

Figure S1. Loading scatter plot from the OPLS-DA model.

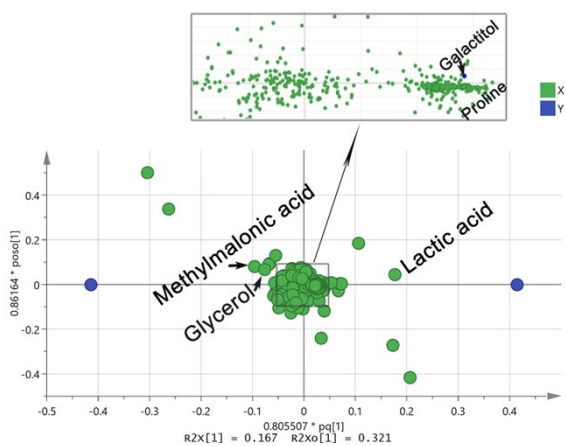


Table S1. Envfit test of the RDA on differential metabolites against fecal microbiota

Metabolite	RDA1	RDA2	r2	P-Value
Glycerol	0.08882	-0.99605	0.1657	0.038*
Galactitol	-0.98913	0.14705	0.1075	0.133
Lactic_acid	-0.00380	0.99999	0.3255	0.003**
Methylmalonic acid	0.25389	-0.96723	0.1583	0.05*
Proline	-0.32288	0.94644	0.1847	0.031*

RDA1 and RDA2 represent the cosine value of angle with the two ordination axes in Figure 3C

r2 represents the coefficient of determination on the metabolite against the microbiota, the bigger the value, the higher the effect of the metabolite.

P-Value represents results of significant test of the correlation, '**' 0.01, '*' 0.05, ' ' 1

Table S2. Spearman rank correlation of differential plasma metabolites with clinical indices of GDM.

	FG	DeltaBMI	Diastolic pressure	Systolic pressure	Fundal height	Abdominal circumference	Galactitol	Lactic acid	Methylmalonic acid	Proline
FG		-0.27	-0.40	-0.52	-0.19	-0.62	-0.75	0.83	-0.77	0.76
DeltaBMI	4.44E-01		0.74	0.89	0.49	0.59	-0.16	-0.38	-0.08	-0.09
Diastolic Pressure	2.53E-01	1.42E-02		0.82	0.55	0.54	-0.10	-0.56	0.08	-0.15
Systolic pressure	1.23E-01	5.85E-04	3.49E-03		0.39	0.70	0.01	-0.57	0.13	-0.26
Fundal height	6.05E-01	1.48E-01	1.02E-01	2.61E-01		0.64	-0.16	-0.44	-0.11	0.11
Abdominal circumference	5.81E-02	6.97E-02	1.09E-01	2.46E-02	4.54E-02		0.13	-0.67	0.18	-0.21
Galactitol	1.17E-02	6.52E-01	7.86E-01	9.71E-01	6.60E-01	7.25E-01		-0.57	0.91	-0.91
Lactic acid	3.08E-03	2.82E-01	8.97E-02	8.33E-02	1.99E-01	3.30E-02	8.59E-02		-0.70	0.67
Methylmalonic acid	9.44E-03	8.30E-01	8.35E-01	7.29E-01	7.59E-01	6.13E-01	2.45E-04	2.43E-02		-0.96
Proline	1.03E-02	8.11E-01	6.74E-01	4.69E-01	7.55E-01	5.59E-01	2.57E-04	3.59E-02	6.62E-06	

FG: Fasting glucose; DeltaBMI: The difference between BMI at sampling and BMI before pregnancy.

The upper right panel exhibits the rho values of the correlation matrix. Positive value indicates positive correlation, negative value indicates negative correlation.

The bottom left panel exhibits the *P* values of the correlation matrix.

Table S3. Envfit test of RDA on OTUs of fecal microbiota against plasma metabolome

OTU	RDA1	RDA2	r2	Pr(>r)
OTU000137	0.81679	-0.57694	0.2309	0.001
OTU000726	0.87569	-0.48287	0.3415	0.001
OTU000705	0.76584	-0.64303	0.3161	0.001
OTU000967	0.82092	-0.57105	0.2212	0.001
OTU000536	-0.87623	-0.48189	0.2376	0.001
OTU000566	0.83419	-0.55148	0.1999	0.003
OTU000068	-0.7577	-0.6526	0.2986	0.004
OTU000305	0.91265	-0.40874	0.2243	0.004
OTU000340	0.82099	-0.57095	0.2807	0.004
OTU000507	0.82726	-0.56181	0.1651	0.005
OTU000525	0.81853	-0.57446	0.1793	0.005
OTU000691	-0.88234	-0.47061	0.1957	0.005
OTU000221	-0.936	-0.35199	0.2439	0.007
OTU000453	0.83492	-0.55037	0.1638	0.007
OTU000579	-0.80619	-0.59166	0.2109	0.007
OTU000648	0.8355	-0.54949	0.1671	0.007
OTU000773	0.67404	-0.73869	0.2263	0.007
OTU000819	0.83577	-0.54908	0.1685	0.007
OTU000805	0.83587	-0.54893	0.169	0.007
OTU000581	0.89583	-0.4444	0.2779	0.007
OTU000111	-0.9002	-0.43547	0.22	0.008
OTU000816	0.83613	-0.54853	0.1705	0.008
OTU000814	-0.84494	-0.53486	0.1629	0.009
OTU000480	0.70087	-0.71329	0.2067	0.01
OTU000894	0.83655	-0.54789	0.1727	0.01
OTU000501	0.9652	-0.26152	0.1818	0.011
OTU000468	0.79325	-0.60889	0.1734	0.011
OTU000141	-0.92837	-0.37165	0.1743	0.013
OTU000455	0.73955	-0.6731	0.2192	0.013
OTU000590	-0.84267	-0.53844	0.161	0.013
OTU000512	0.83314	-0.55307	0.1621	0.013
OTU000509	0.69416	-0.71983	0.1966	0.013
OTU000504	-0.82931	-0.55879	0.1618	0.013
OTU000689	0.08754	-0.99616	0.1957	0.013
OTU000583	0.84313	-0.53771	0.1621	0.013
OTU000883	-0.90432	-0.42686	0.2009	0.014
OTU001060	0.92497	-0.38004	0.1789	0.014
OTU000508	-0.84216	-0.53923	0.1649	0.015
OTU000461	0.8326	-0.55388	0.1621	0.016
OTU000616	0.7544	-0.65642	0.1883	0.016
OTU000847	-0.81075	-0.58539	0.1755	0.019
OTU000778	-0.81637	-0.57752	0.1631	0.021

Table S3 Continued 1.

OTU	RDA1	RDA2	r2	Pr(>r)
OTU000844	0.84407	-0.53624	0.1608	0.021
OTU000607	0.83471	-0.55069	0.1627	0.022
OTU000567	0.83471	-0.55069	0.1627	0.022
OTU000606	0.83471	-0.55069	0.1627	0.022
OTU000808	-0.8024	-0.59679	0.1641	0.022
OTU000845	0.83471	-0.55069	0.1627	0.022
OTU000890	0.83471	-0.55069	0.1627	0.022
OTU001008	0.83471	-0.55069	0.1627	0.022
OTU000908	0.83471	-0.55069	0.1627	0.022
OTU000039	-0.78634	-0.61779	0.1956	0.024
OTU000165	0.99957	0.02945	0.1678	0.026
OTU000522	-0.88414	-0.46722	0.1695	0.026
OTU000925	-0.68	-0.73321	0.182	0.026
OTU000554	-0.99228	-0.12402	0.178	0.026
OTU000114	0.72538	-0.68835	0.164	0.027
OTU000102	0.00874	0.99996	0.1742	0.027
OTU000390	0.81648	-0.57738	0.1545	0.027
OTU000352	0.81779	-0.57552	0.1746	0.027
OTU000355	0.8682	-0.49622	0.1523	0.027
OTU000812	-0.64725	-0.76228	0.1655	0.027
OTU000927	0.82676	-0.56255	0.1564	0.027
OTU000341	0.87764	-0.47933	0.1501	0.028
OTU000147	0.87995	-0.47508	0.1502	0.029
OTU000285	-0.98621	-0.16548	0.1703	0.029
OTU000483	0.89235	-0.45135	0.1573	0.029
OTU000268	0.69001	-0.7238	0.1684	0.031
OTU000370	0.96696	-0.25493	0.1579	0.031
OTU000620	-0.83251	-0.55402	0.1595	0.031
OTU000241	0.85556	-0.51771	0.1623	0.032
OTU000609	-0.59581	-0.80312	0.1691	0.032
OTU000129	-0.3025	-0.95315	0.1859	0.033
OTU000313	0.84888	-0.52859	0.1533	0.033
OTU000673	0.8502	-0.52646	0.1529	0.033
OTU000739	0.92443	-0.38134	0.1621	0.033
OTU000467	0.89613	-0.44379	0.175	0.034
OTU000301	0.87514	-0.48387	0.162	0.035
OTU000988	-0.83513	-0.55006	0.1576	0.035
OTU000336	0.40281	-0.91529	0.1653	0.037
OTU000353	0.44899	-0.89354	0.1734	0.037
OTU000976	-0.57407	-0.81881	0.1652	0.038
OTU000071	0.29018	-0.95697	0.1562	0.039
OTU000496	0.85523	-0.51826	0.1515	0.039

Table S3 Continued 2.

OTU	RDA1	RDA2	r2	Pr(>r)
OTU000105	0.96603	-0.25841	0.1651	0.041
OTU000349	0.71864	-0.69538	0.1469	0.041
OTU000277	0.91722	-0.39838	0.1645	0.042
OTU000255	0.78456	-0.62005	0.1691	0.043
OTU000292	0.8692	-0.49446	0.1471	0.043
OTU000793	-0.83562	-0.54931	0.1537	0.044
OTU000521	0.53186	-0.84683	0.1596	0.045
OTU000568	0.85256	-0.52262	0.1421	0.048
OTU000332	0.85105	-0.52509	0.1515	0.049
OTU000547	0.85783	-0.51394	0.1542	0.049
OTU000760	-0.84072	-0.54146	0.1541	0.05
OTU000709	0.49485	-0.86898	0.1516	0.05

RDA1 and RDA2 represent the cosine value of angle with the two ordination axes in Figure 3C
r2 represents the coefficient of determination on the metabolite against the microbiota,
the bigger the value, the higher effect of the metabolite.

Pr represents significant test of the correlation, '**' 0.01, '*' 0.05, ' ' 1

Table S4. Spearman rank correlation on fecal microbiota members that contributed to the separation of the plasma metabolome of GDM.

	OTU 000607	OTU 000567	OTU 000805	OTU 000819	OTU 000453	OTU 000461	OTU 000606	OTU 000583	OTU 000648	OTU 000816	OTU 000894	OTU 000845	OTU 000890	OTU 001008	OTU 000908	
OTU000607		1.00	0.72	0.72	0.72	0.59	1.00	0.59	0.72	0.72	0.72	0.72	1.00	1.00	1.00	
OTU000567	2.58E-293		0.72	0.72	0.72	0.59	1.00	0.59	0.72	0.72	0.72	0.72	1.00	1.00	1.00	
OTU000805	2.04E-07	2.04E-07		1.00	1.00	0.82	0.72	0.82	1.00	1.00	1.00	0.50	0.72	0.72	0.72	
OTU000819	2.04E-07	2.04E-07	2.58E-293		1.00	0.82	0.72	0.82	1.00	1.00	1.00	0.50	0.72	0.72	0.72	
OTU000453	2.04E-07	2.04E-07	2.58E-293	2.58E-293		0.82	0.72	0.82	1.00	1.00	1.00	0.50	0.72	0.72	0.72	
OTU000461	5.66E-05	5.66E-05	1.33E-10	1.33E-10	1.33E-10		0.59	0.66	0.82	0.82	0.82	0.40	0.59	0.59	0.59	
OTU000606	2.58E-293	2.58E-293	2.04E-07	2.04E-07	2.04E-07	5.66E-05		0.59	0.72	0.72	0.72	0.72	1.00	1.00	1.00	
OTU000583	5.66E-05	5.66E-05	1.33E-10	1.33E-10	1.33E-10	3.97E-06	5.66E-05		0.82	0.82	0.82	0.40	0.59	0.59	0.59	
OTU000648	2.04E-07	2.04E-07	2.58E-293	2.58E-293	2.58E-293	1.33E-10	2.04E-07	1.33E-10		1.00	1.00	0.50	0.72	0.72	0.72	
OTU000816	2.04E-07	2.04E-07	2.58E-293	2.58E-293	2.58E-293	1.33E-10	2.04E-07	1.33E-10	2.58E-293		1.00	0.50	0.72	0.72	0.72	
OTU000894	2.04E-07	2.04E-07	2.58E-293	2.58E-293	2.58E-293	1.33E-10	2.04E-07	1.33E-10	2.58E-293	2.58E-293		0.50	0.72	0.72	0.72	
OTU000845	2.04E-07	2.04E-07	1.02E-03	1.02E-03	1.02E-03	9.93E-03	2.04E-07	9.93E-03	1.02E-03	1.02E-03	1.02E-03		0.72	0.72	0.72	
OTU000890	2.58E-293	2.58E-293	2.04E-07	2.04E-07	2.04E-07	5.66E-05	2.58E-293	5.66E-05	2.04E-07	2.04E-07	2.04E-07	2.04E-07		1.00	1.00	
OTU001008	2.58E-293	2.58E-293	2.04E-07	2.04E-07	2.04E-07	5.66E-05	2.58E-293	5.66E-05	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.58E-293		1.00
OTU000908	2.58E-293	2.58E-293	2.04E-07	2.04E-07	2.04E-07	5.66E-05	2.58E-293	5.66E-05	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.58E-293	2.58E-293	

OTU: Operational Taxonomy Unit

The upper right panel exhibits the rho values of the correlation matrix. Positive value indicates positive correlation, negative value indicates negative correlation.

The bottom left panel exhibits the *P* values of the correlation matrix.