

Supplementary Table 1 KEGG pathway of SCFAs

Layer1	Layer2	Pathway ID	Pathway name	SCFAs
	Global and overview maps	map01220	Degradation of aromatic compounds	Acetic acid; Propionic acid; Isobutyric acid
	Global and overview maps	map01120	Microbial metabolism in diverse environments	Acetic acid; Propionic acid; Isobutyric acid
	Global and overview maps	map01200	Carbon metabolism	Acetic acid
	Global and overview maps	map01100	Metabolic pathways	Acetic acid; Propionic acid; Butyric acid; Isobutyric acid
Metabolism	Global and overview maps	map01110	Biosynthesis of secondary metabolites	Acetic acid; Isovaleric acid
	Carbohydrate metabolism	map00640	Propanoate metabolism	Acetic acid; Propionic acid
	Carbohydrate metabolism	map00620	Pyruvate metabolism	Acetic acid
	Carbohydrate metabolism	map00660	C5-Branched dibasic acid metabolism	Acetic acid
	Carbohydrate metabolism	map00650	Butanoate metabolism	Butyric acid
	Carbohydrate metabolism	map00630	Glyoxylate and dicarboxylate metabolism	Acetic acid
	Energy	map00920	Sulfur metabolism	Acetic acid

metabolism				
Energy metabolism	map00720	Carbon fixation pathways in prokaryotes		Acetic acid
Energy metabolism	map00680	Methane metabolism		Acetic acid
Metabolism of other amino acids	map00430	Taurine and hypotaurine metabolism		Acetic acid
Metabolism of other amino acids	map00010	Glycolysis / Gluconeogenesis		Acetic acid
Metabolism of other amino acids	map00440	Phosphonate and phosphinate metabolism		Acetic acid
Xenobiotics biodegradation and metabolism	map00642	Ethylbenzene degradation		Propionic acid
Metabolism of terpenoids and polyketides	map00908	Zeatin biosynthesis		Acetic acid
Metabolism of cofactors and vitamins	map00760	Nicotinate and nicotinamide metabolism		Propionic acid
Glycan biosynthesis and metabolism	map00534	Glycosaminoglycan biosynthesis - heparan sulfate / heparin		Acetic acid
Chemical structure transformation maps	map01065	Biosynthesis of alkaloids derived from histidine and purine		Isovaleric acid

				Acetic acid;
				Propionic acid;
	Digestive system	map04974	Protein digestion and absorption	Butyric acid;
Organismal Systems				Isobutyric acid;
				Isovaleric acid
			Carbohydrate	Acetic acid;
	Digestive system	map04973	digestion and absorption	Propionic acid;
				Butyric acid
	Nervous system	map04725	Cholinergic synapse	Acetic acid

Supplementary Table 2 Comparison of baseline data between NP and ICP group

Index	NP (n = 30)	ICP (n = 34)	P-value
Age (yr), median (IQR)	29 (26,30)	30 (26.75,32.25)	0.078 ^b
35 yr or older [n (%)]	0 (00.00)	4 (11.76)	0.155 ^c
Education Attainment			0.052 ^c
Less than 12 yr [n (%)]	16 (53.33)	26 (76.47)	
Greater than or equal to 12 yr [n (%)]	14 (46.67)	8 (23.53)	
The number of pregnancy (n), median (IQR)	2 (1,2.25)	2 (1,3)	0.078 ^b
The number of delivery			0.156 ^c
Primiparity [n (%)]	17 (56.67)	25 (73.53)	
Multiparity [n (%)]	13 (43.33)	9 (26.47)	
Pre pregnancy BMI (kg/m ² , mean ± SD)	22.25 ± 3.10	21.46 ± 3.41	0.339 ^a
Weight gain during pregnancy (kg, mean ± SD)	14.30 ± 4.05	12.21 ± 5.38	0.087 ^a
Pre partum BMI (kg/m ² , mean ± SD)	27.67 ± 3.72	26.21 ± 4.09	0.142 ^a
Maternal Fundal height (cm, mean ± SD)	34.60 ± 2.43	32.79 ± 3.19	0.014 ^{a*}
Maternal abdominal circumference (cm, mean ± SD)	102.17 ± 5.89	97.47 ± 8.73	0.016 ^{a*}

^aUsing Student's *t*-tests; ^bUsing Wilcoxon rank sum test; ^cUsing the chi-square test or Fisher's exact test. **P* < 0.05; ***P* < 0.01; ****P* < 0.001. BMI: Body mass index.

Supplementary Table 3 Blood indexes before delivery in NP and ICP group

Index	NP (<i>n</i> = 30)	ICP (<i>n</i> = 34)	<i>P</i> -value
Blood routine			
Leukocyte ($\times 10^9/L$), median (IQR)	9.75 (8.78,12.63)	7.8 (6.38,9.53)	0.000335 ^{b***}
Erythrocyte ($\times 10^{12}/L$), median (IQR)	4.10 (3.90,4.41)	3.78 (3.48,4.1)	0.003 ^{b**}
Hemoglobin (g/L, mean \pm SD)	127.33 \pm 12.14	117.41 \pm 12.32	0.002 ^{a**}
Hematocrit, median (IQR)	0.385 (0.35,0.4)	0.35 (0.33,0.38)	0.010 ^{b*}
Platelet ($\times 10^9/L$, mean \pm SD)	190.53 \pm 45.92	195.38 \pm 51.56	0.698 ^a
Absolute value of monocytes ($\times 10^9/L$, mean \pm SD)	0.54 \pm 0.14	0.45 \pm 0.15	0.023 ^{a*}
Percentage of neutrophils (% , mean \pm SD)	77.96 \pm 6.69	72.50 \pm 8.86	0.008 ^{a**}
Percentage of monocytes (% , mean \pm SD)	5.21 \pm 1.44	5.71 \pm 1.52	0.177 ^a
C-reactive protein (mg/L), median (IQR)	4.1 (1.68,5.7)	2.35 (1.5,4.4)	0.162 ^b
Liver function			
Total bilirubin ($\mu\text{mol}/L$), median (IQR)	8.15 (6.73,10.53)	9.9 (6.48,11.93)	0.294 ^b
Direct bilirubin ($\mu\text{mol}/L$), median (IQR)	1.3 (0.9,1.8)	1.9 (1.2,2.775)	0.018 ^{b*}
Indirect bilirubin ($\mu\text{mol}/L$, mean \pm SD)	7.25 \pm 2.29	7.32 \pm 2.61	0.906 ^a
Albumin (g/L), median (IQR)	36.5 (34.65,39.3)	35.6 (33.2,38.1)	0.102 ^b

Globulin (g/L, mean \pm SD)	26.99 \pm 3.33	26.47 \pm 3.86	0.571 ^a
Glutamic-pyruvic transaminase (U/L), median (IQR)	9 (7,11.25)	15 (10,54)	0.000168 ^{b***}
Glutamic-oxaloacetic transaminase (U/L), median (IQR)	20 (17,21)	21 (17.5,55)	0.047 ^{b*}
Total bile acid (μ mol/L), median (IQR)	2.15 (1.48,3.75)	17.1 (11.1,29.4)	1.8761E-11 ^{b**} *
Cholyglycine (mg/L), median (IQR)	1.3 (1.3,1.5)	2.45 (1.5,6.58)	0.000113 ^{b***}
Coagulation			
Plasma prothrombin time (s), median (IQR)	10.95 (10.7,11.5)	11.2 (10.9,11.63)	0.141 ^b
Activated partial thromboplastin time (s, mean \pm SD)	26.89 \pm 1.54	26.48 \pm 1.78	0.338 ^a
Thrombin time (s, mean \pm SD)	16.61 \pm 1.40	16.34 \pm 1.17	0.406 ^a
Determination of plasma fibrinogen (g/L), median (IQR)	3.73 (3.39,4.04)	4.07 (3.31,4.77)	0.111 ^b
D-Dimer, median (IQR)	503 (326,788.25)	474.5 (337.7,71)	0.888 ^b

^aUsing Student's *t*-tests; ^bUsing Wilcoxon rank sum test; ^cUsing the chi-square test or Fisher's exact test. **P* < 0.05; ***P* < 0.01; ****P* < 0.001.

Supplementary Table 4 Fetal ultrasound indexes in NP and ICP group

Index	NP (<i>n</i> = 30)	ICP (<i>n</i> = 34)	<i>P</i> -value
Biparietal Diameter (mm), median (IQR)	93.5 (92,95.25)	91 (88,30)	0.032 ^{b*}
Fetal head circumference (mm), median (IQR)	335 (330,339.75)	327 (319,30)	0.007 ^{b*}
Fetal abdominal circumference (mm, mean ± SD)	337.20 ± 19.36	326.57 ± 18.67	0.028 ^{a*}
Fetal femur length (mm, mean ± SD)	71.47 ± 3.47	68.89 ± 3.87	0.007 ^{a**}

^aUsing Student's *t*-tests; ^bUsing Wilcoxon rank sum test; ^cUsing the chi-square test or Fisher's exact test. **P* < 0.05; ***P* < 0.01; ****P* < 0.001.

Supplementary Table 5 Pregnancy outcomes in NP and ICP group

Index	NP (<i>n</i> = 30)	ICP (<i>n</i> = 34)	<i>P</i> -value
Gestational week of delivery (wk), median (IQR)	39.36 (38.82,39.89)	38 (37,38.86)	0.000019 ^{b***}
Neonatal birth weight (g, mean ± SD)	3476.00 436.12	± 3063.14 ± 386.62	0.000145 ^{a***}
Delivery method			0.000392 ^{c***}
Vaginal delivery [<i>n</i> (%)]	23 (76.67)	11 (32.35)	
Cesarean delivery [<i>n</i> (%)]	7 (23.33)	23 (67.65)	

^aUsing Student's *t*-tests; ^bUsing Wilcoxon rank sum test; ^cUsing the chi-square test or Fisher's exact test. **P* < 0.05; ***P* < 0.01; ****P* < 0.001.