
SUPPLEMENTAL DATA**Ding et al: FMT mitigates radiation enteritis via gut modulation****Fecal microbiota transplantation alleviates radiation enteritis by modulating gut microbiota and metabolite profiles****Qin Ding^{1#}, Jing Xue^{2#}, Nan Li¹, Zhihui-Hu¹, Jianbo-Song^{2,3*}**¹Shanxi Bethune Hospital, Shanxi Academy of Medical Sciences, Third Hospital of Shanxi Medical University, Tongji Shanxi Hospital, Taiyuan, China;²Third Hospital of Shanxi Medical University, Shanxi Bethune Hospital, Shanxi Academy of Medical Sciences, Tongji Shanxi Hospital, Taiyuan, China;³Shanxi Provincial Key Laboratory for Translational Nuclear Medicine and Precision Protection, Taiyuan, China;

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TABLE S1. Identification and change trend of differential metabolites in MOD and NTG

	Metabolites	Fomula	m/z	RT	Scan mode	P	VIP	HMDB ID	Trend
1	Linoleoyl Ethanolamide	C ₂₀ H ₃₇ N O ₂	324.28965	20.112	+	0.0079	12.93	12252	↑ ^{**}
2	3-Methoxyphenylacetic acid	C ₉ H ₁₀ O ₃	165.05583	6.857	—	0.0003	15.39	59969	↑ ^{**}
3	Deoxycholic Acid	C ₂₄ H ₄₀ O ₄	437.2912	11.707	+	0.0006	12.25	626	↓ ^{**}
4	Coumarin	C ₉ H ₆ O ₂	164.07061	6.695	+	0.0031	9.72	1218	↓ ^{**}
5	Choline	C ₅ H ₁₃ N O	104.10732	1.304	+	0.004	10.16	97	↓ ^{**}
6	Ursolic acid	C ₃₀ H ₄₈ O ₃	457.36775	15.271	+	0.0005	12.77	2395	↑ ^{**}
7	3-Carboxyindole	C ₉ H ₇ N O ₂	162.05497	6.378	+	0.0037	7.32	3320	↓ ^{**}
8	Creatine	C ₄ H ₉ N ₃ O ₂	132.07687	1.402	+	0.0016	9.41	64	↓ ^{**}
9	Hexadecanamide	C ₁₆ H ₃₃ N O	256.26337	23.932	+	0.0234	5.87	12273	↓ [*]

10	Creatinine	C ₄ H ₇ N ₃ O	114.06644	1.371	+	0.04	6.48	562	↑*
11	Pregabalin	C ₈ H ₁₇ N O ₂	160.13317	1.632	+	0.015	5.3	14375	↑*
12	Xanthine	C ₅ H ₄ N ₄ O ₂	151.02628	1.65	—	0.0003	6.48	292	↓**
13	Daidzein	C ₁₅ H ₁₀ O ₄	255.06513	7.71	+	0.0068	6.63	3312	↑**
14	Isophorone	C ₉ H ₁₄ O	139.11172	9.59	+	0.0178	2.1	31195	↓*
15	Butylated hydroxytoluene	C ₁₅ H ₂₄ O	441.37268	19.378	+	0.0016	5.68	33826	↑**
16	Ginkgoic acid	C ₂₂ H ₃₄ O ₃	379.28421	19.25	+	0.0041	4.27	33897	↓**
17	N-Acetylputrescine	C ₆ H ₁₄ N ₂ O	131.11804	1.531	+	0.0015	5.9	2064	↑**
18	Acetylcholine	C ₇ H ₁₅ N O ₂	146.11761	1.418	+	0.0007	4.97	895	↑**
19	N-Acetylhistamine	C ₇ H ₁₁ N ₃ O	154.09748	1.622	+	0.0056	3.78	13253	↑**
20	Hypoxanthine	C ₅ H ₄ N ₄ O	137.04587	2.37	+	0.0034	4.98	157	↓**

21	Testosterone undecanoate	C30 H48 O3	457.36746	19.995	+	0.0088	4.29	258862	↑**
22	Maltol	C6 H6 O3	127.03914	5.996	+	0.0157	4.1	30776	↑*
23	5-Hydroxyindole-3-acetic acid	C10 H9 N O3	192.06556	6.455	+	0.0015	4.04	763	↑**
24	3b-Hydroxy-5-cholenoic acid	C24 H38 O3	375.28925	11.35	+	0.0003	5.09	308	↓**
25	2,4-Dimethylphenol	C8 H10 O	121.06597	6.849	—	0.0008	4.46	245456	↑**
26	Diphenolic acid	C17 H18 O4	285.11349	8.506	—	0.0016	4.5	30105	↓**
27	D-Arabinose	C5 H10 O5	149.04565	1.394	—	0	5.13	29942	↑**
28	10-GINGEROL	C21 H34 O4	349.23867	16.024	—	0.0485	2.03	5783	↓*
29	Isoliquiritigenin	C15 H12 O4	255.06652	7.842	—	0.0006	4.54	37316	↑**
30	Isoferulic acid	C10 H10 O4	195.06527	6.886	+	0	4.99	955	↑**
31	Uracil	C4 H4 N2 O2	113.03482	2.126	+	0.0017	3.33	300	↓**

32	Gluconic acid	C ₆ H ₁₂ O ₇	195.05117	1.392	—	0	4.11	625	↑ ^{**}
33	Lactic acid	C ₃ H ₆ O ₃	89.02445	1.385	—	0	3.96	190	↑ ^{**}
34	Hippuric acid	C ₉ H ₉ N O ₃	162.05508	5.962	+	0.0003	3.63	714	↑ ^{**}
35	7alpha-Hydroxy-3-oxochol-4-en-24-oic acid	C ₂₄ H ₃₆ O ₄	389.26842	11.016	+	0.0334	2.61	62744	↑ [*]
36	Geranylacetone	C ₁₃ H ₂₂ O	177.16372	6.706	+	0.0236	1.8	31846	↓ [*]
37	SPHINGOSINE	C ₁₈ H ₃₇ N O ₂	300.28955	13.177	+	0.0025	2.82	252	↑ ^{**}
38	Amide C18	C ₁₈ H ₃₇ N O	284.29466	23.207	+	0.0148	2.48	34146	↑ [*]
39	Leu-Leu-Leu	C ₁₈ H ₃₅ N ₃ O ₄	358.26986	6.689	+	0.0009	3.13	94648	↑ ^{**}
40	Floionolic acid	C ₁₈ H ₃₆ O ₅	333.26336	9.975	+	0.0046	2.37	34295	↓ ^{**}
41	Isoquinoline	C ₉ H ₇ N	130.06523	8.362	+	0.0023	2.14	34244	↑ ^{**}
42	Molindone	C ₁₆ H ₂₄ N ₂ O ₂	294.21775	4.832	+	0.0365	2.31	15555	↑ [*]

43	N-Hexadecanoylpyrrolidine	C ₂₀ H ₃₉ N O	342.33652	17.47	+	0.0051	3.29	32740	↓ ^{**}
44	2-Oxindole	C ₈ H ₇ N O	134.06013	6.868	+	0.0233	2	61918	↓ [*]
45	bisphenol A	C ₁₅ H ₁₆ O ₂	261.14833	9.331	+	0.0463	2.01	32133	↓ [*]
46	Diethyl L-malate	C ₈ H ₁₄ O ₅	213.07337	6.22	+	0.0112	2.6237	40220	↑ [*]
47	ethyl oleate	C ₂₀ H ₃₈ O ₂	311.2942	0.383	+	0	2.39	34451	↑ ^{**}
48	4,6-CHOLESTADIEN-3-ONE	C ₂₇ H ₄₂ O	383.33062	20.274	+	0.0011	3.09	2394	↑ ^{**}
49	Levulinic acid	C ₅ H ₈ O ₃	115.04015	1.876	—	0.0105	2.66	720	↓ [*]
50	Dodecanedioic acid	C ₁₂ H ₂₂ O ₄	229.1446	9.808	—	0.0042	2.99	623	↓ ^{**}
51	3-Hydroxytetradecanedioic acid	C ₁₄ H ₂₆ O ₅	273.17095	7.973	—	0.0128	1.99	394	↓ [*]
52	Oleanolic acid	C ₃₀ H ₄₈ O ₃	457.36734	21.619	+	0.0029	2.74	2364	↑ ^{**}
53	5-Hydroxytryptophol	C ₁₀ H ₁₁ N O ₂	160.07566	1.654	+	0.0375	1.7	1855	↓ [*]

54	N(1)-acetylspermidine	C ₉ H ₂₁ N ₃ O	188.17586	1.248	+	0.0385	2.26	1276	↑ [*]
55	Butylparaben	C ₁₁ H ₁₄ O ₃	193.08718	8.008	—	0.0008	2.44	32575	↓ ^{**}
56	Linoleic acid	C ₁₈ H ₃₂ O ₂	281.24737	23.851	+	0.0009	2.44	673	↑ ^{**}
57	Palmitelaidic acid	C ₁₆ H ₃₀ O ₂	296.25824	18.506	+	0.0126	2.25	12328	↓ [*]
58	L-(-)-Methionine	C ₅ H ₁₁ N O ₂ S	194.0494	1.649	+	0.0013	3.13	696	↓ ^{**}
59	Tyrosol	C ₈ H ₁₀ O ₂	137.06094	6.039	—	0.0023	2.87	4284	↑ ^{**}
60	L-(+)-Leucine	C ₆ H ₁₃ N O ₂	132.10204	5.763	+	0.0304	1.46	687	↑ [*]
61	Pantothenic acid	C ₉ H ₁₇ N O ₅	220.11788	1.654	+	0.0039	2.65	210	↓ ^{**}
62	Trifluoroacetic acid	C ₂ H F ₃ O ₂	112.98574	0.922	—	0.0018	1.58	14118	↓ ^{**}
63	N-Carbamoylputrescine	C ₅ H ₁₃ N ₃ O	132.11317	1.629	+	0.0384	2	33458	↑ [*]
64	Falcarindiol	C ₁₇ H ₂₄ O ₂	293.21109	7.222	+	0.0017	2.67	33941	↓ ^{**}

65	Palmitoleic acid	C16 H30 O2	255.2318	15.649	+	0.0053	1.6	3229	↑**
66	2-Hexenoylcarnitine	C13 H23 N O4	241.14333	7.762	+	0.0052	2.2	13161	↓**
67	Dicyclomine	C19 H35 N O2	310.27385	20.34	+	0.0378	1.72	14942	↓**
68	Vanillin	C8 H8 O3	303.08752	8.823	—	0.0265	1.77	12308	↑*
69	Cinnamic acid	C9 H8 O2	147.04531	6.883	—	0.0311	1.87	567	↑*
70	Nicotinamide	C6 H6 N2 O	123.05542	1.626	+	0.0386	1.3	1406	↑*
71	Tetrahydrocortisone	C21 H32 O5	365.23227	6.088	+	0.0002	2.68	903	↓**
72	Leu-Leu	C12 H24 N2 O3	245.186	5.813	+	0.0308	1.63	28933	↑*
73	Linalyl Propionate	C13 H22 O2	211.16917	17.634	+	0.0009	1.66	30425	↑**
74	Hexadecanedioic acid mono-L-carnitine ester	C23 H43 N O6	430.3163	7.829	+	0.0047	2.14	712	↑**
75	soyasapogenol A	C30 H50 O4	475.37804	15.27	+	0.0064	2.24	34505	↑**

76	Linalyl butyrate	C ₁₄ H ₂₄ O ₂	225.18468	17.605	+	0.0011	1.51	30427	↑ ^{**}
77	Sulfuric acid	H ₂ O ₄ S	96.96016	2.086	—	0.0021	1.41	1448	↑ ^{**}
78	Cyclohexanone	C ₆ H ₁₀ O	197.15357	17.51	+	0.0005	1.53	3315	↑ ^{**}
79	4-Hydroxy-3-methoxybenzenemethanol	C ₈ H ₁₀ O ₃	137.05977	6.741	+	0.0008	2.16	32012	↑ ^{**}
80	Ethyl acetate	C ₄ H ₈ O ₂	89.06009	7.431	+	0.0067	2.01	31217	↑ ^{**}
81	10-Undecenoic acid	C ₁₁ H ₂₀ O ₂	185.1536	17.593	+	0.0004	1.52	33724	↑ ^{**}
82	Asymmetric dimethylarginine	C ₈ H ₁₈ N ₄ O ₂	203.1503	1.4	+	0.0006	1.36	1539	↑ ^{**}
83	16-Hydroxyhexadecanoic acid	C ₁₆ H ₃₂ O ₃	271.22804	22.177	—	0.0077	1.81	6294	↓ ^{**}
84	Mesitol	C ₉ H ₁₂ O	195.10283	7.132	—	0.0001	2.29	32544	↓ ^{**}
85	1-Phenyl-1,3-octadecanedione	C ₂₄ H ₃₈ O ₂	359.2943	21.325	+	0.0005	1.83	35583	↓ ^{**}
86	Sebacic acid	C ₁₀ H ₁₈ O ₄	201.11345	6.435	—	0.0053	1.52	792	↓ ^{**}

87	2,5-Dimethyl-2,4-hexadiene	C8 H14	111.11702	17.541	+	0.0007	1.41	61902	↑**
88	Paraldehyde	C6 H12 O3	131.07147	10.568	—	0.0002	2.26	32456	↑**
89	Curcumene	C15 H22	203.17937	20.26	+	0.0009	2.02	59878	↑**
90	Sphingosine	C18 H37 N O2	300.2896	13.466	+	0.0025	1.65	252	↑**
91	Cytosine	C4 H5 N3 O	112.05074	1.625	+	0.0017	2.08	630	↓**
92	5-Methylcytosine	C5 H7 N3 O	126.06633	1.519	+	0.0005	2.24	2894	↑**
93	dl-Citronellol acetate	C12 H22 O2	199.1693	17.606	+	0.0004	1.38	34844	↑**
94	Ethanoic anhydride	C4 H6 O3	101.02446	1.397	—	0.0003	2.06	31646	↑**
95	Palmitoylcarnitine	C23 H45 N O4	400.3418	16.466	+	0.0182	1.47	222	↓*
96	Sorbitan laurate	C18 H34 O6	347.2427	7.324	+	0.0073	1.95	29885	↓**
97	Procaine	C13 H20 N2 O2	237.15974	5.716	+	0.0003	1.97	14859	↑**

98	Ritalinic acid	C13 H17 N O2	237.15976	5.711	+	0.0004	1.91	42008	↑**
99	Quinaldic acid	C10 H7 N O2	174.055	6.495	+	0.0001	2.28	842	↑**
100	Indole	C8 H7 N	118.06521	14.711	+	0.0014	1.58	738	↓**
101	10,16-Dihydroxyhexadecanoic acid	C16 H32 O4	287.22299	9.655	—	0.019	1.23	37798	↑*
102	Nobiletin	C21 H22 O8	213.06351	6.746	+	0.0023	1.97	29540	↓**
103	2-arachidonyl glyceryl ether	C23 H40 O3	365.30497	20.645	+	0.0248	1.03	13657	↓*
104	Thymol	C10 H14 O	183.13793	17.545	+	0.0016	1.24	1878	↑**
105	D-(+)-Maltose	C12 H22 O11	341.10909	1.374	—	0.0028	1.6	163	↑**
106	Ergosterol	C28 H44 O	397.34628	23.832	+	0.0474	1.23	878	↑*
107	Ethylparaben	C9 H10 O3	165.05588	1.69	—	0.0018	1.27	32573	↑**
108	3,4-Dimethyl-5-pentyl-2-furanpropanoic acid	C14 H22 O3	494.34741	11.492	+	0.0401	1.56	112083	↑*

109	(E,E)-2,4-Dodecadienal	C12 H20 O	181.1586	17.54	+	0.0007	1.26	39590	↑**
110	Muricholic acid	C24 H40 O5	407.2804	11.725	—	0.0004	1.94	865	↓**
111	Diethyl phthalate	C12 H14 O4	223.09636	10.252	+	0.0111	1.53	94660	↓**
112	D-Glucono-delta-lactone	C6 H10 O6	177.04066	1.595	—	0.0014	1.75	150	↑**
113	Oleyl alcohol	C18 H36 O	269.28375	21.442	+	0.0079	1.41	29632	↓**
114	4-Aminophenol	C6 H7 N O	110.06032	2.482	+	0.0193	1.02	1169	↑*
115	cis-5-Tetradecenoylcarnitine	C21 H39 N O4	368.28079	20.106	—	0.0163	1.36	2014	↑*
116	9,10-Epoxyoctadecanoic acid	C18 H34 O3	299.25777	14.537	+	0.0323	1.14	61650	↓*
117	Alanylproline	C8 H14 N2 O3	187.10774	1.394	+	0.045	1.09	28695	↑*
118	Hexanal	C6 H12 O	142.12276	7.729	+	0.0038	1.7	5994	↓**
119	3-Methyladenine	C6 H7 N5	150.07742	1.628	+	0.0029	1.59	11600	↓**

120	trimethadione	C ₆ H ₉ N O ₃	144.06555	1.426	+	0.0009	1.54	14491	↑**
121	Hexylresorcinol	C ₁₂ H ₁₈ O ₂	195.13799	9.222	+	0.0053	1.48	32567	↑**
122	Citric acid	C ₆ H ₈ O ₇	191.01992	1.417	—	0.0024	1.38	94	↓**
123	Proline	C ₅ H ₉ N O ₂	116.07082	5.814	+	0	1.52	162	↑**
124	p-cymene	C ₁₀ H ₁₄	135.11673	11.708	+	0.0021	1.31	5805	↓**
125	FF-MAS	C ₂₉ H ₄₆ O	411.36169	20.273	+	0.0027	1.33	1023	↑**
126	Cycloheximide	C ₁₅ H ₂₃ N O ₄	323.19647	7.092	+	0.0022	1.55	250657	↓**
127	Hexylbenzene	C ₁₂ H ₁₈	163.148	24.522	+	0.0095	1.2	61815	↑**
128	N-Acetylcadaverine	C ₇ H ₁₆ N ₂ O	145.1336	2.27	+	0.0109	1.16	2284	↑*
129	Phloroglucinol	C ₆ H ₆ O ₃	127.03895	23.007	+	0.0039	1.35	13675	↓**
130	Vitamin D ₃	C ₂₇ H ₄₄ O	385.34606	21.94	+	0.0018	1.66	14315	↓**

131	Nicotinic acid	C6 H5 N O2	122.02491	1.636	—	0.0043	1.33	1488	↓**
132	Gly-l-pro	C7 H12 N2 O3	155.08146	1.643	+	0.0085	1.19	721	↓**
133	13-HODE	C18 H32 O3	297.24238	22.733	+	0.0011	1.15	4667	↓**
134	Oleic acid	C18 H34 O2	283.26309	1.281	+	0	1	207	↑**
135	4-Hydroxynonal	C9 H16 O2	157.12227	17.533	+	0.0003	1.08	4362	↑**
136	Stearic acid	C18 H36 O2	285.27867	22.365	+	0.0116	1.07	827	↓*
137	Arachidonic acid	C20 H32 O2	305.24737	8.361	+	0.0182	1.09	1043	↑*
138	Docosahexaenoyl Ethanolamide	C24 H37 N O2	372.28909	20.14	+	0.0186	1.02	13658	↑*
139	8Z,11Z,14Z-Eicosatrienoic acid	C20 H34 O2	307.26299	22.949	+	0.0031	1.21	2925	↑**
140	diacetyl trimer	C12 H18 O6	281.09949	9.296	+	0.0343	1.06	32527	↑*
141	Lithocholic Acid	C24 H40 O3	375.29072	21.325	—	0.0005	1.32	761	↓**

142	Corticosterone	C ₂₁ H ₃₀ O ₄	347.22143	6.439	+	0.0007	1.57	1547	↓**
143	1,4-Bis-(1,1-dimethylethyl)-benzene	C ₁₄ H ₂₂	191.1793	20.247	+	0.0005	1.27	94670	↑**
144	25-Hydroxycholesterol	C ₂₇ H ₄₆ O ₂	385.3463	16.573	+	0.0033	1.34	6247	↓**
145	Isoprenaline	C ₁₁ H ₁₇ N O ₃	212.12804	7.85	+	0.0021	1.52	15197	↓**
146	Pilocarpine	C ₁₁ H ₁₆ N ₂ O ₂	417.24983	6.806	+	0.0002	1.71	15217	↑**
147	Dibutyl malate	C ₁₂ H ₂₂ O ₅	245.13956	7.436	—	0.0269	1.19	1.57371	↑**
148	2-Isopropyl-3-methoxypyrazine	C ₈ H ₁₂ N ₂ O	185.12854	6.235	+	0.001	1.14	40340	↑**
149	1,2,3-Trihydroxybenzene	C ₆ H ₆ O ₃	127.03905	13.861	+	0.0069	1.09	13674	↑**
150	3-Methoxybenzaldehyde	C ₈ H ₈ O ₂	137.05974	7.653	+	0.0007	1.28	31459	↑**
151	5,7-Dihydroxy-3',4',5'-trimethoxyflavone	C ₁₈ H ₁₈ O ₇	405.1192	7.432	—	0.0001	1.6	37692	↑**
152	Linoleamide	C ₁₈ H ₃₃ N O	280.2634	12.99	+	0.0003	1.28	62656	↑**

153	L-Palmitoylcarnitine	C23 H45 N O4	400.34194	24.191	+	0.0272	1.02	240774	↓*
154	N-ethylmaleimide	C6 H7 N O2	126.05504	1.426	+	0.0009	1.12	255137	↑**
155	n-Amylbenzene	C11 H16	149.13238	20.269	+	0.0045	1.1	59834	↑**
156	Glutaric acid	C5 H8 O4	131.0351	1.614	—	0.0002	1.36	661	↑**
157	D-Glucopyranuronic acid	C6 H10 O7	193.03555	1.557	—	0.0015	1.42	127	↑**
158	Histamine	C5 H9 N3	112.08717	1.654	+	0.0002	1.02	870	↑**
159	4-Methyl-2-phenyl-2-pentenal	C12 H14 O	207.13777	11.703	+	0.0001	1.3	37281	↓**
160	Aminolevulinic acid	C5 H9 N O3	164.09177	1.34	+	0.0004	1.32	1149	↑**
161	Serotonin	C10 H12 N2 O	209.12851	1.647	+	0.0002	1.25	259	↓**
162	3-Methoxytyramine	C9 H13 N O2	209.12829	1.649	+	0.0002	1.25	22	↓**
163	Shikimic acid	C7 H10 O5	175.06011	13.261	+	0.0107	1.12	3070	↑*

164	3-Phenylpropanoic acid	C ₉ H ₁₀ O ₂	151.07543	6.945	+	0.0023	1.1	764	↑**
165	Celestolide	C ₁₇ H ₂₄ O	245.18982	20.296	+	0.0066	1.03	31867	↑**
166	2,6-Di-tert-butyl-1,4-benzoquinone	C ₁₄ H ₂₀ O ₂	203.14299	6.691	+	0.0014	1.26	13817	↓**
167	Piperidine	C ₅ H ₁₁ N	86.09685	5.844	+	0.0045	1.01	34301	↑**
168	Linoelaidic Acid	C ₁₈ H ₃₂ O ₂	263.23681	16.652	+	0.0001	1.02	6270	↑**
169	3-BHA	C ₁₁ H ₁₆ O ₂	181.12224	11.712	+	0.0002	1.15	59925	↓**
170	Heptylparaben	C ₁₄ H ₂₀ O ₃	237.14856	5.891	+	0.0025	1.05	34462	↓**
171	Glycocholic acid	C ₂₆ H ₄₃ N O ₆	466.31623	11.949	+	0.0008	1.17	138	↑**
172	N-Acetyl-L-methionine	C ₇ H ₁₃ N O ₃ S	190.05459	5.887	—	0.0026	1.08	11745	↓**
173	2-(Malonylamino)benzoic acid	C ₁₀ H ₉ N O ₅	222.04073	1.652	—	0	1.4	39495	↑**
174	putrescine	C ₄ H ₁₂ N ₂	89.10774	1.128	+	0.0007	1.19	1414	↑**

175	Glycochenodeoxycholic acid	C ₂₆ H ₄₃ N O ₅	448.30719	11.513	—	0.0008	1.2	637	↑ ^{**}
176	Nicotinamide 1-oxide	C ₆ H ₆ N ₂ O ₂	139.05026	2.15	+	0.0008	1.08	2730	↓ ^{**}
177	Palmitoylglycine	C ₁₈ H ₃₅ N O ₃	314.26863	9.316	+	0.007	1	13034	↑ ^{**}
178	Desthiobiotin	C ₁₀ H ₁₈ N ₂ O ₃	215.13892	6.167	+	0.0002	1.07	3581	↑ ^{**}
179	L-Sorbose	C ₆ H ₁₂ O ₆	179.0564	1.771	—	0.0002	1.01	1266	↑ ^{**}
180	2(5H)-Furanone	C ₄ H ₄ O ₂	85.02882	1.423	+	0	1.05	32330	↑ ^{**}
181	Sinapyl alcohol	C ₁₁ H ₁₄ O ₄	209.08216	7.038	—	0	1.09	13070	↑ ^{**}
182	tetrahydrocortisol	C ₂₁ H ₃₄ O ₅	367.24776	7.105	+	0.0003	1.12	949	↓ ^{**}
183	androstenol	C ₁₉ H ₃₀ O	275.23676	20.293	+	0.001	1.02	5935	↑ ^{**}

MOD, the modeling group; NTG, the normal treatment group. *, $p < 0.05$; **, $p < 0.01$.

TABLE S2 Potential biomarkers in feces of rats in each group and their changing trends

No.	Metabolites	VIP	MOD/NTG	BTACG/MOD	L-FMT/MOD	H-FMT/MOD	M-FMT/MOD
1	DL-Lacticacid	3.96	↑ **	↓ **	↓ **	↓ **	↓ **
2	Pantothenicacid	2.65	↓ **	↑ **	↑ **	↑ **	↑ **
3	Nicotinamide	1.3	↑ *	↓ **	↓	↓ **	↓
4	Mesitol	2.29	↓ **	↑ **	↑ *	↑	↑ **
5	Paraldehyde	2.26	↑ **	↓ **	↓ **	↓	↓ **
6	Curcumene	2.02	↑ **	↓ **	↓ **	↓ **	↓ **
7	Ethanoicanhydride	2.06	↑ **	↓ **	↓ **	↓ **	↓ **
8	Palmitoylcarnitine	1.47	↓ *	↑ *	↑	↑	↑ *
9	Ritalinicacid	1.91	↑ **	↓ *	↓ **	↓ **	↓ **
10	Quinaldicacid/2- Quinolinecarboxylicacid	2.28	↑ **	↓ **	↓	↓	↓ **
11	D-(+)-Maltose	1.6	↑ **	↓ **	↓	↓	↓ **
12	Hexanal	1.7	↓ **	↑ **	↑	↑	↑ *
13	VitaminD3/Cholecalciferol	1.66	↓ **	↑ **	↑ *	↑	↑ *
14	Nicotinicacid	1.33	↓ **	↑ **	↑	↑	↑ **

15	LithocholicAcid	1.32	↓ **	↑ **	↑ **	↑ **	↑ **
16	1,4-Bis-(1,1-dimethylethyl)-benzene/1,4-Di-tert-butylbenzene	1.27	↑ **	↓ *	↓	↓	↓ **
17	5,7-Dihydroxy-3',4',5'-trimethoxyflavone	1.6	↑ **	↓ **	↓ **	↓ **	↓ **
18	3-Methoxytyramine	1.25	↓ **	↑ **	↑	↑	↑
19	3-Phenylpropanoicacid	1.1	↑ **	↓ **	↓ **	↓ **	↓ *
20	Celestolide	1.03	↑ **	↓ *	↓ **	↓ **	↓ **
21	2,6-Di-tert-butyl-1,4-benzoquinone	1.26	↓ **	↑ *	↑ **	↑	↑ *
22	Piperidine	1.01	↑ **	↓ *	↓ **	↓ **	↓ **
23	3-BHA	1.15	↓ **	↑ **	↑ **	↑ **	↑ **
24	N-Acetyl-L-methionine	1.08	↓ **	↑ **	↑ *	↑ *	↑
25	2(5H)-Furanone/LU3453000	1.05	↑ **	↓ **	↓ *	↑	↓ **
26	Sinapylalcohol	1.09	↑ **	↓ *	↓ **	↓ **	↓ **
27	LinoleoylEthanolamide	12.93	↑ **	↓ *	↓	↓	↓ *
28	Hippuricacid	3.63	↑ **	↓ *	↓ *	↓ **	↓ **
29	Geranylacetone	1.8	↓ *	↑ **	↑	↑ *	↑ **
30	Floionolicacid/Phloionolicacid	2.37	↓ **	↑ **	↑ *	↑ *	↑ **

31	3-Hydroxytetradecanedioicacid	1.99	↓ *	↑ **	↑	↑	↑ *
32	Oleanolicacid	2.74	↑ **	↓ **	↓	↓	↓ **
33	Butylparaben	2.44	↓ **	↑ **	↑	↑	↑ **
34	Palmitelaidicacid	2.25	↓ *	↑ **	↑	↑	↑ **
35	Tetrahydrocortisone	2.68	↓ **	↑ **	↓ **	↓ **	↓ **
36	16-Hydroxyhexadecanoicacid	1.81	↓ **	↑ *	↑	↑	↑ **
37	3,4-Dimethyl-5-pentyl-2-furanpropanoicacid	1.56	↑ *	↓ **	↓ **	↓ **	↓ **
38	9,10-Epoxyoctadecanoicacid/RG1300000	1.14	↓ *	↑ **	↑	↑	↑ **
39	Alanylproline/ALA-PRO	1.09	↑ *	↓ *	↓	↓	↓ *
40	L-Proline	1.52	↑ **	↓ **	↓	↓	↓ **
41	tetrahydrocortisol	1.12	↓ **	↑ **	↑	↑	↑ **

VIP, variable importance in projection; MOD, the modeling group; NTG, the no-treatment group; BTACG, the bifidobacterium triple active capsule group; FMT, fecal microbiota transplantation. *, $p < 0.05$; **, $p < 0.01$.