

1 **Table S1. Compositions of diets for sows during late gestation and lactation**

Ingredients	Nutrient composition [#]				
	Gestation	Lactation		Gestation	Lactation
Corn	63.17	58.81	DM	88.73	88.04
Soybean meal	16.75	26.50	DE (Mcal/kg)	3269	3332
Wheat bran	14.00	8.71	CP	15.12	18.11
Soybean oil	2.50	2.50	Ca	0.68	0.80
CaHPO ₄	0.81	1.45	TP	0.58	0.68
Limestone	1.17	1.05	AP	0.29	0.34
Salt	0.50	0.50			
Lysine	0.24	0.08			
Threonine	0.05	-			
Tryptophan	0.01	-			
Premix*	0.50	0.50			
Total	100	100			

2 * Provided the following per kg of complete diet: vitamin A, 12,000 IU; vitamin E, 24
3 IU; vitamin K3, 2.0 mg; thiamine, 2.0 mg; riboflavin, 6.0 mg; pyridoxine, 4 mg; vitamin
4 B12, 24 mg; niacin, 30 mg; pantothenic acid, 20 mg; folic acid, 3.6 mg; biotin, 0.4 mg;
5 choline chloride, 0.4 mg; iron, 96 mg; copper, 8.0 mg; zinc, 120 mg; manganese, 40
6 mg; iodine, 0.56 mg; selenium, 0.4 mg.

7 [#] Calculated value.

8 DM, dry matter; DE, digestible energy; CP, crude protein; TP, total phosphorus; AP,
9 available phosphorus

10 **Table S2. Primer sequences of tight junctions, mucins and GPRs**

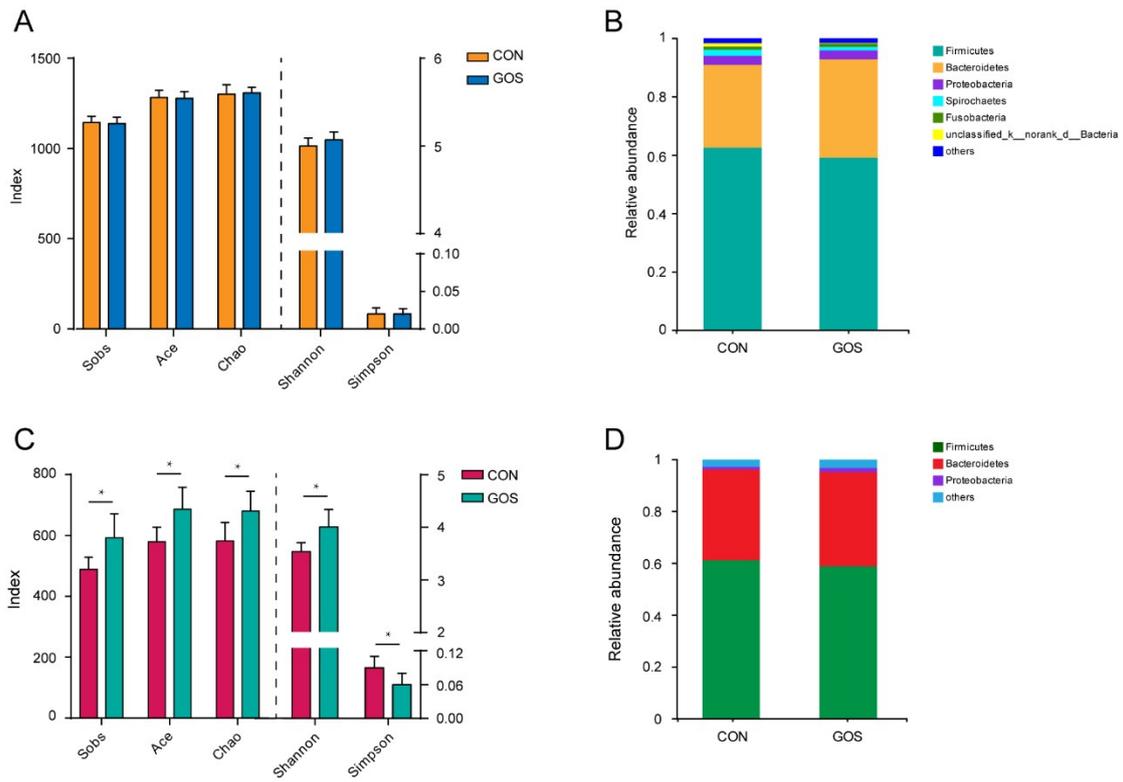
Genes	Primer sequence (5'→3')	Genbank No.
<i>GAPDH</i>	F: ACCCAGAAGACTGTGGATGG	NM_008084
	R: AAGCAGGGATGATGTTCTGG	
<i>Occludin</i>	F: ATCAACAAAGGCAACTCT	XM_005672525.3
	R: GCAGCAGCCATGTACTCT	
<i>Claudin-1</i>	F: AAGGACAAAACCGTGTGGGA	NM_001244539.1
	R: CTCTCCCCACATTCGAGATGATT	
<i>Claudin-2</i>	F: GCTGGCGAACGAGTTCTTAC	NM_001171095.2
	R: AGATGGCGCTAGATGTCACC	
<i>ZO-1</i>	F: GCCATCCACTCCTGCCTAT	XM_005659811.1
	R: CGGGACCTGCTCATAACTTC	
<i>Mucin-1</i>	F: GTGCCGACGAAAGAACTG	AY243508
	R: TGCCAGGTTTCGAGTAAGAG	
<i>Mucin-2</i>	F: CTGTGTGGGGCCTGACAA	AK231524.1
	R: AGTGCTTGCAGTCGAACTCA	
<i>GPR41</i>	F: TGGGGTCTCAAAGAAGCAGT	NM_005304.5
	R: GTGATTGCCGGAGAAGTAGG	
<i>GPR43</i>	F: CGTGTTTCATCGTTCAGTA	XM_021093196.1
	R: GAAGTTCTCATAGCAGGTA	
<i>GPR119</i>	F: TGATGAATGGGCTTGTGGCT	NM_001287850.1
	R: CCCTTGTAGGTGGTCTGCTG	
<i>GPR120</i>	F: TCCAGAACTTCAAGCAAAACCT	NM_001204766.1
	R:	

GTGACAAATAGATGCCGATAGACAA

11 GAPDH, glyceraldehyde-3-phosphate dehydrogenase; ZO-1, zonula occluden-1;

12 GPRs, G-protein coupled receptors.

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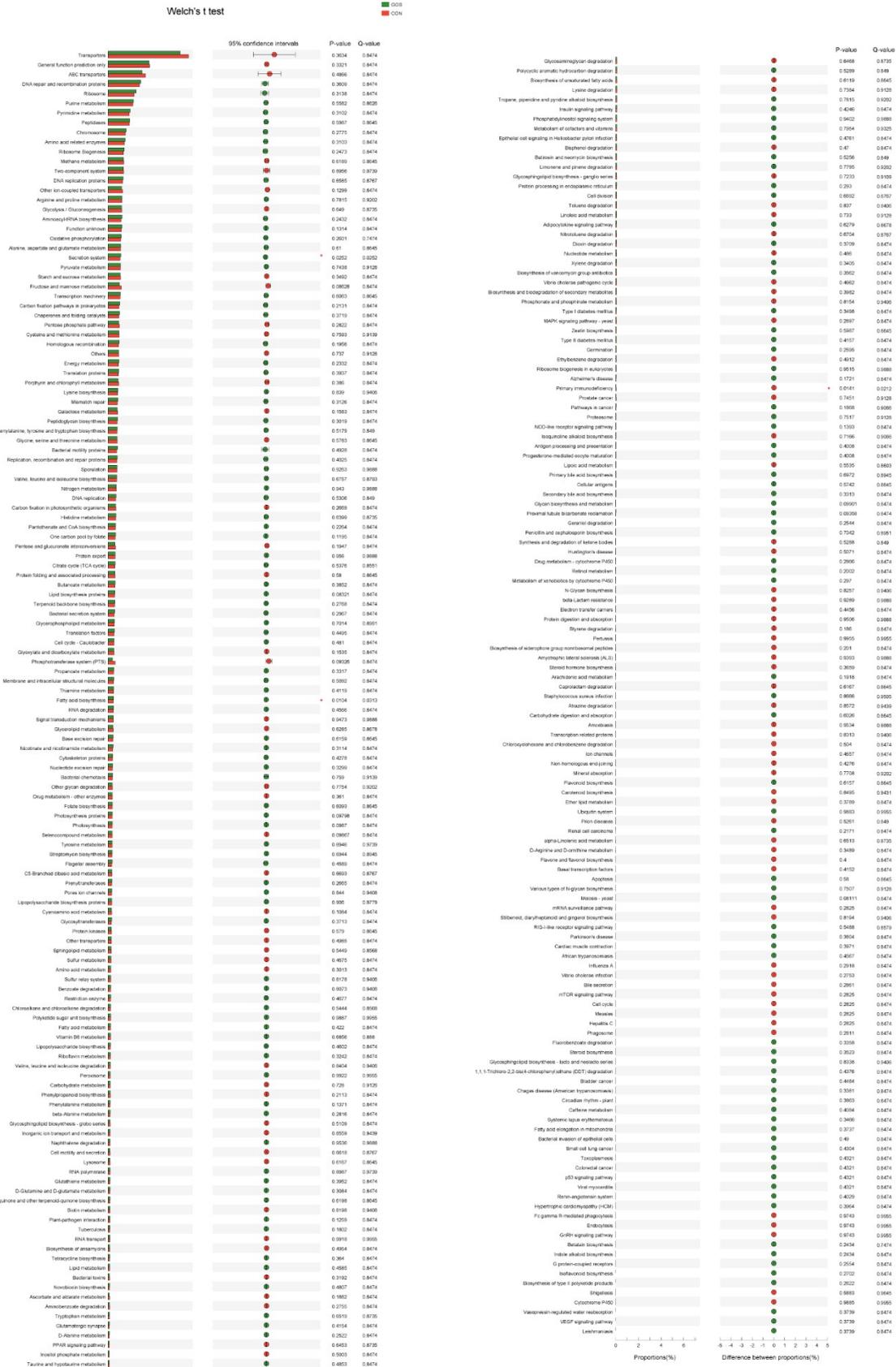


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15 **Figure S1. Alpha diversity and microbial composition at phylum level of the sows**
 16 **and their offspring**

17 Alpha diversity (Sobs index, Ace index, Chao index, Shannon index and Simpson
 18 index) of sows (A) and offspring (C); percentages of community abundance at phylum
 19 level of sows (B) and offspring (D). CON, sows fed basal diet; GOS, sows fed basal
 20 diet plus galactooligosaccharides. * $P < 0.05$. (n = 7 for sows and n = 5 for piglets per
 21 group).

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24 **Figure S2. Whole predictive pathways of Kyoto Encyclopedia of Genes and**

25 **Genomes (KEGG) annotation of piglets. CON, sows fed basal diet; GOS, sows fed**

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26 basal diet plus galactooligosaccharides. * $P < 0.05$; ** $P < 0.01$.