

Supplemental figures:

Figure S1: Body weight changes of the mice during the four-week feeding period with LFD (A) and HFD (B). No significant difference was found within each group before and after the consumption of individual diets.

Figure S2: Comparison of plasma NEFA (A, B) levels among CV and GF mice after Week 4 feeding with LFD and HFD, respectively. Values are expressed as means \pm SEM. $^*P < 0.05$, comparison of CV male mice to female mice.

Figure S3: Comparison of lipid absorption among CV and GF mice after Week 4 feeding with LFD and HFD, respectively. Values are expressed as means \pm SEM.

Figure S4: Comparison of plasma APOE levels in the mice after LFD and HFD feeding for 4 weeks. Values are expressed as means \pm SEM.

Supplemental Figures

Figure S1:

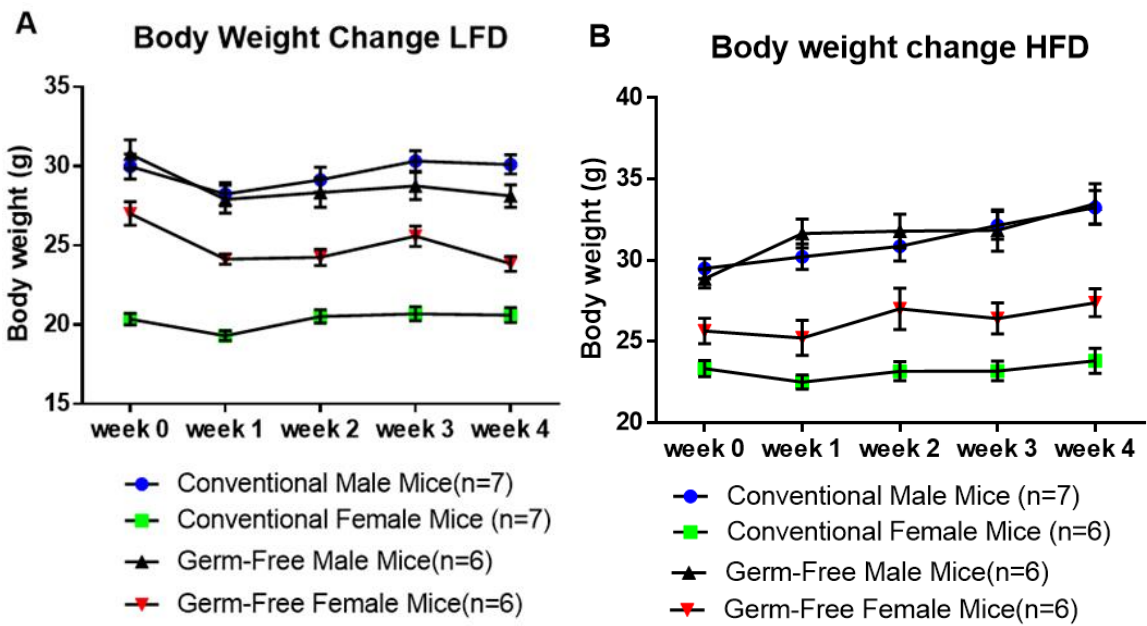
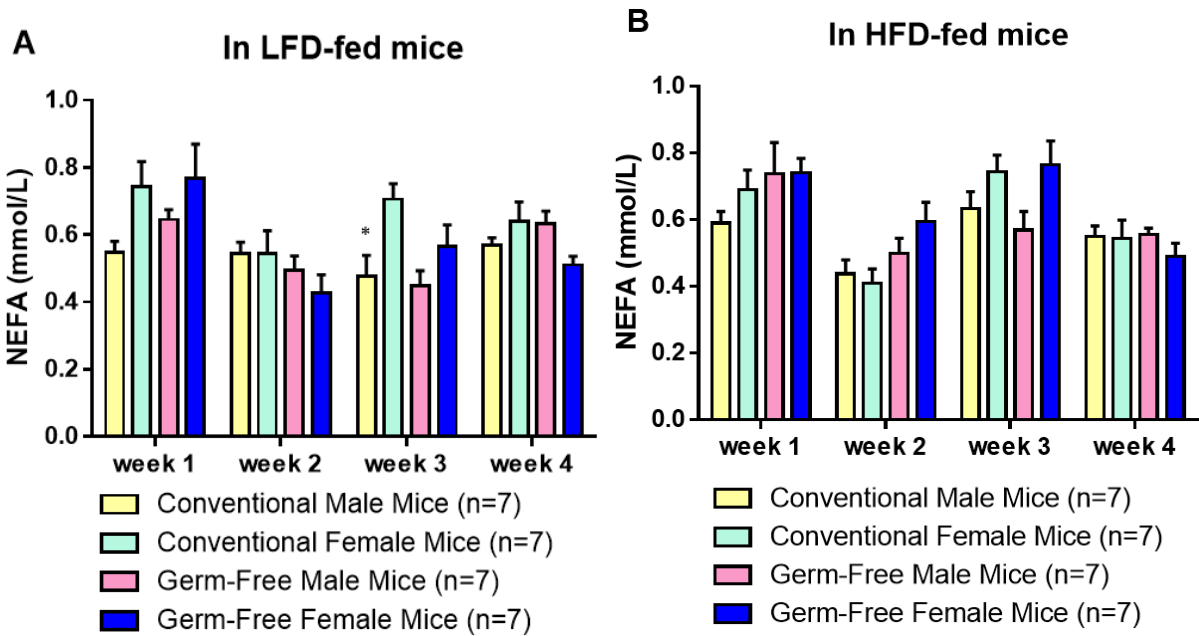
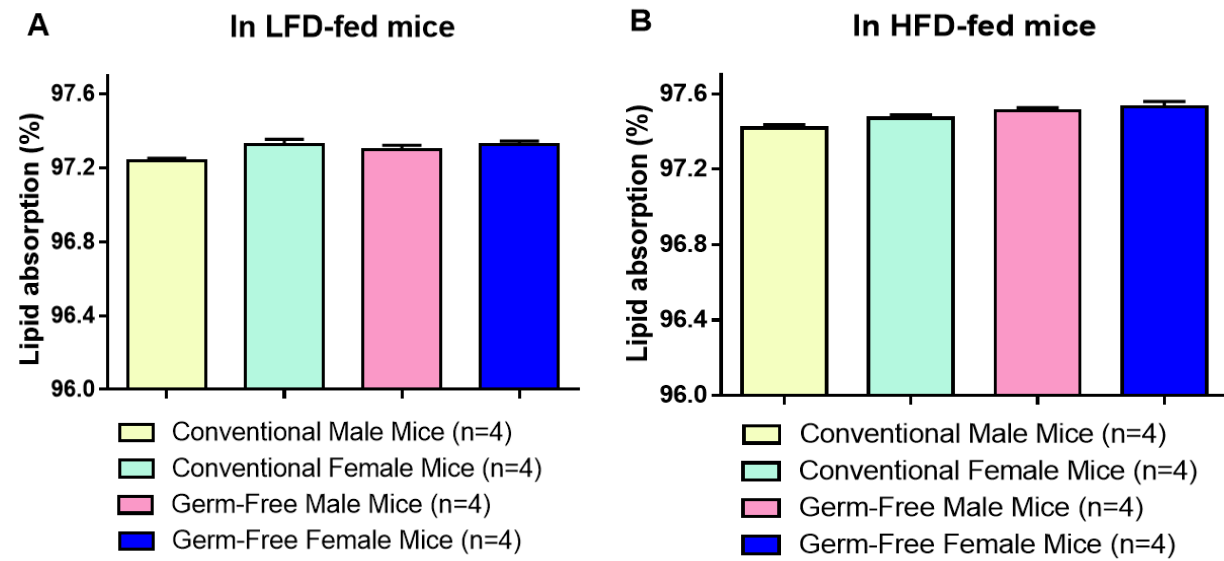


Figure S2:



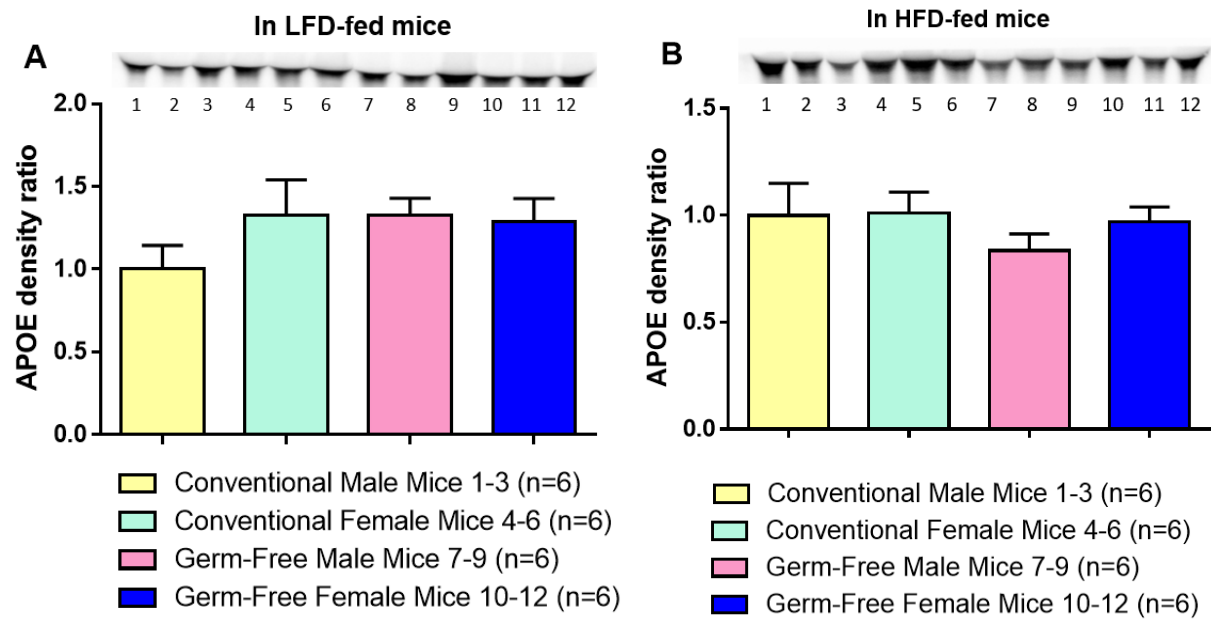
Supplemental Figures

Figure S3



Supplemental Figures

Figure S4



Supplemental Table S1. Alpha-diversity according to time and sex

Alpha diversity	Week-0	Week-4	P-value for wk-0/wk-4 difference	P-value for week by sex interaction*
Observed				
Female	83.67 (20.21)	85.50 (9.73)	0.845	0.026
Male	99.67 (16.26)	79.83 (6.65)	0.020	
Shannon Index				
Female	3.24 (0.40)	3.25 (0.28)	0.168	0.013
Male	3.76 (0.17)	3.33 (0.23)	0.004	
Faith's Phylogenetic Diversity				
Female	9.84 (1.64)	10.41 (0.61)	0.447	0.044
Male	10.94 (0.96)	9.67 (0.40)	0.029	

Notes. P-values obtained from linear mixed effects regression. Values at week 0 and week 4 reflect the mean (standard deviation).

Supplemental Table S2. The difference in the relative abundance of genus-level phylotypes in female mice at Week 4 when compared to Week 0 (before HFD feeding)

Genus	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	reject	df
Anaerostipes	2453.355972	-1.999488	0.145847	-13.709514	8.27E-08	1.90E-06	TRUE	10.0
Lactococcus	6187.902464	3.719104	0.163698	22.719274	1.04E-06	1.19E-05	TRUE	5.6
Clostridium	3603.687518	2.403466	0.326781	7.354974	2.44E-05	1.87E-04	TRUE	10.0
Akkermansia	42954.88472	4.195634	0.506415	8.284968	2.00E-04	0.00115	TRUE	5.8
Adlercreutzia	10614.10675	-0.925339	0.089366	-10.354521	5.32E-04	0.00245	TRUE	3.9
Oscillospira	238644.4629	0.858399	0.117261	7.320416	0.001620	0.0062	TRUE	4.1
Anaeroplasm	11461.37974	-2.005654	0.470646	-4.261491	0.005610	0.01843	TRUE	5.9
Coproccoccus	25097.41256	-0.530003	0.157667	-3.361535	0.007220	0.02077	TRUE	10.0
Ruminococcus	43383.19318	-0.631346	0.156927	-4.023179	0.008300	0.0212	TRUE	5.5
Staphylococcus	176.088433	0.211941	0.060671	3.493286	0.015920	0.02817	TRUE	5.3
Enterococcus	176.088433	0.211941	0.060671	3.493286	0.015920	0.02817	TRUE	5.3
Coprobacillus	176.088433	0.211941	0.060671	3.493286	0.015920	0.02817	TRUE	5.3
Blautia	176.088433	0.211941	0.060671	3.493286	0.015920	0.02817	TRUE	5.3
Roseburia	275.100344	0.214572	0.066373	3.232818	0.032360	0.05316	FALSE	4.0
[Ruminococcus]	68861.3206	-0.460339	0.163726	-2.811645	0.044950	0.06892	FALSE	4.3
Lactobacillus	105094.7944	-0.902418	0.476608	-1.893417	0.124230	0.17858	FALSE	4.4
Dehalobacterium	6973.915896	0.629383	0.359457	1.750929	0.144500	0.1955	FALSE	4.7
Bacteroides	358856.4558	-0.270255	0.198642	-1.360515	0.227690	0.29093	FALSE	5.4
Desulfovibrio	309.85493	1.048745	0.846668	1.238672	0.243750	0.29507	FALSE	10.0
Butyrivibrio	698.035366	-0.743471	0.731283	-1.016668	0.333280	0.38327	FALSE	10.0
Turicibacter	65010.97271	-0.430061	0.520448	-0.826329	0.444380	0.4867	FALSE	5.3
Sutterella	8303.343243	0.008513	0.653779	0.013021	0.990030	0.99003	FALSE	6.0
Dorea	511.467255	-0.009764	0.706317	-0.013823	0.989240	0.99003	FALSE	10.0

Abbreviations: lfcSE, log2FoldChange standard error; padj, FDR corrected p-value; df, degrees of freedom.

Notes. Estimates were obtained from bias-corrected centered log2-ratio transformed regression as implemented in LinDA.

baseMean reflects the normalized average read count. Stat is the log2FoldChange / lfcSE.

Model degrees of freedom computed using the Satterthwaite approximation as implemented in lmerTest.

Supplemental Table S3. The difference in the relative abundance of amplicon sequence variants (ASV) in female mice at Week 4 compared to Week 0 in response to the HFD.

ASV	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	df	kingdom	Phylum	Class	Order	Family	Genus	Species
ASV12	16.6182162	-1.32549472	0.51434979	-20.1534517	1.05E-05	0.20E-05	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae	Ruminococcus	
ASV30	17.9464508	-1.44217655	0.51035117	-15.4070764	5.6E-07	1.42E-07	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae	Ruminococcus	
ASV13	19.2440013	0.16887661	0.24232667	15.682208	8.43E-08	1.95E-08	10	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV21	18.5524549	0.25543491	0.25543491	10.200094	1.05E-05	1.05E-05	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV34	18.5752445	0.00202619	0.36029757	10.8435666	7.54E-07	2.42E-07	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV95	12.0212271	1.70524298	0.56892047	10.8607741	1.48E-05	1.48E-05	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV104	42.9672573	1.37795162	0.36738209	11.3957327	3.41E-05	5.35E-05	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV24	27.5354545	1.14881072	0.11889358	35.2418861	5.32E-06	1.87E-05	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV61	4.0101081	1.14200801	0.25543491	13.000094	1.05E-05	1.05E-05	10	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV25	48.9034343	1.63048819	0.28812287	15.0662131	1.45E-05	1.95E-05	1,288	Bacteria	Firmicutes	Chloridia	Chloridia	Parvulariellaceae		
ASV41	48.9034343	1.63048819	0.28812287	15.0662131	1.45E-05	1.95E-05	1,288	Bacteria	Firmicutes	Chloridia	Chloridia	Parvulariellaceae		
ASV52	13.6143441	1.45013129	0.31073039	15.7728138	1.03E-05	1.51E-05	1,453	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV163	27.1039519	1.23481208	0.23488806	11.0816862	5.28E-05	4.88E-04	5,172	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV104	27.5354545	1.14881072	0.11889358	35.2418861	5.32E-06	1.87E-05	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV10	17.8112118	1.17113498	0.30809111	13.1542121	4.03E-05	4.98E-05	1,768	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV30	17.9464508	1.13381171	0.14481113	14.0811133	5.05E-05	4.98E-04	4,579	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae		
ASV146	16.1154517	1.30417608	0.31313881	8.40110077	1.13E-04	0.001102	10	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001021	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV27	18.6144154	1.28134219	0.18111115	15.5151204	1.44E-04	0.001108	1,768	Bacteria	Firmicutes	Chloridia	Chloridia	Ruminococcaceae	Ruminococcus	
ASV13	21.1312784	1.13780167	0.14018309	5.54820106	1.48E-04	0.001108	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001171	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001171	10	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001171	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001171	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001242	0.001242	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001278	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001299	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166	1.46E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia			
ASV158	10.0140011	1.69516661	0.34047905	8.11960564	1.18E-04	0.001371	1,009	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Coprococcus	
ASV281	13.8136472	1.04217137	0.50531307	5.2328433	3.00E-04	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV159	11.7157002	1.50380892	0.55848902	4.08E-04	0.001371	0.001371	10	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae	Ruminococcaceae	
ASV12	12.4510206	1.26241401	0.57369514	4.78588267	3.04E-04	0.001371	5,686	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV26	12.1254717	1.46216661	0.2345452	11.2461763	4.18E-04	0.001371	1,848	Bacteria	Firmicutes	Chloridia	Chloridia	Actinospiraceae		
ASV19	63.2136946	1.45401112	0.28871143	13.4174179	1.77E-04	0.001371	4,056	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Rikenellaceae		
ASV28	14.6151767	1.26016661	0.31386187	8.4020166										

Supplemental Table S4. The difference in the relative abundance of genus-level phylotypes in male mice at Week 4 when compared to Week 0 in response to the HFD

Genus	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	reject	df
Lactococcus	5491.38442460	4.55486120	0.08867090	51.3681716	5.29E-08	1.22E-06	TRUE	5.0
Clostridium	2133.50856020	3.13027020	0.29633800	10.5631752	9.60E-07	1.10E-05	TRUE	10.0
Anaeroplasm	4168.37930850	-3.19225910	0.40810930	-7.8220697	1.43E-05	1.10E-04	TRUE	10.0
Akkermansia	195075.99045190	1.26809650	0.23833910	5.3205568	0.003139	0.018048	TRUE	5.0
Enterococcus	527.39528060	1.38349350	0.44034960	3.1418069	0.010478	0.042142	TRUE	10.0
Coprococcus	51683.11745110	-0.77813020	0.19764840	-3.9369426	0.010994	0.042142	TRUE	5.0
Ruminococcus	46453.71510560	-0.96652930	0.30122250	-3.2086889	0.023763	0.06832	FALSE	5.0
[Ruminococcus]	72126.82076120	-0.77367220	0.29018650	-2.666121	0.023649	0.06832	FALSE	10.0
Coprobacillus	417.43507180	1.03116080	0.42718020	2.4138779	0.036441	0.093127	FALSE	10.0
Desulfovibrio	244.64311870	0.22601010	0.08786500	2.5722422	0.049899	0.114769	FALSE	5.0
Blautia	276.34329210	0.40960940	0.18607480	2.201316	0.078963	0.165104	FALSE	5.0
Staphylococcus	287.96554600	0.47168680	0.27468230	1.7172083	0.146589	0.280962	FALSE	5.0
Butyrivibrio	460.87191480	-0.72830500	0.59477680	-1.2245013	0.248826	0.422064	FALSE	10.0
Dorea	2354.58664710	-0.70577650	0.55164650	-1.2794001	0.256909	0.422064	FALSE	5.0
Sutterella	1629.77456360	-0.39226720	0.43140020	-0.9092885	0.404896	0.590049	FALSE	5.0
Dehalobacterium	894.63583960	0.11556620	0.13142560	0.879328	0.41947	0.590049	FALSE	5.0
Adlercreutzia	7480.14960700	-0.11557830	0.13660640	-0.846068	0.436123	0.590049	FALSE	5.0
Roseburia	333.79253850	-0.24219580	0.42108030	-0.5751772	0.577883	0.738406	FALSE	10.0
Turicibacter	16249.41135590	0.33447830	0.63588770	0.5260021	0.621374	0.752189	FALSE	5.0
Lactobacillus	14679.22866100	-0.19319190	0.43674320	-0.4423467	0.676717	0.778225	FALSE	5.0
Anaerostipes	273.47593880	0.05812770	0.14929630	0.3893444	0.713052	0.780961	FALSE	5.0
Oscillospira	289908.86342410	0.05410890	0.26092290	0.2073752	0.843898	0.882257	FALSE	5.0
Bacteroides	286848.51113760	-0.00920230	0.17718000	-0.0519378	0.959601	0.959601	FALSE	10.0

Abbreviations: lfcSE, log2FoldChange standard error; padj, FDR corrected p-value; df, degrees of freedom.

Notes. Estimates were obtained from bias-corrected centered log2-ratio transformed regression as implemented in LinDA.

baseMean reflects the normalized average read count. Stat is the log2FoldChange / lfcSE.

Model degrees of freedom computed using the Satterthwaite approximation as implemented in lmerTest.

Supplemental Table S5. The difference in the relative abundance of amplicon sequence variants (ASV) in male mice at Week 4 when compared to Week 0 in response to the HFD

ASV	headnum	log2FoldChange	lfcSE	stat	positive	padj	df	Kingdom	Phylum	Class	Order	Family	Genus	Species
ASV12	1618.613262	3.32830472	0.16148979	20.61365317	1.56E-05	2.26E-07	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales		
ASV10	1146.46308	4.44779683	0.16111173	38.6979584	4.82E-09	4.82E-07	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV11	1514.45111	3.5887616	0.25170819	13.6127258	0.0010	1.70E-05	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV17	1853.95438	2.24869379	0.18338353	12.14165173	2.63E-05	0.29E-05	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV14	802.724465	4.68666624	0.26897837	10.8418658	7.94E-05	4.45E-07	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV6	1192.12671	1.70144208	0.18880204	10.0007421	1.49E-05	3.40E-05	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV4	2751.54545	4.2465051	0.1168845	39.4241884	0.0010	0.17E-05	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	6431.0881	3.14658808	0.20267247	15.6020084	1.20E-05	1.99E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV5	4808.93448	3.59148978	0.13665923	35.3665923	1.40E-05	1.99E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV41	4076.267028	1.68111024	0.24778411	11.20677701	1.83E-05	2.15E-04	5.3	Bacteria	Firmicutes	Bacilli	Lactobacillales	Streptococcaceae	Lactococcus	
ASV13	1615.61454	4.49019224	0.17170928	34.17387138	1.60E-05	3.10E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV19	2770.93959	2.8961208	0.24488964	11.0816862	2.26E-05	4.98E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV14	2101.73144	3.87111480	0.10861413	32.3134023	4.30E-05	4.98E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	1201.11318	3.13318413	0.1497913	24.6101031	5.07E-05	4.98E-04	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV46	1613.34397	3.12349704	0.15813998	4.01110077	1.33E-04	0.0011	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	2816.60211	2.66170658	0.26749795	8.11100504	1.31E-04	0.0011	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV2	808.641346	2.38134423	0.13181165	35.51310204	1.44E-05	0.0013	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV3	1218.17726	3.91662123	0.40748959	6.59415505	1.44E-05	0.0013	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	1611.16345	4.45081211	0.10581713	33.47124179	1.77E-05	0.0017	4.0	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidales	Bacteroidales		
ASV21	1140.51767	2.79870807	0.122885107	4.66676368	1.40E-04	0.0017	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV28	8578.62624	2.50546517	0.40678238	9.74017909	1.81E-05	0.0017	30.0	Bacteria	Firmicutes	Proteobacteria	Proteobacteriales	Proteobacteriales	Chloridiales	
ASV1	1138.34472	3.04217177	0.16831107	27.212434	1.60E-04	0.0017	40.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV19	178.272202	3.46870628	0.6249456	5.56657078	1.90E-04	0.0017	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	1746.05286	2.90234951	0.17358934	7.80528829	0.04E-04	0.0017	5.7	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV26	2124.54737	2.68740862	0.24125462	11.53487303	2.3E-04	0.0021	3.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV17	8026.40958	2.55578708	0.35021458	6.63029133	4.30E-05	0.0023	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV26	2657.77608	2.03718258	0.35607782	5.11265214	4.57E-04	0.0023	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	626.62646	2.68626284	0.17642454	4.81284134	0.0010	0.0023	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	37732.4144	4.02688138	0.16218425	6.47483738	7.44E-04	0.0023	5.0	Bacteria	Verrucomicrobia	Verrucomicrobia	Verrucomicrobiales	Verrucomicrobiales	Verrucomicrobiales	
ASV18	1615.22320	4.26617422	0.16759027	4.6012073	0.0010	0.0023	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV15	1295.05187	2.66166121	0.16179004	4.57569188	0.0010	0.0023	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV27	10994.1387	2.41213347	0.15615481	9.50480729	0.0011	0.0028	30.0	Bacteria	Firmicutes	Mollicutes	Anaplasmales	Anaplasmales	Anaplasmales	
ASV10	1177.60828	2.96431115	0.09108188	32.6081078	0.0010	0.0028	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	3113.12841	2.45861007	0.42308907	4.36130709	0.0010	0.0028	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV13	6075.24526	2.45861007	0.42308907	4.36130709	0.0010	0.0028	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	9137.83251	4.40566565	0.131700315	7.11200944	0.0010	0.0029	4.0	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidales	Bacteroidales	124.7	
ASV18	684.01138	1.87791709	0.15481084	5.54181227	0.0021	0.0034	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV4	494.466174	1.44017128	0.18919481	3.79747174	0.0021	0.0034	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV12	1778.89124	2.51488511	0.449515377	2.11336621	0.0048	0.0048	4.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV15	621.370712	3.52885624	0.15386578	3.56656718	0.0051	0.0070	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV14	2058.97941	2.40771381	0.18787388	3.54451096	0.0051	0.0070	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV16	1165.16262	2.46607054	0.49613858	4.51358961	0.0058	0.0083	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV7	1605.51421	2.77515151	0.5818645	2.9518645	0.0058	0.0083	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV75	1819.86428	2.61528471	0.60507709	3.58892903	0.0087	0.0216	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV16	16050.9188	1.99651539	0.45862134	0.00710	0.0022	0.0216	4.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	16489.17349	2.48674676	0.60232655	4.121707734	0.0074	0.0262	5.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV28	4687.24686	2.48674676	0.60232655	4.121707734	0.0074	0.0262	4.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	8556.91278	1.05716318	0.48848672	4.23881231	0.0087	0.0262	4.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV19	2107.409129	1.93901764	0.16133461	3.81143888	0.00794	0.0279	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	602.1021028	2.00202016	0.24511198	3.12331127	0.0027	0.031	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV21	308.949801	2.08618124	0.40138911	1.00314111	0.0012	0.0305	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	2048.19528	2.4793118	0.44448474	3.92510511	0.0012	0.0312	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	513.501095	3.74989132	0.43101434	4.01473158	0.0103	0.0305	4.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	618.762055	2.2057417	0.32008803	3.81147179	0.0142	0.0305	4.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	1571.68171	3.26212454	0.17911459	3.71791751	0.0144	0.0305	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	684.556161	1.51128234	0.50189103	3.78176175	0.0156	0.0417	4.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV2	791.124063	1.66686128	0.59189209	2.65448051	0.0131	0.0431	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	307.881704	1.87664764	0.50174405	3.72414368	0.0170	0.0431	3.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	4536.75795	1.94474631	0.42551334	3.68209255	0.0210	0.044	3.0	Bacteria	Actinobacteria	Actinobacteria	Actinobacteriales	Actinobacteriales	Actinobacteriales	
ASV28	2242.12786	1.74017889	0.58138884	2.86422142	0.0276	0.0425	5.4	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV2	986.1166778	2.00626588	0.471268177	3.09739104	0.0273	0.0425	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV27	1458.68695	2.2808218	0.73874511	1.06679773	0.0022	0.0440	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV13	1615.61454	4.49019224	0.17170928	34.17387138	1.60E-05	0.0017	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV28	7997.12474	2.30881751	0.9943951	2.37355642	0.0063	0.0889	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	1028.96026	1.44691794	0.44677544	2.95039943	0.0077	0.0842	4.3	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidales	Bacteroidales	124.7	
ASV10	1484.1180	3.3142926	0.4981788	2.75248186	0.0028	0.0889	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV10	2023.7263	2.34889788	0.82981817	2.54808612	0.0047	0.0917	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV19	411.681876	2.41034819	0.2114012	3.049517	0.0010	0.0917	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV13	1105.10811	1.30174517	0.54110614	2.51784767	0.0059	0.1038	5.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	618.762055	2.2057417	0.32008803	3.81147179	0.0142	0.0305	4.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	1571.68171	3.26212454	0.17911459	3.71791751	0.0144	0.0305	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	684.556161	1.51128234	0.50189103	3.78176175	0.0156	0.0417	4.3	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV2	791.124063	1.66686128	0.59189209	2.65448051	0.0131	0.0431	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV18	307.881704	1.87664764	0.50174405	3.72414368	0.0170	0.0431	3.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV1	4536.75795	1.94474631	0.42551334	3.68209255	0.0210	0.044	3.0	Bacteria	Actinobacteria	Actinobacteria	Actinobacteriales	Actinobacteriales	Actinobacteriales	
ASV28	2242.12786	1.74017889	0.58138884	2.86422142	0.0276	0.0425	5.4	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales	Chloridiales	
ASV2	986.1166778	2.00626588	0.471268177	3.09739104	0.0273	0.0425	30.0	Bacteria	Firmicutes	Chloridia	Chloridiales	Chloridiales</		

Supplemental Table S6. The difference in the relative abundance of genus-level phylotypes at Week 4 vs. Week 0 for female mice when compared to male mice in response to the HFD

Genus	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	reject	df
Anaerostipes	842.8964607	-1.188561803	0.133147093	-8.926682353	6.74E-06	1.55E-04	TRUE	9.4
Akkermansia	98358.59354	1.399241387	0.281689401	4.967319965	4.49E-04	0.004400	TRUE	10.8
Adlercreutzia	9847.894305	-0.479304832	0.09011064	-5.319070343	5.74E-04	0.004400	TRUE	8.5
Lactococcus	5739.419833	-0.322186431	0.086371549	-3.730237952	0.003660	0.021046	TRUE	10.4
Enterococcus	261.8002784	-0.755908729	0.267928466	-2.821308021	0.010548	0.048519	TRUE	20.0
Coprobacillus	227.5503865	-0.544833326	0.259858485	-2.096653972	0.048944	0.187619	FALSE	20.0
Anaeroplasm	6552.106551	0.735307637	0.346812374	2.120188588	0.057383	0.188543	FALSE	11.1
Oscillospira	280893.1121	0.313873717	0.155798764	2.014609802	0.072011	0.207032	FALSE	9.9
Blautia	175.6883915	-0.154680641	0.095457365	-1.620415988	0.133654	0.341561	FALSE	10.9
Staphylococcus	177.8437491	-0.173206779	0.129256262	-1.340026213	0.207220	0.408914	FALSE	11.0
Lactobacillus	42206.01208	-0.410304437	0.320365136	-1.280739979	0.230511	0.408914	FALSE	9.6
Dehalobacterium	2645.453738	0.281536058	0.196100395	1.435673083	0.183627	0.408914	FALSE	9.4
Clostridium	2775.089357	-0.284566533	0.230409053	-1.235049274	0.231125	0.408914	FALSE	20.0
Bacteroides	344755.5625	-0.18061336	0.150486723	-1.200194651	0.255770	0.420193	FALSE	10.8
Turicibacter	34938.72295	-0.412229116	0.424814293	-0.970374874	0.353572	0.542143	FALSE	10.6
Desulfovibrio	213.3877209	0.305653766	0.385248225	0.793394352	0.436860	0.627987	FALSE	20.0
Ruminococcus	49070.89278	0.097565645	0.176531245	0.552682022	0.591861	0.800753	FALSE	10.7
Coproccoccus	39751.89935	0.056892259	0.132520821	0.429308076	0.676395	0.818794	FALSE	10.5
Dorea	1067.47391	0.231691815	0.53248929	0.43511075	0.672639	0.818794	FALSE	10.1
Sutterella	3754.901108	0.144152723	0.438269425	0.328913484	0.748444	0.860711	FALSE	10.9
[Ruminococcus]	74996.91209	0.050964589	0.204095595	0.249709402	0.808106	0.885068	FALSE	9.5
Roseburia	227.3909268	-0.035197707	0.3211398	-0.109602445	0.913817	0.955354	FALSE	20.0
Butyriricoccus	519.3959342	0.005291339	0.504813283	0.010481775	0.991741	0.991741	FALSE	20.0

Abbreviations: lfcSE, log2FoldChange standard error; padj, FDR corrected p-value; df, degrees of freedom.

Notes. Estimates were obtained from bias-corrected centered log2-ratio transformed regression as implemented in LinDA.

baseMean reflects the normalized average read count. Stat is the log2FoldChange / lfcSE.

Model degrees of freedom computed using the Satterthwaite approximation as implemented in lmerTest.

Supplemental Table S7. The difference in the relative abundance of amplicon sequence variants (ASV) at Week 4 vs. Week 0 for female mice when compared to male mice in response to the HFD

ASV	baseMean	log2FoldChange	lfcSE	stat	probadj	padj	df	Kingdom	Phylum	Class	Order	Family	Genus	Species
ASV24	725.5551	-2.5995	0.2695	-9.6823	0.0000	0.0000	22	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV24	487.8548	-2.1202	0.0715	-29.4897	0.0000	0.0000	22	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV24	866.1762	-2.4947	0.2797	-9.0047	0.0000	0.0000	8.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV29	899.8869	-2.0622	0.2680	-7.7153	0.0000	0.0000	7.6	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	300.1477	-2.0985	0.2700	-7.7653	0.0001	0.0001	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	489.1515	-1.8874	0.2876	-6.5679	0.0004	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV13	495.7575	-0.7553	0.1055	-7.1597	0.0001	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV14	589.7798	-1.1261	0.2700	-4.1884	0.0002	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV15	514.5112	-1.2103	0.2695	-4.5087	0.0001	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV15	1108.1800	-1.1289	0.3111	-3.6254	0.0007	0.0132	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV26	495.4812	-1.2684	0.2695	-4.7079	0.0001	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV26	434.5101	-1.1411	0.3148	-3.6254	0.0007	0.0132	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV29	1114.0201	-1.0652	0.3090	-3.4381	0.0010	0.0145	11.7	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV14	1398.1865	-1.0591	0.3095	-3.4053	0.0010	0.0145	11.7	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	518.7188	-0.5119	0.2695	-1.9319	0.0002	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	945.9459	-1.6701	0.4612	-3.6213	0.0004	0.0005	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	1514.3013	-2.7405	0.3176	-8.6301	0.0000	0.0000	11.1	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV17	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	778.5107	-1.1178	0.4085	-2.7384	0.0004	0.0004	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV11	1315.0007	-1.6111	0.3018	-5.3378	0.0002	0.0004	7.1	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV13	2207.884	-1.3078	0.4027	-3.2458	0.0002	0.0004	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV4	2207.884	-1.3078	0.4027	-3.2458	0.0002	0.0004	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV4	386.7920	-0.8480	0.3020	-2.7974	0.0112	0.0742	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	1020.1100	-0.9386	0.2785	-3.3691	0.0001	0.0001	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	2351.3371	-1.1105	0.4526	-2.454	0.0140	0.0888	20.0	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	Sub-7	
ASV2	1104.1786	-1.0404	0.3095	-3.3404	0.0010	0.0145	11.7	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV2	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Bacteroidia	Bacteroidia	Bacteroidia	Sub-7	
ASV1	779.1006	-1.2706	0.2695	-4.7359	0.0001	0.0134	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV21	411.8841	-1.1092	0.4114	-2.6844	0.0249	0.1277	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV8	1205.1611	-1.2684	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV17	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	1177.1508	-1.1105	0.4870	-2.3101	0.0001	0.0001	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV8	134.7468	-0.7134	0.1403	-5.1108	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	1430.9470	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	768.1171	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV14	486.6477	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV8	1104.1786	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV8	1104.1786	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV27	2118.1117	-1.4574	0.5124	-2.8455	0.0007	0.0007	11.1	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV2	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV24	1344.3405	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV24	1344.3405	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	1430.9470	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	768.1171	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV14	486.6477	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV8	1104.1786	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV25	211.1111	-0.8480	0.4108	-2.049	0.0000	0.0000	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	1177.1508	-1.1105	0.4870	-2.3101	0.0001	0.0001	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV8	134.7468	-0.7134	0.1403	-5.1108	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	1430.9470	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	768.1171	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV14	486.6477	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV8	1104.1786	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV25	211.1111	-0.8480	0.4108	-2.049	0.0000	0.0000	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	1177.1508	-1.1105	0.4870	-2.3101	0.0001	0.0001	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV8	134.7468	-0.7134	0.1403	-5.1108	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV10	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV19	1430.9470	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	768.1171	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV14	486.6477	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV8	1104.1786	-0.9171	0.4085	-2.238	0.0084	0.1138	8.8	Bacteria	Bacteroidetes	Bacteroidia	Bacteroidia	Bacteroidia	Bacteroidia	
ASV10	1108.7671	-0.8480	0.3020	-2.7974	0.0112	0.0742	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV25	211.1111	-0.8480	0.4108	-2.049	0.0000	0.0000	20.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV18	495.1414	-1.0394	0.1055	-9.7291	0.0000	0.0000	9.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV28	1177.1508	-1.1105	0.4870	-2.3101	0.0001	0.0001	10.0	Bacteria	Chloroflexi	Chloroflexia	Chloroflexales	Chloroflexaceae	Chloroflexus	
ASV1	1052.6911	-1.2621	0.4505	-2.7974	0.0112	0.0742	9.3	Bacteria	Chloroflexi					

Model degrees of freedom computed using the Satterthwaite approximation as implemented in lmerTest.