

1 **Supplemental Table 1. Relative gene expression of nutrient transporters in**
2 **placenta**

Gene	Control	0.4% Leucine	0.8% Leucine
SLC1A4	1.12±0.13	1.31±0.17	1.04±0.21
SLC7A1	1.14±0.19 ^a	2.27±0.28 ^b	2.39±0.34 ^b
SLC7A2	1.09±0.21 ^a	2.65±0.29 ^b	5.13±1.32 ^c
SLC7A5	1.07±0.09	1.12±0.23	1.09±0.16
SLC7A6	1.13±0.08	1.11±0.12	1.16±0.21
SLC7A7	1.08±0.11	1.04±0.14	1.08±0.21
SLC7A8	1.17±0.19 ^a	3.75±0.47 ^b	4.32±0.89 ^c
SLC7A10	1.11±0.13	1.16±0.21	1.09±0.18
SLC7A11	1.02±0.19 ^a	4.13±0.67 ^b	4.32±0.87 ^b
SLC15A1	1.03±0.21 ^a	1.89±0.19 ^b	3.76±0.43 ^c
SNAT1	1.06±0.21 ^a	1.57±0.31 ^a	1.62±0.29 ^b
SNAT2	1.09±0.18	1.13±0.21	1.14±0.22
LAT1	1.07±0.24 ^a	1.61±0.31 ^b	1.63±0.37 ^b
4F2hc	1.04±0.19 ^a	1.78±0.23 ^b	1.80±0.21 ^b
rBAT	1.02±0.11 ^a	1.45±0.19 ^b	1.48±0.22 ^b
SLC2A1	1.07±0.12 ^a	5.22±0.89 ^b	7.89±0.43 ^c
SLC2A2	1.05±0.13 ^a	2.17±0.23 ^b	2.19±0.31 ^b
SLC2A3	1.04±0.18 ^a	6.18±0.97 ^b	8.13±0.74 ^c
SLC2A5	1.03±0.17	1.04±0.19	1.07±0.21
SLC2A6	1.07±0.14 ^a	1.88±0.31 ^b	2.14±0.34 ^b
SLC2A8	1.01±0.13	1.04±0.12	1.02±0.18
SGLT1	1.02±0.17	1.11±0.21	1.09±0.20
SCLT3	1.05±0.19	1.45±0.39	1.31±0.25
SGLT5	1.06±0.21	1.41±0.32	1.43±0.28
FATP1	1.08±0.34 ^a	2.56±0.38 ^b	2.68±0.45 ^b
FATP2	1.07±0.23 ^a	1.56±0.29 ^b	2.17±0.31 ^c
FATP3	1.06±0.21	1.08±0.23	1.07±0.19
FATP4	1.08±0.19	1.11±0.24	1.12±0.21
CD36	1.01±0.29 ^a	1.56±0.31 ^b	1.63±0.24 ^b
FABP3	1.03±0.19 ^a	1.43±0.21 ^b	1.34±0.23 ^b
FABP4	1.04±0.17	1.06±0.17	1.08±0.19
FABP5	1.02±0.13 ^a	1.53±0.21 ^b	1.61±0.27 ^b
FABP7	1.01±0.21 ^a	2.61±0.31 ^b	2.76±0.41 ^b

3 Note: Dates are showed as means ± SEM (n = 10), Different letters (a, b, c) indicate significant
4 differences (P<0.05).

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Supplemental Table 2. Differential metabolites between the placenta from 3 groups of sows

Metabolites	AB (VIP)	AB (P)	Ratio (B/A)	AC (VIP)	AC (P)	Ratio (C/A)	BC (VIP)	BC (P)	Ratio (C/B)
Glutathione	4.70	0.04	1.93	3.90	0.03	2.23	0.79	0.09	1.12
PC(16:0/18:2(9Z,12Z))	5.25	0.03	1.87	0.92	0.07	1.23	0.87	1.21	0.94
Octadecyl fumarate	4.17	0.02	0.71	0.76	1.22	0.89	0.65	1.67	1.97
PC(20:0/16:1(9Z))	1.66	0.03	2.45	1.25	0.01	3.27	0.67	0.60	1.12
1-Phenyl-1,3-eicosanedione	9.12	0.04	4.22	0.89	1.56	3.11	0.45	2.67	2.28
Hydroxy-3-oxocholanoic acid	2.30	0.02	2.34	0.79	0.09	1.67	0.87	0.91	1.22
PA(P-20:0/22:0)	1.15	0.04	0.89	0.79	0.88	1.12	0.96	1.67	0.98
2-Arachidonoylglycerophosphocholine	3.22	0.03	2.13	2.04	0.01	2.34	0.67	1.22	0.79
PC(16:0/18:1(11Z))	2.05	0.03	0.74	2.89	0.02	0.86	1.61	0.08	1.23
LysoPC(20:4(5Z,8Z,11Z,14Z))	1.64	0.01	1.97	1.89	0.04	2.23	0.57	1.89	1.34
L-Histidine	3.05	0.03	0.89	3.00	0.05	0.78	0.29	1.67	1.25
SM(d18:1/24:1(15Z))	2.35	0.04	1.89	3.15	0.03	2.25	0.86	0.09	1.36
MG(0:0/22:4(7Z,10Z,13Z,16Z)/0:0)	3.10	0.03	2.67	1.89	0.04	3.11	0.95	1.22	1.34
MG(22:4(7Z,10Z,13Z,16Z)/0:0/0:0)	1.81	0.04	2.21	1.73	0.05	1.94	0.67	0.08	1.34
SM(d18:0/18:1(11Z))	1.21	0.01	2.21	1.81	0.02	2.56	0.86	0.97	1.22
PE(18:0/20:2(11Z,14Z))	0.72	0.60	0.89	2.02	0.02	1.89	1.97	0.06	1.66
MG(22:5(4Z,7Z,10Z,13Z,16Z)/0:0/0:0)	2.39	0.24	2.23	2.39	0.03	3.25	4.45	0.03	1.97
PC(22:5(7Z,10Z,13Z,16Z,19Z)/16:0)	0.98	0.08	1.32	1.39	0.03	2.99	3.27	0.01	2.78
L-Phenylalanine	0.97	0.15	1.15	2.00	0.04	3.21	1.67	0.03	2.17
C16 Sphinganine	1.20	0.18	1.07	1.76	0.03	3.31	1.23	0.04	1.56
3-O-Sulfogalactosylceramide (d18:1/22:0)	2.62	0.14	4.23	2.56	0.04	2.78	0.56	0.97	2.22
1-Hydroxyprevitamin D3 diacetate	0.97	0.89	0.84	1.96	0.02	1.88	0.74	0.54	1.35
N-Decanoyl-L-histidine	0.35	1.22	1.23	1.34	0.03	2.11	0.25	0.73	2.89
PI(17:0/22:4(7Z,10Z,13Z,16Z))	0.79	2.35	0.89	2.13	0.04	0.79	1.36	0.03	0.88

epsilon-Tocopherol	0.60	0.77	1.56	1.63	0.04	2.67	1.71	0.01	3.09
3,4-Diethylthiophene	0.97	0.09	2.23	1.89	0.02	0.79	2.23	0.02	0.69
d-Tocotrienol	1.23	0.33	1.77	0.92	0.26	1.98	1.96	0.03	2.34
Gamma-Tocotrienol	0.81	0.47	0.79	0.97	0.06	1.23	1.56	0.04	1.78
Tetracosahexaenoic acid	0.84	1.23	2.12	0.65	0.09	1.97	2.96	0.04	1.53

Note: A is control group, B is control + 0.4% Leu and C is control + 0.8% Leu. $P < 0.05$ indicates significant differences.