

**Gut microbiota predict retinopathy in patients with diabetes: A
longitudinal cohort study**

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Supplementary table 1. Differences in the relative abundance of taxa at the genus level by Wilcoxon rank test

Taxonomy	DR-group. Mean	DM-group. Mean	DR-group. SD	DM-group. SD	P-value	Q-value
<i>Saccharimonadaceae_norank</i>	6.09E-05	0.000158	0.000141	0.000252	0.000861	0.122274
<i>Granulicatella</i>	3.86E-05	8.38E-05	8.71E-05	0.000109	0.001736	0.136171
<i>Lactococcus</i>	0.000533	0.002326	0.000601	0.001974	0.001918	0.136171
<i>Ruminiclostridium</i>	2.49E-05	7.69E-05	7.45E-07	5.43E-06	0.003444	0.195613
<i>Streptococcus</i>	5.07E-03	0.010888	8.53E-03	0.015787	0.005174	0.234623
<i>Citrobacter</i>	0.002968	0.00868	0.004429	0.011669	0.005783	0.234623
<i>Akkermansia</i>	0.008444	2.00E-02	0.002821	1.25E-02	0.00665	0.236081
<i>Haemophilus</i>	0.000461	1.91E-03	0.001847	4.61E-03	0.008478	0.267517
<i>Peptococcus</i>	0.000106	0.000335	8.19E-06	4.19E-05	0.01216	0.302389
<i>Solobacterium</i>	1.03E-05	3.16E-05	2.46E-05	4.72E-05	0.013632	0.302389
<i>Butyricicoccus</i>	2.61E-03	0.004042	4.81E-03	0.006736	0.014411	0.302389
<i>Defluviitaleaceae_UCG.011</i>	6.43E-05	0.000134	2.83E-05	9.36E-05	0.014915	0.302389
<i>Gemella</i>	2.83E-05	1.07E-04	4.10E-05	7.54E-05	0.015971	0.302389
<i>Rhizobiales_unclassified</i>	2.57E-06	1.29E-05	1.12E-05	2.49E-05	0.018109	0.32144
<i>Mollicutes_RF39_norank</i>	6.00E-04	0.001692	3.94E-04	0.002556	0.01976	0.327537
<i>Ruminococcus_torques_group</i>	0.004943	7.08E-03	0.011713	1.99E-02	0.023415	0.327537
<i>Prevotella_9</i>	0.067689	2.06E-01	0.056861	1.64E-01	0.023933	0.327537
<i>Weissella</i>	0.000108	6.63E-04	0.000549	3.19E-03	0.024593	0.327537
<i>Saccharimonadales_norank</i>	1.03E-05	1.75E-05	2.68E-05	4.08E-05	0.025299	0.327537
<i>Neisseria</i>	1.72E-06	8.14E-06	4.39E-05	0.000209	0.025373	0.327537
<i>Marvinbryantia</i>	0.000331	0.000614	0.000136	0.000362	0.033956	0.408645
<i>Klebsiella</i>	0.010593	0.021443	0.016928	0.029509	0.034533	0.408645

Supplementary table 2. Differences in the microbial gene expression by Wilcoxon rank test

K number	DR-group. Mean	DM-group. mean	DR-group. SD	DM-group. SD	P-value	Q-value
K01805	2810.422	1135.091	2007.481	903.8288	0.000146	0.124876
K01541	4.066667	15.87079	5.555556	8.939348	0.000177	0.124876
K04041	5845.089	1103.869	6878.481	2351.516	0.000284	0.124876
K00249	1.866667	2.981763	5.555556	7.870812	0.000287	0.124876
K02303	13.2	33.6625	20.55556	42.4596	0.00031	0.124876
K01258	5542.511	993.9168	6348.593	1212.419	0.000343	0.124876
K01390	3.711111	15.10662	4.703704	8.329601	0.000435	0.124876
K12293	3.711111	15.10662	4.703704	8.329601	0.000435	0.124876
K03978	6800.044	1590.757	8129.5	2143.324	0.000472	0.124876
K02495	12962.04	3180.307	15229.72	4101.337	0.000485	0.124876
K03073	6548.867	1812.301	7939.704	2105.314	0.000553	0.124876
K03433	1.133333	2.849242	2.796296	4.222043	0.000582	0.124876
K07064	1.022222	2.454022	2.592593	3.902193	0.000612	0.124876
K12294	6.177778	26.43284	6.5	10.69429	0.000652	0.124876
K06953	1.111111	2.497473	2.648148	3.977092	0.000689	0.124876
K12292	4.533333	15.83523	5.722222	9.133014	0.000772	0.124876
K07577	1.222222	2.539586	2.777778	3.993706	0.000783	0.124876
K01173	99.26667	154.1657	181.5926	190.64	0.000854	0.124876
K06949	7330.267	1367.291	8467.963	2063.743	0.000933	0.124876
K07068	1.088889	2.44784	2.814815	4.143984	0.00101	0.124876
K02914	6698.156	1797.001	8069.074	2081.117	0.001045	0.124876

Supplementary table 3. Random forest models of the cross-sectional study

16S genus-level dataset				
No. variables	RMSE	Rsquared	% Var explained	AUC
10	0.458439	0.233465	13.87	0.8112
15	0.432869	0.35929	18.12	0.8601
20	0.438832	0.327655	20.69	0.7622
25	0.448714	0.329036	18.69	0.7483
30	0.457703	0.302897	13.7	0.7692
35	0.450655	0.344151	16.13	0.7902
40	0.46271	0.307655	17.63	0.7972
45	0.460171	0.33303	14.97	0.7832
50	0.476275	0.194174	9.18	0.7343
60	0.460172	0.285052	15.04	0.6713
70	0.466505	0.309933	10.22	0.6853
80	0.465785	0.271052	13.86	0.6224
90	0.463933	0.278326	13.83	0.6294
100	0.458439	0.233465	13.87	0.8112

16S KEGG orthologue-level dataset				
No. variables	RMSE	Rsquared	% Var explained	AUC
10	0.441353	0.304434	20.67	0.8881
15	0.436143	0.352084	24.82	0.8881
20	0.44062	0.34851	19.96	0.8671
25	0.437419	0.338787	19.84	0.8811
30	0.442281	0.311411	19.54	0.9371
35	0.441872	0.271834	20.53	0.9161
40	0.444105	0.320188	21.05	0.9371
45	0.446586	0.306639	19.73	0.9301
50	0.442687	0.363685	19.88	0.9091
60	0.446373	0.327014	17.77	0.9301
70	0.450157	0.312689	16.92	0.9301
80	0.459149	0.264104	18.51	0.9231
90	0.448417	0.284205	16.67	0.9441
100	0.452858	0.33285	17.41	0.9091
Combined dataset				
No. variables	RMSE	Rsquared	% Var explained	AUC
10	0.441353	0.304434	20.67	0.8881
15	0.44181	0.318084	18.22	0.9091
20	0.442348	0.287488	20.95	0.9021
25	0.441892	0.355379	22.73	0.9231
30	0.441966	0.344192	19.44	0.9091
35	0.433525	0.402235	18.62	0.9161
40	0.434993	0.352577	22.34	0.9441
45	0.431586	0.362181	24.47	0.9231
50	0.437189	0.327735	21.69	0.9301
60	0.442196	0.348198	20.56	0.951
70	0.445096	0.313349	20.66	0.9441
80	0.437392	0.350926	21.48	0.951
90	0.447874	0.326912	21.57	0.9231
100	0.448221	0.352087	20.06	0.9301

Supplementary table 4. Significant results from MaAsLin analysis

feature	metadata	coef	stderr	P-value	Q-value
<i>Peptococcus</i>	DR	0.008211	0.001818	1.89E-05	0.012794
<i>Ruminococcus_torques_group</i>	DR	-0.031637	0.011853	0.008958	0.183506
<i>Butyricicoccus</i>	DR	-0.018818	0.007516	0.014014	0.214698
<i>Faecalitalea</i>	DR	0.005811	0.002312	0.014134	0.214698
<i>Akkermansia</i>	total_calorie	-3.85E-05	1.13E-05	0.000951	0.063506
<i>Akkermansia</i>	total_chole	-0.000182	4.96E-05	0.000396	0.053342
<i>Akkermansia</i>	total_fat	-0.000533	0.000173	0.002826	0.121245
<i>Akkermansia</i>	total_protein	-0.000451	0.000179	0.013459	0.230527

<i>Anaerostipes</i>	total_calorie	2.16E-05	7.76E-06	0.006486	0.178766
<i>Anaerostipes</i>	total_carbo	0.000189	6.57E-05	0.005061	0.185291
<i>CAG.56</i>	total_calorie	1.24E-05	4.51E-06	0.007138	0.178766
<i>CAG.56</i>	total_carbo	0.000116	3.80E-05	0.002901	0.129204
<i>Catabacter</i>	fatE	0.017421	0.006446	0.008209	0.203093
<i>Citrobacter</i>	total_calorie	-2.23E-05	8.10E-06	0.00707	0.178766
<i>Citrobacter</i>	total_fat	-0.000321	0.000125	0.011907	0.235143
<i>Coriobacteriales_unclassified</i>	fatE	0.25513	0.102178	0.015074	0.234166
<i>Dorea</i>	carboE	-0.228728	0.076368	0.003607	0.141735
<i>Dorea</i>	fatE	0.186753	0.058328	0.001882	0.096712
<i>Eggerthellaceae_unclassified</i>	fatE	0.078024	0.028852	0.009671	0.208395
<i>Faecalibacterium</i>	total_calorie	4.84E-05	1.80E-05	0.008608	0.178766
<i>Fusobacterium</i>	total_calorie	-2.45E-05	8.80E-06	0.006581	0.178766
<i>Fusobacterium</i>	total_carbo	-0.000198	7.55E-05	0.010202	0.206506
<i>Fusobacterium</i>	total_protein	-0.000364	0.000138	0.009728	0.196259
<i>Klebsiella</i>	carboE	0.249893	0.100392	0.014625	0.248297
<i>Klebsiella</i>	total_fat	-0.000594	0.000229	0.011011	0.22985
<i>Klebsiella</i>	fatE	-0.213957	0.079962	0.008844	0.205766
<i>Lachnospiraceae_UCG.004</i>	total_carbo	0.000126	4.91E-05	0.011856	0.214047
<i>Lachnospiraceae_UCG.004</i>	proteinE	0.203253	0.075014	0.008051	0.204061
<i>Lachnospiraceae_UCG.004</i>	total_protein	0.000257	8.89E-05	0.004863	0.188287
<i>Prevotella_2</i>	proteinE	0.502436	0.194316	0.011308	0.21445
<i>Ruminiclostridium_6</i>	total_calorie	1.46E-05	5.86E-06	0.014417	0.218875
<i>Ruminiclostridium_6</i>	total_protein	0.000246	9.07E-05	0.008032	0.194732
<i>Ruminococcus_2</i>	total_chole	0.00011	3.81E-05	0.00515	0.18107
<i>Ruminococcus_torques_group</i>	carboE	-0.167301	0.065717	0.012589	0.22728
<i>Sutterella</i>	carboE	0.210338	0.073014	0.004947	0.165221

Supplementary table 5. Causal mediation analysis

Formula of Mediator:

Akkermansia ~ sex + age + BMI + total cholesterol intake

Formula of Outcome:

DR ~ sex + age + BMI + total cholesterol intake + *Akkermansia*

	(1) DR	(2) <i>Akkermansia</i>	(3) DR
(Intercept)	0.474 *** (0.049)	0.006 ** (0.002)	0.474 *** (0.047)
sex	-0.167 (0.098)	0.001 (0.003)	-0.174 (0.095)
age	0.007 (0.006)	0.000 (0.000)	0.005 (0.006)
BMI	0.019 (0.018)	-0.000 (0.001)	0.019 (0.018)
total_chole	0.001 ** (0.000)	-0.000 * (0.000)	0.001 *** (0.000)
<i>Akkermansia</i>			7.330 * -2.94
R ²	0.128	0.062	0.184
Adj. R ²	0.090	0.022	0.139
Num. obs.	97	97	97

	Estimate	95% CI		P-value
Total Effect	0.000668	-0.000036	0.00	0.056
ACME (average)	-1.46E-04	-0.000546	0.00	0.028
ADE (average)	0.000814	0.000359	0.00	<0.001
Prop. Mediated (average)	-0.218462	-1.337592	1.32	0.084

Formula of Mediator:

Klebsiella ~ sex + age + BMI + fat energy expenditure

Formula of Outcome:

DR ~ sex + age + BMI + fat energy expenditure + *Klebsiella*

	(1) DR	(2) fatE	(3) DR
(Intercept)	0.469 *** (0.050)	0.448 *** (0.012)	0.469 *** (0.048)
sex	-0.171 (0.103)	-0.043 (0.025)	-0.225 * (0.100)
age	0.010	0.001	0.012

	(0.006)	(0.002)	(0.006)
BMI	0.022	-0.000	0.022
	(0.019)	(0.004)	(0.018)
<i>Klebsiella</i>	-3.900	-0.983 *	-5.140 *
	(1.993)	(0.476)	(1.955)
fatE			-1.261 **
	-0.421		
R^2	0.083	0.066	0.166
Adj. R^2	0.043	0.025	0.120
Num. obs.	96	96	96
	Estimate	95% CI	P-value
Total Effect	-0.794266		-1.129168 0.022
ACME (average)	6.51E-02	0.001871	0.27 0.032
ADE (average)	-0.859399		-1.355312 0.006
Prop. Mediated (average)	-0.082005	-1.021990	0.00 0.054

Formula of Mediator:

Dorea ~ sex + age + BMI + fat energy expenditure

Formula of Outcome:

DR ~ sex + age + BMI + fat energy expenditure + *Dorea*

	(1) DR	(2) fatE	(3) DR
(Intercept)	0.469 ***	0.448 ***	0.469 ***
	(0.050)	(0.012)	(0.049)
sex	-0.099	-0.042	-0.136
	(0.102)	(0.024)	(0.102)
age	0.007	0.001	0.008
	(0.006)	(0.001)	(0.006)
BMI	0.019	-0.001	0.019
	(0.019)	(0.004)	(0.018)
<i>Dorea</i>	-4.734 *	1.205 *	-3.671
	(2.376)	(0.567)	(2.392)
fatE			-0.883 *
	-0.432		
R^2	0.085	0.068	0.125
Adj. R^2	0.044	0.027	0.077
Num. obs.	96	96	96
	Estimate	95% CI	P-value
Total Effect	-0.77103	-0.97266	-0.23 0.01

ACME (average)	-2.30E-01	-0.53724	-0.01	0.022
ADE (average)	-0.54067	-0.93896	0.09	0.106
Prop. Mediated (average)	0.29877	0.01045	1.23	0.028

Supplementary Table 6. Spearman correlation analysis of the relative abundance of microbial taxa and differentially expressed genes in the cross-sectional study.

Var1	Var2	cor	p-value	q-value
AC009927.1	<i>Solobacterium</i>	-0.4175942	1.70E-05	0.05868191
PTCSC1	<i>Solobacterium</i>	-0.3951017	5.18E-05	0.08458414
AL513190.1	<i>Solobacterium</i>	-0.3905496	6.43E-05	0.08458414
PRKXP1	<i>Granulicatella</i>	-0.38966	6.70E-05	0.08458414
CELF2.AS1	<i>Solobacterium</i>	-0.3831279	9.07E-05	0.08458414
AC093330.3	<i>Solobacterium</i>	-0.3772427	0.00011857	0.08458414
SELENON	<i>Granulicatella</i>	-0.376507	0.00012255	0.08458414
AL049840.2	<i>Solobacterium</i>	-0.3753405	0.00012913	0.08458414
ADPGK.AS1	<i>Solobacterium</i>	-0.3744707	0.00013425	0.08458414
AL355916.2	<i>Solobacterium</i>	-0.373479	0.00014031	0.08458414
SMG1P6	<i>Solobacterium</i>	-0.3723654	0.00014742	0.08458414
PRKXP1	<i>Solobacterium</i>	-0.3673092	0.00018411	0.0964529
OSMR	<i>Solobacterium</i>	-0.3653177	0.00020075	0.0964529
GIMAP7	<i>Ruminococcaceae_UCG.014</i>	-0.3617678	0.00023391	0.0964529
CHST13	<i>Granulicatella</i>	-0.3615439	0.00023616	0.0964529
CCDC144B	<i>Solobacterium</i>	-0.3610139	0.00024157	0.0964529
GTF2IP13	<i>Ruminococcus_torques_group</i>	-0.3600071	0.00025216	0.0964529
TMPPE	<i>Solobacterium</i>	-0.352718	0.00034263	0.12395092
AC144530.1	<i>Granulicatella</i>	-0.350149	0.00038107	0.12395092
RPS4XP3	<i>Lachnospiraceae_FCS020_group</i>	-0.3499447	0.00038429	0.12395092
AL162430.1	<i>Lachnospiraceae_FCS020_group</i>	-0.3492107	0.00039607	0.12395092
FOSB	<i>Granulicatella</i>	-0.3471277	0.00043133	0.12742118
KMT2D	<i>Solobacterium</i>	-0.3438819	0.00049205	0.12742118
ACTBP2	<i>Granulicatella</i>	-0.3430711	0.0005084	0.12742118
AC020916.1	<i>Granulicatella</i>	-0.3357784	0.00067947	0.13715958
AL049840.6	<i>Solobacterium</i>	-0.332843	0.0007621	0.13715958
PEG13	<i>Granulicatella</i>	-0.3316697	0.00079763	0.13715958
AC018607.1	<i>Solobacterium</i>	-0.3316562	0.00079804	0.13715958
ACVRL1	<i>Haemophilus</i>	-0.3316213	0.00079912	0.13715958
ACACA	<i>Solobacterium</i>	-0.3303393	0.00083973	0.13715958
AC093525.9	<i>Solobacterium</i>	-0.3298648	0.00085523	0.13715958
RNPEPL1	<i>Granulicatella</i>	-0.3287005	0.00089439	0.13715958
HSF1	<i>Ruminococcus_torques_group</i>	-0.3284972	0.00090139	0.13715958
ANKRD36C	<i>Solobacterium</i>	-0.3278682	0.00092337	0.13715958
RPS15AP24	<i>Granulicatella</i>	-0.3276326	0.00093173	0.13715958
CDC42EP1	<i>Haemophilus</i>	-0.3275042	0.00093631	0.13715958
UAP1L1	<i>Haemophilus</i>	-0.3263093	0.00097997	0.14056413
DNM1P47	<i>Solobacterium</i>	-0.3251613	0.00102365	0.14383386
AC012615.4	<i>Granulicatella</i>	-0.323283	0.00109896	0.14836004
AC131568.1	<i>Granulicatella</i>	-0.3217529	0.00116401	0.15057846

C17orf113	<i>Ruminococcus_torques_group</i>	-0.3209207	0.00120083	0.15057846
AL133227.1	<i>Solobacterium</i>	-0.3204384	0.00122266	0.15057846
POM121B	<i>Solobacterium</i>	-0.3195361	0.00126446	0.15057846
GRIN2C	<i>Granulicatella</i>	-0.3192134	0.00127972	0.15057846
SLC1A5	<i>Haemophilus</i>	-0.3191136	0.00128448	0.15057846
NAV1	<i>Ruminococcus_torques_group</i>	-0.3186743	0.0013056	0.15057846
YTHDF2	<i>Marvinbryantia</i>	-0.3178624	0.00134545	0.15057846
IFITM3P2	<i>Solobacterium</i>	-0.317512	0.001363	0.15057846
AC108010.1	<i>Solobacterium</i>	-0.3167723	0.00140071	0.15057846
HSF1	<i>Granulicatella</i>	-0.3133272	0.00158916	0.15057846
EEF1A1P9	<i>Granulicatella</i>	-0.312943	0.00161153	0.15057846
UBQLN4P1	<i>Granulicatella</i>	-0.31181	0.0016792	0.15057846
NCOR2	<i>Granulicatella</i>	-0.3117188	0.00168476	0.15057846
DAGLA	<i>Haemophilus</i>	-0.3113898	0.00170495	0.15057846
Y_RNA.1	<i>Solobacterium</i>	-0.3106919	0.00174849	0.15057846
H3.5	<i>Granulicatella</i>	-0.3102017	0.00177968	0.15057846
RPL37P23	<i>Lachnospiraceae_FCS020_group</i>	-0.3092792	0.00183974	0.15057846
U73169.1	<i>Solobacterium</i>	-0.3092694	0.00184039	0.15057846
AL022098.1	<i>Solobacterium</i>	-0.3080826	0.00192037	0.15057846
AC073957.3	<i>Granulicatella</i>	-0.3078837	0.00193408	0.15057846
NNAT	<i>Solobacterium</i>	-0.3077005	0.00194678	0.15057846
SMG1P1	<i>Solobacterium</i>	-0.3074973	0.00196096	0.15057846
FOXK1	<i>Ruminococcus_torques_group</i>	-0.3070514	0.00199241	0.15057846
DNM1P47	<i>Granulicatella</i>	-0.3067897	0.00201107	0.15057846
AC093525.7	<i>Solobacterium</i>	-0.3065869	0.00202565	0.15057846
FLNA	<i>Solobacterium</i>	-0.3060748	0.00206287	0.15057846
AC233300.1	<i>Solobacterium</i>	-0.3060097	0.00206765	0.15057846
HECTD4	<i>Solobacterium</i>	-0.3055708	0.00210011	0.15057846
AL162430.1	<i>Granulicatella</i>	-0.3052986	0.00212047	0.15057846
ZNF213	<i>Haemophilus</i>	-0.3051381	0.00213256	0.15057846
AL732372.2	<i>Solobacterium</i>	-0.304701	0.0021658	0.15057846
PIEZO1	<i>Granulicatella</i>	-0.3044847	0.00218243	0.15057846
AC116158.3	<i>Solobacterium</i>	-0.3043108	0.00219587	0.15057846
SMG1P4	<i>Solobacterium</i>	-0.3041076	0.00221168	0.15057846
AC027290.2	<i>Granulicatella</i>	-0.3039573	0.00222344	0.15057846
SETD1B	<i>Solobacterium</i>	-0.3038231	0.00223399	0.15057846
TATDN2P2	<i>Solobacterium</i>	-0.3037174	0.00224232	0.15057846
MTRNR2L8	<i>Granulicatella</i>	-0.3033517	0.00227139	0.15057846
AL031717.1	<i>Granulicatella</i>	-0.3032476	0.00227973	0.15057846
RPS2P7	<i>Granulicatella</i>	-0.3031173	0.0022902	0.15057846
AC073046.1	<i>Solobacterium</i>	-0.3025794	0.00233389	0.15057846
C1orf74	<i>Marvinbryantia</i>	-0.3022015	0.00236504	0.15057846
ITPRIP.AS1	<i>Solobacterium</i>	-0.3020754	0.00237551	0.15057846

AC006059.1	<i>Solobacterium</i>	-0.3015551	0.00241918	0.15057846
H6PD	<i>Granulicatella</i>	-0.3009946	0.00246703	0.15057846
AL109615.4	<i>Haemophilus</i>	-0.3008206	0.00248205	0.15057846
AC012676.5	<i>Solobacterium</i>	-0.3007179	0.00249096	0.15057846
CAND2	<i>Ruminococcus_torques_group</i>	-0.3006121	0.00250017	0.15057846
MARVELD1	<i>Granulicatella</i>	-0.3005323	0.00250713	0.15057846
CIC	<i>Granulicatella</i>	-0.3004412	0.00251511	0.15057846
AC093525.8	<i>Granulicatella</i>	-0.2999528	0.00255823	0.15183999
TAGLN2P1	<i>Granulicatella</i>	-0.2987352	0.00266867	0.1544607
AL450998.1	<i>Lachnospiraceae_FCS020_group</i>	-0.2986943	0.00267245	0.1544607
CHST13	<i>Odoribacter</i>	-0.2986499	0.00267656	0.1544607
NCOR2	<i>Solobacterium</i>	-0.2984824	0.00269213	0.1544607
AC138028.2	<i>Solobacterium</i>	-0.2978972	0.00274715	0.15511686
AC012676.5	<i>Granulicatella</i>	-0.2974264	0.00279215	0.15629203
AL512625.3	<i>Solobacterium</i>	-0.2968404	0.00284907	0.15631963
AC124944.3	<i>Solobacterium</i>	-0.2966372	0.00286906	0.15631963
IFITM3P2	<i>Granulicatella</i>	-0.2963325	0.00289926	0.15631963
MIR6753	<i>Solobacterium</i>	-0.2962877	0.00290373	0.15631963
PDPK2P	<i>Solobacterium</i>	-0.2962633	0.00290616	0.15631963
FRMD3	<i>Ruminococcaceae_UCG.014</i>	-0.2958321	0.00294948	0.15742
AC138028.4	<i>Granulicatella</i>	-0.2942033	0.0031184	0.16131776
MEGF8	<i>Ruminococcus_torques_group</i>	-0.2940986	0.00312955	0.16131776
AC022150.4	<i>Solobacterium</i>	-0.2939872	0.00314145	0.16131776
ZNF460	<i>Solobacterium</i>	-0.2936783	0.00317466	0.16131776
LINC01347	<i>Granulicatella</i>	-0.2931224	0.00323524	0.16131776
SRCAP	<i>Solobacterium</i>	-0.2930849	0.00323936	0.16131776
A2M	<i>Solobacterium</i>	-0.2930045	0.00324821	0.16131776
CEP295NL	<i>Granulicatella</i>	-0.2924387	0.00331115	0.16131776
AC108449.2	<i>Solobacterium</i>	-0.2923289	0.00332349	0.16131776
BTBD19	<i>Granulicatella</i>	-0.2920024	0.00336042	0.16131776
AC027290.2	<i>Solobacterium</i>	-0.291768	0.00338717	0.16131776
RN7SK	<i>Flavonifractor</i>	-0.2913729	0.00343268	0.16131776
DCAF15	<i>Granulicatella</i>	-0.2912731	0.00344426	0.16131776
AC011379.2	<i>Granulicatella</i>	-0.2906155	0.00352146	0.16207498
AC018529.3	<i>Solobacterium</i>	-0.2903536	0.00355263	0.16207498
RPS10P5	<i>Granulicatella</i>	-0.2902118	0.00356961	0.16207498
NAV1	<i>Lachnospiraceae_FCS020_group</i>	-0.2901891	0.00357234	0.16207498
SSPOP	<i>Granulicatella</i>	-0.2899253	0.00360415	0.16207498
RPL37AP1	<i>Granulicatella</i>	-0.2896648	0.0036358	0.16207498
AC012557.1	<i>Solobacterium</i>	-0.2895895	0.003645	0.16207498
DGAT1	<i>Granulicatella</i>	-0.2889746	0.00372088	0.16207498
GPAT2	<i>Solobacterium</i>	-0.2882482	0.00381235	0.16207498
FOXK1	<i>Granulicatella</i>	-0.2879849	0.003846	0.16207498

AL442003.1	<i>Solobacterium</i>	-0.2869151	0.00398546	0.16207498
AC000123.3	<i>Solobacterium</i>	-0.2865412	0.00403526	0.16207498
SNCA	<i>Marvinbryantia</i>	-0.286415	0.00405218	0.16207498
EP300.AS1	<i>Solobacterium</i>	-0.2862079	0.00408011	0.16207498
RNF157.AS1	<i>Ruminococcus_torques_group</i>	-0.2860673	0.00409917	0.16207498
MMP15	<i>Granulicatella</i>	-0.2858468	0.00412922	0.16207498
AC215522.2	<i>Solobacterium</i>	-0.2858096	0.0041343	0.16207498
CFLAR.AS1	<i>Solobacterium</i>	-0.2854519	0.00418351	0.16207498
MTRNR2L12	<i>Granulicatella</i>	-0.2854259	0.00418711	0.16207498
SOGA1	<i>Granulicatella</i>	-0.2852631	0.0042097	0.16207498
UAP1L1	<i>Granulicatella</i>	-0.285159	0.00422421	0.16207498
TSPAN4	<i>Haemophilus</i>	-0.2849703	0.00425061	0.16207498
AL136171.2	<i>Solobacterium</i>	-0.2849073	0.00425945	0.16207498
AL031717.1	<i>Solobacterium</i>	-0.2842245	0.00435639	0.16207498
NDUFA4P1	<i>Granulicatella</i>	-0.2840976	0.00437462	0.16207498
DCAF15	<i>Ruminococcus_torques_group</i>	-0.2839973	0.00438907	0.16207498
PROSER3	<i>Solobacterium</i>	-0.2836067	0.00444579	0.16207498
MMP15	<i>Solobacterium</i>	-0.283067	0.00452522	0.16207498
MTCO3P12	<i>Ruminococcaceae_UCG.014</i>	-0.282907	0.00454901	0.16207498
FLNA	<i>Granulicatella</i>	-0.2824177	0.00462247	0.16207498
AC068896.1	<i>Granulicatella</i>	-0.2820856	0.00467292	0.16207498
FAM157C	<i>Solobacterium</i>	-0.2819078	0.00470014	0.16207498
TRAV13.1	<i>Marvinbryantia</i>	-0.2812432	0.00480311	0.16207498
PRKXP1	<i>Haemophilus</i>	-0.2812338	0.00480458	0.16207498
RPS11P5	<i>Granulicatella</i>	-0.2811675	0.00481496	0.16207498
AC131568.1	<i>Solobacterium</i>	-0.2811518	0.00481742	0.16207498
PRDX3P1	<i>Solobacterium</i>	-0.2811111	0.0048238	0.16207498
PKD1	<i>Granulicatella</i>	-0.280855	0.00486418	0.16207498
ACTBP11	<i>Solobacterium</i>	-0.2808348	0.00486738	0.16207498
POM121B	<i>Granulicatella</i>	-0.2806205	0.0049014	0.16207498
SNAI1	<i>Ruminococcus_torques_group</i>	-0.2804723	0.00492505	0.16207498
AC138035.1	<i>Solobacterium</i>	-0.2804446	0.0049295	0.16207498
FAT2	<i>Granulicatella</i>	-0.2804	0.00493664	0.16207498
KCNQ1OT1	<i>Granulicatella</i>	-0.280282	0.0049556	0.16207498
FAM157B	<i>Solobacterium</i>	-0.2802251	0.00496475	0.16207498
ACTG1P14	<i>Granulicatella</i>	-0.2794159	0.00509665	0.16207498
CAND2	<i>Lachnospiraceae_FCS020_group</i>	-0.2792372	0.00512621	0.16207498
ACACA	<i>Lachnospiraceae_FCS020_group</i>	-0.2790441	0.00515832	0.16207498
CEP295NL	<i>Solobacterium</i>	-0.2790139	0.00516335	0.16207498
AC006059.1	<i>Granulicatella</i>	-0.2789406	0.00517559	0.16207498
PEG13	<i>Ruminococcus_torques_group</i>	-0.2788818	0.00518543	0.16207498
IQSEC2	<i>Granulicatella</i>	-0.278856	0.00518976	0.16207498
RPL10P6	<i>Granulicatella</i>	-0.2787974	0.00519959	0.16207498

AC131212.2	<i>Solobacterium</i>	-0.2787782	0.00520281	0.16207498
ZNF460	<i>Granulicatella</i>	-0.2785499	0.00524127	0.16207498
AP001922.3	<i>Solobacterium</i>	-0.2783717	0.00527148	0.16207498
ACTBP2	<i>Solobacterium</i>	-0.2782335	0.00529501	0.16207498
EPPK1	<i>Ruminococcus_torques_group</i>	-0.2777869	0.00537171	0.16207498
GTF2IP13	<i>Granulicatella</i>	-0.2777686	0.00537488	0.16207498
ST14	<i>Granulicatella</i>	-0.2777425	0.00537938	0.16207498
ATP5PDP4	<i>Granulicatella</i>	-0.277736	0.00538051	0.16207498
GPAT2	<i>Saccharimonadales_norank</i>	-0.2775979	0.00540447	0.16207498
KLHL11	<i>Solobacterium</i>	-0.2775019	0.00542116	0.16207498
OBSCN	<i>Ruminococcus_torques_group</i>	-0.2772982	0.00545675	0.16207498
AL161725.1	<i>Solobacterium</i>	-0.2771605	0.00548093	0.16207498
SMG1P3	<i>Solobacterium</i>	-0.2770305	0.00550386	0.16207498
AC084871.1	<i>Solobacterium</i>	-0.2768679	0.00553263	0.16207498
PKD1	<i>Ruminococcus_torques_group</i>	-0.2766611	0.00556943	0.16207498
PLEC	<i>Ruminococcus_torques_group</i>	-0.2766302	0.00557495	0.16207498
AL513190.1	<i>Granulicatella</i>	-0.2764793	0.00560195	0.16207498
CELSR2	<i>Solobacterium</i>	-0.2761688	0.0056579	0.1624376
SOGA1	<i>Solobacterium</i>	-0.2761444	0.00566231	0.1624376
PLBD2	<i>Haemophilus</i>	-0.2755366	0.00577334	0.16319692
MMP15	<i>Ruminococcus_torques_group</i>	-0.275499	0.00578027	0.16319692
AC073957.3	<i>Ruminococcus_torques_group</i>	-0.2752817	0.00582048	0.16319692
AC099521.2	<i>Solobacterium</i>	-0.2749007	0.00589156	0.16319692
NCOR2	<i>Ruminococcus_torques_group</i>	-0.2748116	0.00590831	0.16319692
AC093330.3	<i>Granulicatella</i>	-0.2748059	0.00590938	0.16319692
EEF1A1P9	<i>Lachnospiraceae_FCS020_group</i>	-0.2747947	0.00591149	0.16319692
STING1	<i>Granulicatella</i>	-0.2744543	0.00597584	0.16319692
ST14	<i>Ruminococcus_torques_group</i>	-0.274026	0.0060577	0.16319692
PLXND1	<i>Ruminococcus_torques_group</i>	-0.2739208	0.00607795	0.16319692
PLBD2	<i>Granulicatella</i>	-0.2739073	0.00608055	0.16319692
WNT16	<i>Ruminococcaceae_UCG.014</i>	-0.2738982	0.00608232	0.16319692
IGHV2.5	<i>Dorea</i>	-0.2738509	0.00609145	0.16319692
AL033519.3	<i>Lachnospiraceae_FCS020_group</i>	-0.2736615	0.00612814	0.16319692
AC240565.2	<i>Solobacterium</i>	-0.2733969	0.00617974	0.16319692
NAV1	<i>Dorea</i>	-0.2732096	0.00621649	0.16319692
AC007878.1	<i>Granulicatella</i>	-0.2729501	0.00626772	0.16319692
AC018445.5	<i>Granulicatella</i>	-0.2728004	0.00629746	0.16319692
GRIN2C	<i>Ruminococcus_torques_group</i>	-0.2727641	0.00630468	0.16319692
FAM83G	<i>Lachnospiraceae_FCS020_group</i>	-0.2727215	0.00631318	0.16319692
AC118344.2	<i>Haemophilus</i>	-0.2726847	0.00632051	0.16319692
EEF1A1P9	<i>Butyrivibrio</i>	-0.2725892	0.0063396	0.16319692
FAUP1	<i>Granulicatella</i>	-0.2722404	0.00640977	0.16319692
NTSR1	<i>Lachnospiraceae_FCS020_group</i>	-0.2722257	0.00641275	0.16319692

PHETA1	<i>Ruminococcus_torques_group</i>	-0.2721517	0.00642772	0.16319692
CACNG6	<i>Odoribacter</i>	-0.2707152	0.00672473	0.16748294
IQSEC2	<i>Haemophilus</i>	-0.2705326	0.00676335	0.16748294
ESR1	<i>Solobacterium</i>	-0.2704217	0.00678689	0.16748294
ATP5MC2P3	<i>Ruminococcus_torques_group</i>	-0.2702775	0.00681763	0.1675762
AC020978.9	<i>Granulicatella</i>	-0.2701503	0.00684483	0.1675762
CARD14	<i>Lachnospiraceae_FCS020_group</i>	-0.2700624	0.00686369	0.1675762
HSPE1P18	<i>Solobacterium</i>	-0.2696657	0.00694934	0.16861102
CCDC200	<i>Haemophilus</i>	-0.2695952	0.00696467	0.16861102
NID1	<i>Haemophilus</i>	-0.2693311	0.00702233	0.16861102
AC008026.1	<i>Granulicatella</i>	-0.2692908	0.00703118	0.16861102
PIEZO1	<i>Ruminococcus_torques_group</i>	-0.2692197	0.00704679	0.16861102
PLXNB2	<i>Haemophilus</i>	-0.2690803	0.0070775	0.16861102
MTCO3P12	<i>Lachnospiraceae_FCS020_group</i>	-0.2689614	0.00710378	0.16865346
RNF157.AS1	<i>Saccharimonadales_norank</i>	-0.2685413	0.00719733	0.16958464
ZBTB37	<i>Solobacterium</i>	-0.2683326	0.00724419	0.16958464
MEGF8	<i>Solobacterium</i>	-0.2682757	0.00725702	0.16958464
TAPBP	<i>Haemophilus</i>	-0.2682353	0.00726615	0.16958464
ADPGK.AS1	<i>Granulicatella</i>	-0.2678713	0.00734878	0.16980972
CICP7	<i>Solobacterium</i>	-0.2672645	0.00748836	0.17185776
AC068896.1	<i>Solobacterium</i>	-0.2664549	0.00767824	0.17503544
AC141586.5	<i>Solobacterium</i>	-0.2662435	0.00772851	0.17503544
AL033519.3	<i>Granulicatella</i>	-0.2656965	0.00785995	0.1768489
FAT2	<i>Solobacterium</i>	-0.2650453	0.00801898	0.17925545
FOSB	<i>Lachnospiraceae_FCS020_group</i>	-0.264551	0.00814159	0.18092874
AC005921.3	<i>Granulicatella</i>	-0.2644268	0.00817267	0.18092874
OBSCN	<i>Dorea</i>	-0.2632749	0.00846579	0.18459026
EPPK1	<i>Lachnospiraceae_FCS020_group</i>	-0.2632504	0.00847212	0.18459026
KRT17P8	<i>Solobacterium</i>	-0.2625457	0.00865611	0.18682536
FASN	<i>Ruminococcus_torques_group</i>	-0.2623227	0.00871506	0.18705935
ADGRA2	<i>Haemophilus</i>	-0.2616865	0.00888517	0.18939446
AC007878.1	<i>Solobacterium</i>	-0.260846	0.0091144	0.19296711
AL683842.1	<i>Solobacterium</i>	-0.2607646	0.00913686	0.19296711
FCGBP	<i>Granulicatella</i>	-0.2601162	0.00931761	0.19618268
NT5C3A	<i>Ruminococcaceae_UCG.014</i>	-0.2596329	0.00945437	0.19673226
CSF1	<i>Odoribacter</i>	-0.2595712	0.00947198	0.19673226
PGAM5	<i>Ruminococcus_torques_group</i>	-0.2594834	0.00949703	0.19673226
FAM20C	<i>Haemophilus</i>	-0.2594354	0.00951079	0.19673226
NDUFA4P1	<i>Lachnospiraceae_FCS020_group</i>	-0.2594195	0.00951532	0.19673226
ACTBP11	<i>Granulicatella</i>	-0.258853	0.00967879	0.19892084
OBSCN	<i>Lachnospiraceae_FCS020_group</i>	-0.2583958	0.00981251	0.2004723
MTCO3P12	<i>Granulicatella</i>	-0.2572122	0.01016627	0.20422895
ABCA2	<i>Solobacterium</i>	-0.2571392	0.01018843	0.20422895

LINC02604	<i>Granulicatella</i>	-0.2570689	0.01020983	0.20422895
ARPIN	<i>Haemophilus</i>	-0.2569796	0.01023708	0.20422895
RPS4XP3	<i>Granulicatella</i>	-0.2569126	0.01025754	0.20422895
AMIGO3	<i>Granulicatella</i>	-0.2568801	0.0102675	0.20422895
SDK2	<i>Granulicatella</i>	-0.2567238	0.01031544	0.20422895
AC114878.2	<i>Solobacterium</i>	-0.2567003	0.01032268	0.20422895
PEG13	<i>Solobacterium</i>	-0.2562857	0.0104509	0.2046868
LHX4	<i>Solobacterium</i>	-0.2561231	0.01050156	0.2046868
EPHB3	<i>Lachnospiraceae_FCS020_group</i>	-0.2559234	0.01056408	0.2046868
SLC1A5	<i>Granulicatella</i>	-0.2556364	0.01065452	0.2046868
LIMD1.AS1	<i>Haemophilus</i>	-0.2556263	0.01065773	0.2046868
Z95152.1	<i>Solobacterium</i>	-0.2556029	0.01066513	0.2046868
RPS2P7	<i>Solobacterium</i>	-0.2555785	0.01067285	0.2046868
AC104447.1	<i>Solobacterium</i>	-0.2552046	0.01079186	0.20582257
NT5C3A	<i>Marvinbryantia</i>	-0.2550403	0.0108445	0.20625527
STYX	<i>Ruminococcaceae_UCG.014</i>	-0.2547339	0.0109433	0.20699064
FOSB	<i>Dorea</i>	-0.2541021	0.01114954	0.20917569
CACNG6	<i>Granulicatella</i>	-0.2540737	0.01115888	0.20917569
RPL37P23	<i>Granulicatella</i>	-0.2540086	0.01118034	0.20917569
AC141586.5	<i>Granulicatella</i>	-0.253416	0.0113773	0.21118552
RPL10P6	<i>Ruminococcus_torques_group</i>	-0.2529823	0.01152339	0.21118552
PZP	<i>Ruminococcus_torques_group</i>	-0.2527658	0.01159693	0.21118552
THEM6	<i>Lachnospiraceae_FCS020_group</i>	-0.2526913	0.01162231	0.21118552
AC093512.2	<i>Ruminococcus_torques_group</i>	-0.2526606	0.01163279	0.21118552
AC008443.5	<i>Solobacterium</i>	-0.2525827	0.01165943	0.21118552
SMG1P6	<i>Granulicatella</i>	-0.2524914	0.0116907	0.21118552
LRP3	<i>Granulicatella</i>	-0.2524328	0.01171081	0.21118552
YTHDF2	<i>Akkermansia</i>	-0.2523248	0.01174798	0.21118552
AC245060.6	<i>Granulicatella</i>	-0.2521854	0.01179608	0.21118552
GIMAP7	<i>Marvinbryantia</i>	-0.2521274	0.01181613	0.21118552
PLXNB2	<i>Granulicatella</i>	-0.2520617	0.01183891	0.21118552
MARVELD1	<i>Haemophilus</i>	-0.2520548	0.01184129	0.21118552
AC009951.4	<i>Granulicatella</i>	-0.2519705	0.01187056	0.21118552
HSD3B7	<i>Odoribacter</i>	-0.2518007	0.0119297	0.2112928
RPS15AP24	<i>Lachnospiraceae_FCS020_group</i>	-0.2517771	0.01193797	0.2112928
LINC00494	<i>Dorea</i>	-0.2511175	0.01217032	0.21345313
RPS11P5	<i>Ruminococcus_torques_group</i>	-0.2511142	0.01217148	0.21345313
CEP19	<i>Akkermansia</i>	-0.2510789	0.01218403	0.21345313
AP003108.3	<i>Solobacterium</i>	-0.2509857	0.01221721	0.21349102
EGR1	<i>Haemophilus</i>	-0.2508269	0.01227392	0.21361029
PIEZO1	<i>Solobacterium</i>	-0.2506931	0.0123219	0.21361029
GAA	<i>Granulicatella</i>	-0.2505185	0.01238473	0.21361029
ZNF469	<i>Granulicatella</i>	-0.2504469	0.01241059	0.21361029

TMPPE	<i>Granulicatella</i>	-0.2503622	0.01244121	0.21361029
AC005261.5	<i>Lachnospiraceae_FCS020_group</i>	-0.2501705	0.01251079	0.21382574
HIF1A.AS3	<i>Solobacterium</i>	-0.2501566	0.01251587	0.21382574
EEF1A1P9	<i>Ruminococcus_torques_group</i>	-0.2499266	0.01259984	0.21472751
SLC4A1	<i>Lachnospiraceae_FCS020_group</i>	-0.2497626	0.01266	0.21522004
ZFH3	<i>Haemophilus</i>	-0.2496386	0.01270565	0.21525476
ATP2A3	<i>Granulicatella</i>	-0.2495873	0.01272457	0.21525476
CALCRL	<i>Haemophilus</i>	-0.2491179	0.01289898	0.2156593
AL109615.4	<i>Ruminococcus_torques_group</i>	-0.2488131	0.01301331	0.2156593
RNF157.AS1	<i>Lachnospiraceae_FCS020_group</i>	-0.2487872	0.01302309	0.2156593
AC008026.1	<i>Lachnospiraceae_FCS020_group</i>	-0.248751	0.01303673	0.2156593
ATP5MC2P3	<i>Granulicatella</i>	-0.2486823	0.01306267	0.2156593
TRAV13.1	<i>Ruminococcaceae_UCG.014</i>	-0.2486437	0.01307726	0.2156593
CYP2S1	<i>Haemophilus</i>	-0.2485164	0.01312549	0.2156593
TSPAN4	<i>Ruminococcus_torques_group</i>	-0.2484544	0.01314903	0.2156593
NCKAP5L	<i>Haemophilus</i>	-0.2483843	0.01317566	0.2156593
AC010531.3	<i>Solobacterium</i>	-0.24823	0.01323451	0.2156593
RPL11P3	<i>Solobacterium</i>	-0.2480024	0.01332174	0.2156593
FAM106A	<i>Saccharimonadales_norank</i>	-0.24796	0.01333805	0.2156593
CCDC200	<i>Ruminococcus_torques_group</i>	-0.2479348	0.01334777	0.2156593
IGHV1.18	<i>Dorea</i>	-0.247865	0.01337465	0.2156593
FOXK1	<i>Solobacterium</i>	-0.2478642	0.01337495	0.2156593
MMP24	<i>Solobacterium</i>	-0.2476122	0.01347245	0.21621861
AC020978.9	<i>Ruminococcus_torques_group</i>	-0.2474337	0.01354189	0.21638112
AC144530.1	<i>Lachnospiraceae_FCS020_group</i>	-0.2474246	0.01354543	0.21638112
FASN	<i>Solobacterium</i>	-0.2472708	0.01360552	0.21638615
MEGF8	<i>Granulicatella</i>	-0.2471456	0.01365463	0.21638615
CICP14	<i>Solobacterium</i>	-0.2469701	0.0137237	0.21638615
AC005540.1	<i>Ruminococcus_torques_group</i>	-0.2469218	0.01374277	0.21638615
AC012618.2	<i>Haemophilus</i>	-0.246899	0.01375177	0.21638615
POLRMTP1	<i>Granulicatella</i>	-0.2468396	0.01377526	0.21638615
AHR	<i>Lachnospiraceae_FCS020_group</i>	-0.246388	0.01395493	0.21686697
LINC02604	<i>Ruminococcus_torques_group</i>	-0.2462337	0.01401682	0.21686697
AL162430.1	<i>Butyrivibrio</i>	-0.2459641	0.0141255	0.21731098
AP000936.3	<i>Granulicatella</i>	-0.2458694	0.01416385	0.21731098
FASN	<i>Granulicatella</i>	-0.2458498	0.01417177	0.21731098
AC127070.4	<i>Solobacterium</i>	-0.2456369	0.01425834	0.21815163
Y_RNA.1	<i>Ruminococcus_torques_group</i>	-0.2455595	0.01428996	0.21815163
LRP1	<i>Granulicatella</i>	-0.2454396	0.01433899	0.21841588
KCNAB1	<i>Solobacterium</i>	-0.245263	0.01441151	0.21870845
AC114878.2	<i>Granulicatella</i>	-0.2450945	0.014481	0.21907656
EEF1A1P9	<i>Ruminococcaceae_UCG.014</i>	-0.2450252	0.01450965	0.21907656
GRIN2C	<i>Solobacterium</i>	-0.2448891	0.01456611	0.21944783

HBD	<i>Lachnospiraceae_FCS020_group</i>	-0.2444737	0.01473952	0.21990182
AC099521.2	<i>Granulicatella</i>	-0.2444629	0.01474406	0.21990182
AC090114.3	<i>Solobacterium</i>	-0.2443688	0.01478359	0.21990182
AL022098.1	<i>Granulicatella</i>	-0.2441764	0.01486475	0.21990182
AC124944.3	<i>Granulicatella</i>	-0.2439094	0.01497798	0.21990182
PPARGC1B	<i>Butyricicoccus</i>	-0.2438288	0.0150123	0.2199143
EEF1A1P19	<i>Lachnospiraceae_FCS020_group</i>	-0.2437289	0.01505495	0.22007077
SELENON	<i>Ruminococcus_torques_group</i>	-0.2435244	0.01514262	0.22088329
FAM83G	<i>Dorea</i>	-0.2434303	0.01518305	0.22100493
AC093512.2	<i>Granulicatella</i>	-0.2430044	0.01536744	0.22321688
PLEC	<i>Granulicatella</i>	-0.2426202	0.01553538	0.22470818
BAHCC1	<i>Granulicatella</i>	-0.2415393	0.01601646	0.22650643
LINC00494	<i>Lachnospiraceae_FCS020_group</i>	-0.2415052	0.01603184	0.22650643
ABHD14A.ACY1	<i>Granulicatella</i>	-0.2414677	0.01604879	0.22650643
NAV1	<i>Granulicatella</i>	-0.2414026	0.01607823	0.22650643
AC008676.3	<i>Solobacterium</i>	-0.2412847	0.01613163	0.22650643
PTGDR2	<i>Granulicatella</i>	-0.2412463	0.01614907	0.22650643
PEG13	<i>Lachnospiraceae_FCS020_group</i>	-0.2411793	0.01617952	0.22650643
FAUP1	<i>Lachnospiraceae_FCS020_group</i>	-0.2410892	0.01622057	0.22650643
CIC	<i>Ruminococcus_torques_group</i>	-0.2409759	0.0162723	0.22650643
LINC02604	<i>Solobacterium</i>	-0.2408328	0.01633783	0.22650643
STEAP3	<i>Haemophilus</i>	-0.2407859	0.01635935	0.22650643
AC011979.1	<i>Granulicatella</i>	-0.2407449	0.01637819	0.22650643
CCDC200	<i>Granulicatella</i>	-0.2406342	0.01642915	0.22668279
AC118344.2	<i>Solobacterium</i>	-0.2403125	0.01657802	0.22781185
C17orf113	<i>Lachnospiraceae_FCS020_group</i>	-0.2402433	0.01661025	0.22781185
ACAP2.IT1	<i>Solobacterium</i>	-0.2400199	0.01671447	0.2283316
MLLT6	<i>Ruminococcus_torques_group</i>	-0.2399057	0.01676797	0.22860885
PLXND1	<i>Granulicatella</i>	-0.2394882	0.01696487	0.22899805
AC108704.2	<i>Solobacterium</i>	-0.2393777	0.0170173	0.22899805
SNX33	<i>Granulicatella</i>	-0.2393124	0.01704837	0.22899805
AC138035.1	<i>Granulicatella</i>	-0.2392278	0.01708871	0.22899805
CCRL2	<i>Flavonifractor</i>	-0.2392026	0.0171007	0.22899805
PGAM5	<i>Granulicatella</i>	-0.2391431	0.01712912	0.22899805
BAHCC1	<i>Haemophilus</i>	-0.238779	0.01730389	0.23035264
RPL11P3	<i>Ruminococcus_torques_group</i>	-0.238582	0.01739911	0.23035264
SMG1P4	<i>Lachnospiraceae_FCS020_group</i>	-0.2385653	0.01740721	0.23035264
EPPK1	<i>Dorea</i>	-0.2385559	0.01741176	0.23035264
AC124944.3	<i>Ruminococcus_torques_group</i>	-0.2384026	0.0174862	0.23048136
AMIGO3	<i>Ruminococcus_torques_group</i>	-0.2378397	0.01776192	0.23048136
PA2G4P6	<i>Solobacterium</i>	-0.2376348	0.01786321	0.23048136
MIR6753	<i>Granulicatella</i>	-0.2374176	0.01797114	0.23048136
AC011379.2	<i>Haemophilus</i>	-0.2374059	0.01797697	0.23048136

AC243964.4	<i>Ruminococcus_torques_group</i>	-0.2373943	0.01798272	0.23048136
PHETA1	<i>Granulicatella</i>	-0.237385	0.01798736	0.23048136
MGRN1	<i>Granulicatella</i>	-0.2373785	0.01799061	0.23048136
FLNA	<i>Ruminococcus_torques_group</i>	-0.2373634	0.01799815	0.23048136
KCNQ1OT1	<i>Solobacterium</i>	-0.2373374	0.01801113	0.23048136
GBP6	<i>Marvinbryantia</i>	-0.2372261	0.01806677	0.23048136
Z83843.1	<i>Solobacterium</i>	-0.2371098	0.01812504	0.23048136
AP003108.3	<i>Ruminococcus_torques_group</i>	-0.2371036	0.01812813	0.23048136
AC104447.1	<i>Haemophilus</i>	-0.2371022	0.01812883	0.23048136
SLC45A3	<i>Haemophilus</i>	-0.2371022	0.01812883	0.23048136
AC122129.1	<i>Ruminococcus_torques_group</i>	-0.2370665	0.01814677	0.23048136
AC073957.3	<i>Solobacterium</i>	-0.2370529	0.01815361	0.23048136
PKD1	<i>Solobacterium</i>	-0.2369391	0.01821087	0.23048136
ATP5MC2P3	<i>Dorea</i>	-0.2366544	0.01835478	0.23162782
FSCN1	<i>Granulicatella</i>	-0.2364734	0.0184468	0.23218684
PLXNA1	<i>Granulicatella</i>	-0.2361283	0.01862335	0.23313043
ATP2A3	<i>Ruminococcus_torques_group</i>	-0.2359407	0.01871995	0.23349175
NCKAP5L	<i>Granulicatella</i>	-0.2358093	0.01878786	0.23349175
CACNA1D	<i>Granulicatella</i>	-0.2356375	0.01887698	0.23369577
ADAT3	<i>Parasutterella</i>	-0.2355587	0.01891795	0.23369577
KMT2D	<i>Granulicatella</i>	-0.2355163	0.01894005	0.23369577
LRP3	<i>Ruminococcus_torques_group</i>	-0.2352479	0.01908036	0.23491397
RPL37P6	<i>Granulicatella</i>	-0.2348651	0.01928205	0.23547284
RPS3AP25	<i>Granulicatella</i>	-0.23452	0.01946545	0.23720288
PPARGC1B	<i>Ruminococcus_torques_group</i>	-0.2342149	0.01962886	0.23825921
TTYH3	<i>Haemophilus</i>	-0.2341645	0.01965595	0.23825921
ACTG1P20	<i>Solobacterium</i>	-0.2339233	0.01978613	0.23941565
A2M	<i>Ruminococcus_torques_group</i>	-0.2338259	0.01983888	0.23950201
RNPEPL1	<i>Ruminococcus_torques_group</i>	-0.2336706	0.0199233	0.23950201
PLBD2	<i>Solobacterium</i>	-0.2336307	0.01994504	0.23950201
CBL	<i>Solobacterium</i>	-0.23359	0.0199672	0.23950201
MIF	<i>Ruminococcus_torques_group</i>	-0.2334974	0.02001778	0.23969118
RNF157.AS1	<i>Dorea</i>	-0.2334035	0.02006915	0.2397511
AL109615.4	<i>Granulicatella</i>	-0.233361	0.02009243	0.2397511
SETD1B	<i>Granulicatella</i>	-0.2330615	0.02025725	0.2400262
H6PD	<i>Solobacterium</i>	-0.2330454	0.02026615	0.2400262
GBP6	<i>Haemophilus</i>	-0.232864	0.02036655	0.2400262
ANAPC1P1	<i>Lachnospiraceae_FCS020_group</i>	-0.2327606	0.02042397	0.2400262
RNPEPL1	<i>Solobacterium</i>	-0.2325739	0.02052805	0.2400262
RTEL1.TNFRSF6 B	<i>Granulicatella</i>	-0.2324104	0.02061957	0.2400801
AC000123.3	<i>Lachnospiraceae_FCS020_group</i>	-0.2321912	0.02074277	0.2401786
PLXNA1	<i>Ruminococcus_torques_group</i>	-0.2321056	0.02079106	0.2401786

POM121B	<i>Ruminococcus_torques_group</i>	-0.2316478	0.02105092	0.24196259
AC020916.1	<i>Haemophilus</i>	-0.2313985	0.02119366	0.24238931
BMS1P1	<i>Solobacterium</i>	-0.2311514	0.02133592	0.24311142
SNCA	<i>Ruminococcaceae_UCG.014</i>	-0.2311025	0.02136414	0.24311142
CEBPA	<i>Granulicatella</i>	-0.2308932	0.02148541	0.24370194
TRAV13.2	<i>Marvinbryantia</i>	-0.230753	0.02156701	0.24372072
ANAPC1P1	<i>Dorea</i>	-0.2307176	0.02158764	0.24372072
AC004877.1	<i>Dorea</i>	-0.2306714	0.0216146	0.24372072
INTS5	<i>Ruminococcus_torques_group</i>	-0.2303798	0.0217854	0.24489848
RPS4XP3	<i>Parasutterella</i>	-0.230343	0.02180703	0.24489848
PTPRS	<i>Solobacterium</i>	-0.2302734	0.02184798	0.24489848
SHOC1	<i>Solobacterium</i>	-0.2301922	0.02189592	0.24489848
ZNF213	<i>Solobacterium</i>	-0.230119	0.02193914	0.24489848
RPS3AP25	<i>Lachnospiraceae_FCS020_group</i>	-0.2295707	0.0222654	0.24725372
SMG1P4	<i>Granulicatella</i>	-0.229083	0.02255908	0.24801359
SH3PXD2B	<i>Haemophilus</i>	-0.2290622	0.0225717	0.24801359
GBP6	<i>Ruminococcaceae_UCG.014</i>	-0.2290178	0.02259861	0.24801359
BTBD19	<i>Lachnospiraceae_FCS020_group</i>	-0.2290041	0.02260692	0.24801359
AC006059.1	<i>Ruminococcus_torques_group</i>	-0.22892	0.02265803	0.24801359
SNX33	<i>Solobacterium</i>	-0.2285095	0.02290871	0.24956724
STEAP3	<i>Marvinbryantia</i>	0.22857323	0.02286963	0.24953628
AL133444.1	<i>Haemophilus</i>	0.22870502	0.022789	0.24905124
FAUP1	<i>Flavonifractor</i>	0.22893809	0.02264701	0.24801359
PHETA1	<i>Akkermansia</i>	0.22901419	0.02260081	0.24801359
AC008026.1	<i>Akkermansia</i>	0.22913951	0.02252491	0.24801359
PGA3	<i>Flavonifractor</i>	0.22932878	0.02241068	0.24801359
RPL37P23	<i>Akkermansia</i>	0.22969979	0.02218822	0.24679468
AC144530.1	<i>Akkermansia</i>	0.23004628	0.02198217	0.24489848
AL512625.3	<i>Marvinbryantia</i>	0.23008583	0.02195876	0.24489848
LRP1	<i>Marvinbryantia</i>	0.23064727	0.02162866	0.24372072
AC079793.1	<i>Parasutterella</i>	0.2310439	0.02139804	0.24311142
AC006059.1	<i>Flavonifractor</i>	0.23124591	0.02128139	0.24298904
ACTG1P20	<i>Flavonifractor</i>	0.23141296	0.02118534	0.24238931
C3orf33	<i>Solobacterium</i>	0.23156496	0.02109827	0.24210264
AC055811.4	<i>Bacteroides</i>	0.2318491	0.02093632	0.2410478
TAGLN2P1	<i>Akkermansia</i>	0.23198514	0.02085917	0.24056173
ST14	<i>Akkermansia</i>	0.23214733	0.0207675	0.2401786
INTS5	<i>Akkermansia</i>	0.23229477	0.02068446	0.24015603
EEF1A1P9	<i>Akkermansia</i>	0.23236849	0.02064305	0.2400801
RPS4XP3	<i>Akkermansia</i>	0.23250119	0.02056869	0.2400262
ZNF766	<i>Solobacterium</i>	0.23254952	0.02054167	0.2400262
CACNA1D	<i>Marvinbryantia</i>	0.2325635	0.02053386	0.2400262
ABHD14A.ACY1	<i>Flavonifractor</i>	0.23261327	0.02050607	0.2400262

FASN	<i>Marvinbryantia</i>	0.23266846	0.02047529	0.2400262
AC118344.2	<i>Flavonifractor</i>	0.23292263	0.02033406	0.2400262
PLEKHG2	<i>Ruminococcaceae_UCG.014</i>	0.23294895	0.02031948	0.2400262
AC005261.5	<i>Bacteroides</i>	0.23321253	0.02017399	0.2400262
CCL5	<i>Ruminococcus_torques_group</i>	0.23368293	0.01991657	0.23950201
TRIM6	<i>Granulicatella</i>	0.23440934	0.01952459	0.23750324
FCGR1A	<i>Parasutterella</i>	0.23485148	0.01928928	0.23547284
AC079781.5	<i>Odoribacter</i>	0.23497127	0.01922594	0.23547284
CSNK1G2.AS1	<i>Marvinbryantia</i>	0.23513221	0.01914114	0.23491397
MTCO3P12	<i>Flavonifractor</i>	0.23514383	0.01913502	0.23491397
HSPE1P18	<i>Bacteroides</i>	0.23563389	0.01887884	0.23369577
ANAPC1P1	<i>Flavonifractor</i>	0.23582115	0.01878172	0.23349175
AC084871.1	<i>Ruminococcaceae_UCG.014</i>	0.23589729	0.01874236	0.23349175
A2M	<i>Marvinbryantia</i>	0.23626243	0.01855458	0.23269268
AC005540.1	<i>Marvinbryantia</i>	0.23636808	0.01850055	0.23243844
AC093525.7	<i>Ruminococcaceae_UCG.014</i>	0.23662693	0.01836874	0.23162782
PLEKHG2	<i>Marvinbryantia</i>	0.23698827	0.01818611	0.23048136
CCL5	<i>Granulicatella</i>	0.23701389	0.01817321	0.23048136
AC022150.4	<i>Flavonifractor</i>	0.2372846	0.0180375	0.23048136
AP003108.3	<i>Marvinbryantia</i>	0.2375365	0.01791199	0.23048136
PAM16	<i>Marvinbryantia</i>	0.23789318	0.01773557	0.23048136
ZNF213	<i>Flavonifractor</i>	0.23851585	0.01743119	0.23035264
RPS3AP25	<i>Akkermansia</i>	0.23866426	0.0173593	0.23035264
CIC	<i>Marvinbryantia</i>	0.23937936	0.01701653	0.22899805
RALB	<i>Granulicatella</i>	0.23941659	0.01699885	0.22899805
FSCN1	<i>Marvinbryantia</i>	0.23944541	0.01698517	0.22899805
MTRNR2L12	<i>Akkermansia</i>	0.23954154	0.01693961	0.22899805
INTS5	<i>Flavonifractor</i>	0.2400317	0.01670895	0.2283316
MARVELD1	<i>Marvinbryantia</i>	0.24052206	0.01648093	0.22694239
KIAA1522	<i>Marvinbryantia</i>	0.24073342	0.01638347	0.22650643
RPS10P5	<i>Flavonifractor</i>	0.24106496	0.01623161	0.22650643
OBSCN	<i>Flavonifractor</i>	0.24122583	0.01615836	0.22650643
AC124944.3	<i>Marvinbryantia</i>	0.24126844	0.01613901	0.22650643
EEF1A1P19	<i>Flavonifractor</i>	0.24140526	0.016077	0.22650643
ZBTB37	<i>Bacteroides</i>	0.24157081	0.01600225	0.22650643
SPATS2L	<i>Saccharimonadales_norank</i>	0.24174857	0.01592232	0.22650643
NAV1	<i>Flavonifractor</i>	0.24198685	0.01581572	0.22650643
CELSR2	<i>Marvinbryantia</i>	0.24207428	0.01577676	0.22650643
ST14	<i>Marvinbryantia</i>	0.24208089	0.01577382	0.22650643
FASN	<i>Flavonifractor</i>	0.24279119	0.01546043	0.22409484
TNRC18P3	<i>Akkermansia</i>	0.24390582	0.01497951	0.21990182
AL049869.2	<i>Flavonifractor</i>	0.24392963	0.01496939	0.21990182
RPS10.NUDT3	<i>Solobacterium</i>	0.24395538	0.01495844	0.21990182

ZNF460	<i>Bacteroides</i>	0.2440569	0.01491534	0.21990182
UAP1L1	<i>Marvinbryantia</i>	0.2441285	0.01488501	0.21990182
AC138028.4	<i>Flavonifractor</i>	0.2447154	0.0146384	0.21957604
GTF2IP13	<i>Marvinbryantia</i>	0.24479563	0.01460497	0.21955288
SLIT1	<i>Marvinbryantia</i>	0.24523817	0.01442173	0.21870845
AC012676.5	<i>Flavonifractor</i>	0.24613845	0.01405513	0.21697207
AL355916.2	<i>Marvinbryantia</i>	0.24630822	0.01398691	0.21686697
AL390957.1	<i>Bacteroides</i>	0.24648114	0.01391772	0.21679528
ZNF703	<i>Marvinbryantia</i>	0.24649977	0.01391028	0.21679528
DGCR5	<i>Marvinbryantia</i>	0.24669793	0.0138314	0.21643001
CCRL2	<i>Ruminococcus_torques_group</i>	0.24678422	0.01379717	0.21638615
TTYH3	<i>Marvinbryantia</i>	0.24708763	0.0136774	0.21638615
LINC00265	<i>Flavonifractor</i>	0.24774712	0.01342018	0.21588307
MGRN1	<i>Marvinbryantia</i>	0.24790007	0.01336113	0.2156593
CCDC200	<i>Marvinbryantia</i>	0.24804539	0.01330524	0.2156593
SOGA1	<i>Marvinbryantia</i>	0.24874554	0.01303878	0.2156593
FLNA	<i>Marvinbryantia</i>	0.24884462	0.01300145	0.2156593
FAT2	<i>Marvinbryantia</i>	0.24947949	0.01276446	0.21540026
ZNF703	<i>Akkermansia</i>	0.25039327	0.01242996	0.21361029
AC000123.3	<i>Bacteroides</i>	0.25047619	0.01239999	0.21361029
DGCR5	<i>Ruminococcaceae_UCG.014</i>	0.25111551	0.01217101	0.21345313
FCGR1A	<i>Dorea</i>	0.25218201	0.01179724	0.21118552
NDUFA4P1	<i>Flavonifractor</i>	0.25272161	0.01161198	0.21118552
AC240565.2	<i>Marvinbryantia</i>	0.25325029	0.01143293	0.21118552
RXFP4	<i>Marvinbryantia</i>	0.25339561	0.01138414	0.21118552
RPS6KA1	<i>Marvinbryantia</i>	0.25384476	0.01123449	0.20961917
TBC1D16	<i>Akkermansia</i>	0.25457325	0.01099542	0.20740685
CEP19	<i>Granulicatella</i>	0.25489412	0.01089155	0.20657931
CXCR2	<i>Lachnospiraceae_FCS020_group</i>	0.25546631	0.01070843	0.20479872
DNM1P47	<i>Flavonifractor</i>	0.25576571	0.01061369	0.2046868
ENHO	<i>Flavonifractor</i>	0.25587089	0.01058059	0.2046868
AC132938.5	<i>Ruminococcaceae_UCG.014</i>	0.25638679	0.01041951	0.2046868
RPS11P5	<i>Akkermansia</i>	0.25650474	0.01038298	0.2046868
ATP5PDP4	<i>Marvinbryantia</i>	0.25685013	0.01027667	0.20422895
SMG1P4	<i>Flavonifractor</i>	0.25741768	0.01010405	0.20422895
CSNK1G2.AS1	<i>Ruminococcaceae_UCG.014</i>	0.258129	0.0098913	0.20148408
KMT2D	<i>Marvinbryantia</i>	0.25846841	0.00979118	0.2004723
PLBD2	<i>Marvinbryantia</i>	0.25932048	0.00954373	0.19673226
AC022137.3	<i>Flavonifractor</i>	0.25980296	0.00940606	0.19673226
ADAT3	<i>Marvinbryantia</i>	0.26093215	0.00909066	0.19296711
PRDX3P1	<i>Ruminococcaceae_UCG.014</i>	0.26198567	0.00880482	0.18826445
CDC42EP1	<i>Akkermansia</i>	0.26229921	0.00872129	0.18705935
CALCRL	<i>Flavonifractor</i>	0.26256314	0.00865151	0.18682536

AC020978.9	<i>Flavonifractor</i>	0.26265823	0.0086265	0.18682536
TSPAN4	<i>Marvinbryantia</i>	0.26325058	0.00847208	0.18459026
MTRNR2L8	<i>Akkermansia</i>	0.26331656	0.00845503	0.18459026
NDUFA4P1	<i>Akkermansia</i>	0.26374414	0.00834528	0.18415797
AMIGO3	<i>Marvinbryantia</i>	0.26447254	0.00816121	0.18092874
CSRNPI	<i>Marvinbryantia</i>	0.26522554	0.00797469	0.178846
AC018445.5	<i>Marvinbryantia</i>	0.26611063	0.00776026	0.17517824
CICP14	<i>Marvinbryantia</i>	0.26634842	0.00770352	0.17503544
AMIGO3	<i>Akkermansia</i>	0.26677407	0.00760288	0.17390636
ZNF766	<i>Granulicatella</i>	0.26754571	0.00742338	0.17093636
PDE4B	<i>Lachnospiraceae_FCS020_group</i>	0.26786684	0.00734979	0.16980972
TRAV17	<i>Solobacterium</i>	0.26803998	0.00731038	0.16980972
NCOR2	<i>Marvinbryantia</i>	0.26883858	0.00713101	0.16871822
PRR33	<i>Marvinbryantia</i>	0.269116	0.00706962	0.16861102
MIR6753	<i>Marvinbryantia</i>	0.27046347	0.00677802	0.16748294
AC012676.5	<i>Marvinbryantia</i>	0.27070125	0.00672768	0.16748294
PRDX3P1	<i>Marvinbryantia</i>	0.27071446	0.00672489	0.16748294
PMEL	<i>Flavonifractor</i>	0.27100473	0.00666392	0.16748294
H3.5	<i>Marvinbryantia</i>	0.27205532	0.00644729	0.16319692
Y_RNA.1	<i>Marvinbryantia</i>	0.27239219	0.00637916	0.16319692
AC093525.8	<i>Marvinbryantia</i>	0.27273566	0.00631035	0.16319692
NTSR1	<i>Flavonifractor</i>	0.27306507	0.00624498	0.16319692
LRP3	<i>Marvinbryantia</i>	0.27352168	0.00615536	0.16319692
RPL37AP1	<i>Akkermansia</i>	0.27477279	0.0059156	0.16319692
FLYWCH1	<i>Akkermansia</i>	0.27503819	0.00586583	0.16319692
ACTBP11	<i>Akkermansia</i>	0.27647575	0.00560259	0.16207498
FOXK1	<i>Marvinbryantia</i>	0.27797359	0.00533953	0.16207498
AP003108.3	<i>Akkermansia</i>	0.27823031	0.00529556	0.16207498
AC004494.1	<i>Marvinbryantia</i>	0.27982965	0.00502883	0.16207498
CYP2S1	<i>Marvinbryantia</i>	0.27999478	0.00500198	0.16207498
LINC01347	<i>Marvinbryantia</i>	0.28089309	0.00485815	0.16207498
NCKAP5L	<i>Marvinbryantia</i>	0.28157343	0.00475169	0.16207498
AC092053.2	<i>Ruminococcaceae_UCG.014</i>	0.28176042	0.00472279	0.16207498
ZNF469	<i>Marvinbryantia</i>	0.28299355	0.00453613	0.16207498
PLXND1	<i>Marvinbryantia</i>	0.28346912	0.00446592	0.16207498
PROSER3	<i>Akkermansia</i>	0.28366354	0.00443749	0.16207498
MMP15	<i>Akkermansia</i>	0.28382661	0.00441378	0.16207498
EEF1A1P9	<i>Flavonifractor</i>	0.28558173	0.00416559	0.16207498
CCRL2	<i>Granulicatella</i>	0.28587522	0.00412533	0.16207498
AC068896.1	<i>Marvinbryantia</i>	0.28689722	0.00398783	0.16207498
PIEZO1	<i>Marvinbryantia</i>	0.28779553	0.00387036	0.16207498
GALM	<i>Granulicatella</i>	0.28790025	0.00385687	0.16207498
ITPRIP.AS1	<i>Marvinbryantia</i>	0.28870705	0.00375434	0.16207498

IQSEC2	<i>Marvinbryantia</i>	0.2887731	0.00374606	0.16207498
TRDV2	<i>Solobacterium</i>	0.28902862	0.00371416	0.16207498
AC027290.2	<i>Ruminococcaceae_UCG.014</i>	0.28916106	0.00369773	0.16207498
RPS4XP3	<i>Flavonifractor</i>	0.29150905	0.00341694	0.16131776
SNAI1	<i>Marvinbryantia</i>	0.29166709	0.00339874	0.16131776
RNPEPL1	<i>Akkermansia</i>	0.29244371	0.00331059	0.16131776
C1orf74	<i>Granulicatella</i>	0.29483486	0.00305189	0.16039913
ACACA	<i>Flavonifractor</i>	0.29509143	0.00302524	0.16022154
ADGRA2	<i>Marvinbryantia</i>	0.29788169	0.00274862	0.15511686
AC018529.3	<i>Marvinbryantia</i>	0.30141547	0.00243102	0.15057846
SELENON	<i>Marvinbryantia</i>	0.30276954	0.00231836	0.15057846
RPL37P23	<i>Flavonifractor</i>	0.30462588	0.00217156	0.15057846
AC067930.5	<i>Solobacterium</i>	0.30552201	0.00210375	0.15057846
PRKXP1	<i>Flavonifractor</i>	0.30564058	0.00209492	0.15057846
PLBD2	<i>Flavonifractor</i>	0.30742248	0.00196621	0.15057846
VASH1	<i>Marvinbryantia</i>	0.30793481	0.00193055	0.15057846
RPL37P6	<i>Akkermansia</i>	0.30992295	0.00179764	0.15057846
SETD1B	<i>Marvinbryantia</i>	0.30998243	0.00179379	0.15057846
H6PD	<i>Flavonifractor</i>	0.310844	0.00173892	0.15057846
C1orf74	<i>Solobacterium</i>	0.31615452	0.00143293	0.15057846
POM121B	<i>Marvinbryantia</i>	0.31701697	0.00138813	0.15057846
TRIM6	<i>Parasutterella</i>	0.31887089	0.00129611	0.15057846
RPS15AP24	<i>Flavonifractor</i>	0.32386801	0.00107498	0.14802535
RPS2P7	<i>Akkermansia</i>	0.32802882	0.00091771	0.13715958
LINC01772	<i>Flavonifractor</i>	0.32890438	0.00088741	0.13715958
AC027290.2	<i>Marvinbryantia</i>	0.33184567	0.0007922	0.13715958
TNRC18P3	<i>Marvinbryantia</i>	0.33578898	0.00067919	0.13715958
SRCAP	<i>Marvinbryantia</i>	0.33730157	0.0006399	0.13715958
ABCA2	<i>Marvinbryantia</i>	0.34087499	0.00055521	0.12742118
AL513190.1	<i>Marvinbryantia</i>	0.34117883	0.00054851	0.12742118
SNX33	<i>Marvinbryantia</i>	0.34243382	0.0005216	0.12742118
AP000936.3	<i>Akkermansia</i>	0.34294995	0.00051088	0.12742118
EPHB3	<i>Flavonifractor</i>	0.34490443	0.00047212	0.12742118
H3.5	<i>Akkermansia</i>	0.43819744	5.73E-06	0.0394303

Supplementary Table 7. Random forest models of the prospective cohort study

16S genus-level dataset			
RMSE	Rsquared	% Var explained	AUC
0.418249	0.333959	3.41	0.7045
Combined dataset			
RMSE	Rsquared	% Var explained	AUC
0.426379	0.284467	0	0.8636

Supplementary Table 8. Spearman correlation analysis of the relative abundance of microbial taxa and differentially expressed genes in the prospective study

Var1	Var2	cor	p-value	q-value
CHST13	<i>Granulicatella</i>	-0.3963148	0.00142892	0.24983054
TSPAN4	<i>Ruminococcus_torques_group</i>	-0.4841899	6.68E-05	0.08040448
CALCRL	<i>Flavonifractor</i>	0.42238981	0.00062674	0.20619855
ST14	<i>Granulicatella</i>	-0.4147572	0.00080324	0.2266128
GBP6	<i>Haemophilus</i>	-0.4140246	0.00082235	0.2266128
DAGLA	<i>Haemophilus</i>	-0.4054394	0.00107898	0.24203376
AC012557.1	<i>Flavonifractor</i>	0.40172396	0.00121088	0.24983054
CCDC200	<i>Haemophilus</i>	-0.395912	0.00144648	0.24983054

Supplementary Figure 1.

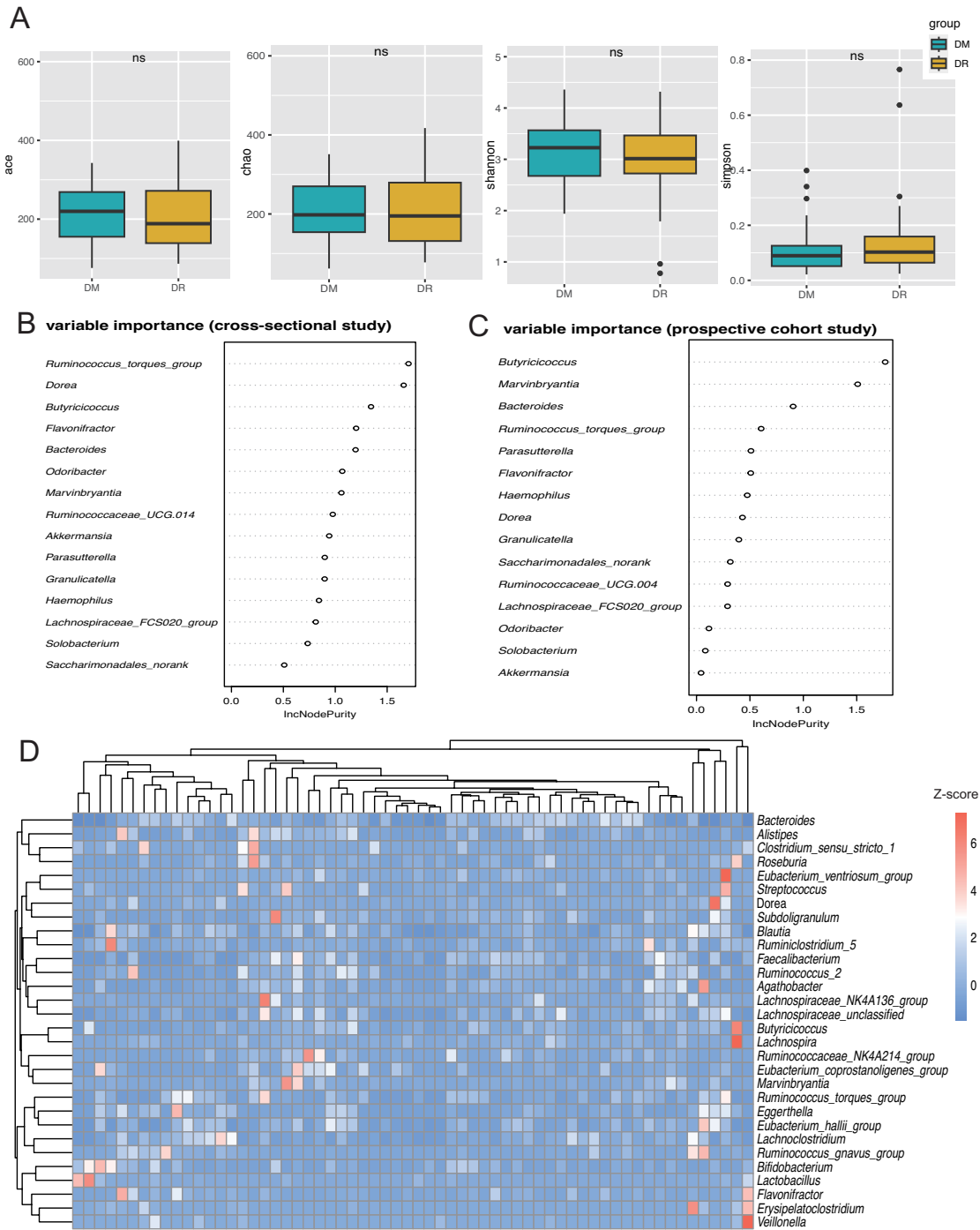


FIGURE LEGENDS

Figure 1. Gut microbiome profiling and random forest models

- (A), Bar plots to indicate the alpha-diversity indices.
- (B), Variable importance plot of the most predictive genera from the random classifiers of the cross-sectional study.
- (C), Variable importance plot of the most predictive genera from the random classifiers of the prospective study.
- (D), Heatmap to show co-abundance groups of bacteria at the genus level and their abundance in the prospective study.