037	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Amino sugar and nucleotide sugar metabolism	77009.612	0.047391	0.00905	1.62E-07	3.40E-06	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Citrate cycle (TCA cycle)	28338.7649	-0.0436741	0.016	0.00635	0.016203	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Fructose and mannose metabolism	40827.8559	0.0471425	0.01078	1.23E-05	0.000113	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Galactose metabolism	39715.5098	0.0785224	0.01751	7.30E-06	7.35E-05	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Glycolysis / Gluconeogenesis	62172.2667	0.0340201	0.00886	0.000123	0.000673	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Glyoxylate and dicarboxylate metabolism	14924.8214	-0.0507681	0.01565	0.001175	0.004356	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Inositol phosphate metabolism	5961.94214	-0.0488713	0.01927	0.011228	0.025959	Current vs. never smokers
Metabolism; Carbohydrate Metabolism; Starch and sucrose metabolism	41636.079	0.0603491	0.01534	8.34E-05	0.000497	Current vs. never smokers
Metabolism; Energy Metabolism; Carbon fixation pathways in prokaryotes	42900.6872	-0.0177493	0.00735	0.015725	0.03408	Current vs. never smokers
Metabolism; Energy Metabolism; Oxidative phosphorylation	45492.3538	-0.0289463	0.0125	0.020594	0.042192	Current vs. never smokers
Metabolism; Energy Metabolism; Photosynthesis	20655.7742	0.0285616	0.00673	2.17E-05	0.000167	Current vs. never smokers
Metabolism; Energy Metabolism; Photosynthesis proteins	20827.0983	0.0245836	0.00619	7.11E-05	0.000446	Current vs. never smokers
Metabolism; Energy Metabolism; Sulfur metabolism	13117.6183	-0.0376775	0.00822	4.53E-06	4.98E-05	Current vs. never smokers
Metabolism; Enzyme Families; Peptidases	86946.5186	0.0207368	0.00476	1.32E-05	0.000113	Current vs. never smokers
Metabolism; Enzyme Families; Protein kinases	15012.9415	0.0487812	0.01732	0.004861	0.013032	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Glycosaminoglycan degradation	3268.83214	0.0617826	0.0256	0.015823	0.03408	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Glycosphingolipid biosynthesis - ganglio series	2246.53137	0.0622202	0.02622	0.017633	0.03734	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Glycosphingolipid biosynthesis - globo series	3789.67476	0.0657631	0.02416	0.006495	0.016368	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Glycosphingolipid biosynthesis - lacto and neolacto series	2.30169169	-0.0886518	0.01403	2.63E-10	3.31E-08	Current vs. never smokers

KEGG pathway	log2 Fold					Comparison
	baseMean	Change	lfcSE	pvalue	padj	
Metabolism; Glycan Biosynthesis and Metabolism; Lipopolysaccharide biosynthesis	11466.8414	-0.083126	0.02666	0.00182	0.006284	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Lipopolysaccharide biosynthesis proteins	16992.0258	-0.0762094	0.02616	0.003576	0.011187	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Peptidoglycan biosynthesis	50257.3731	0.0234227	0.0062	0.000157	0.000822	Current vs. never smokers
Metabolism; Lipid Metabolism; alpha-Linolenic acid metabolism	151.231974	-0.1107035	0.02147	2.51E-07	4.19E-06	Current vs. never smokers
Metabolism; Lipid Metabolism; Arachidonic acid metabolism	2284.22985	0.0595215	0.02353	0.011423	0.02617	Current vs. never smokers
Metabolism; Lipid Metabolism; Glycerolipid metabolism	18220.372	0.0365374	0.01418	0.009958	0.023862	Current vs. never smokers
Metabolism; Lipid Metabolism; Glycerophospholipid metabolism	26731.9711	-0.0464638	0.0087	9.17E-08	2.57E-06	Current vs. never smokers
Metabolism; Lipid Metabolism; Lipid biosynthesis proteins	29686.761	-0.0260901	0.00785	0.000889	0.003447	Current vs. never smokers
Metabolism; Lipid Metabolism; Steroid hormone biosynthesis	198.561791	0.0501523	0.02112	0.017593	0.03734	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; Biotin metabolism	4813.00703	-0.1020983	0.02227	4.54E-06	4.98E-05	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; Lipoic acid metabolism	3085.2685	-0.0778254	0.0198	8.47E-05	0.000497	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; One carbon pool by folate	32957.0762	0.0253492	0.00667	0.000146	0.000782	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; Porphyrin and chlorophyll metabolism	24154.6854	-0.0634597	0.02465	0.010037	0.023862	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; Riboflavin metabolism	10626.9797	-0.0478336	0.01845	0.009514	0.023053	Current vs. never smokers
Metabolism; Metabolism of Cofactors and Vitamins; Vitamin B6 metabolism	9197.3441	-0.0247871	0.00853	0.003662	0.011255	Current vs. never smokers
Metabolism; Metabolism of Other Amino Acids; Cyanoamino acid metabolism	10181.4625	0.0413238	0.0143	0.003864	0.011457	Current vs. never smokers
Metabolism; Metabolism of Other Amino Acids; D-Alanine metabolism	8289.84538	0.037611	0.01124	0.000822	0.003341	Current vs. never smokers
Metabolism; Metabolism of Other Amino Acids; Glutathione metabolism	15121.0978	-0.0359827	0.00991	0.000283	0.001374	Current vs. never smokers
Metabolism; Metabolism of Terpenoids and Polyketides; Biosynthesis of siderophore group nonribosomal peptides	2789.65981	0.0847014	0.02713	0.001795	0.006283	Current vs. never smokers
Metabolism; Metabolism of Terpenoids and Polyketides; Biosynthesis of type II polyketide products	4.78785742	0.0432991	0.01558	0.00545	0.014159	Current vs. never smokers
Metabolism; Metabolism of Terpenoids and Polyketides; Biosynthesis of vancomycin group antibiotics	2707.19627	0.0322078	0.0111	0.003716	0.011269	Current vs. never smokers
Metabolism; Metabolism of Terpenoids and Polyketides; Carotenoid biosynthesis	137.24866	-0.1269379	0.02121	2.17E-09	1.43E-07	Current vs. never smokers
Metabolism; Metabolism of Terpenoids and Polyketides; Polyketide sugar unit biosynthesis	9220.48528	0.0462743	0.01063	1.34E-05	0.000113	Current vs. never smokers
Metabolism; Nucleotide Metabolism; Purine metabolism	131017.891	0.0226734	0.00427	1.11E-07	2.81E-06	Current vs. never smokers
Metabolism; Nucleotide Metabolism; Pyrimidine metabolism	105564.256	0.0220978	0.00569	0.000102	0.000573	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Caprolactam degradation	1528.56397	0.0708715	0.02549	0.005421	0.014159	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Chlorocyclohexane and chlorobenzene degradation	153.872956	-0.066599	0.02441	0.006366	0.016203	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Drug metabolism - other enzymes	16799.0508	0.0393594	0.00899	1.18E-05	0.000113	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Metabolism of xenobiotics by cytochrome P450	2543.05751	-0.0575618	0.02558	0.024422	0.049146	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Nitrotoluene degradation	1058.30108	-0.0819814	0.02676	0.002189	0.007354	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Polycyclic aromatic hydrocarbon degradation	7092.13207	0.0325145	0.01269	0.010381	0.024222	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Styrene degradation	812.774777	-0.1050707	0.02704	0.000102	0.000573	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Toluene degradation	5051.00572	-0.0903347	0.02209	4.34E-05	0.000304	Current vs. never smokers
Metabolism; Xenobiotics Biodegradation and Metabolism; Xylene degradation	2841.49415	0.0635994	0.02374	0.007385	0.018246	Current vs. never smokers
Metabolism; Glycan Biosynthesis and Metabolism; Glycosphingolipid biosynthesis - lacto and neolacto series	2.30169169	-0.10608	0.01978	8.23E-08	2.07E-05	Former vs. never smokers