**Simultaneous supplementation of Bacillus Subtilis and Antibiotic Growth Promoters by Stages Improved Intestinal Function of Pullets by Altering Gut Microbiota**

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**Supplementary files**

**Supplementary** **Figure 1.** The standard curve and equation of *C. leptum*, *B. fragilis*, *E. coli*, and *S. enteritidis* plasmids. Note: The abscissa represented lg vaules of copy numbers in the plasmids by dilutions (10-1~10-6) and the ordinate represented the cycle threshold vaules, R2 > 0.99.

**Supplementary** **Figure 2** Abundance of the predicted gene related to KEGG pathways at level 1 and 2 at 3 week. Note: Yellow box: AGP samples, purple box: BA3 samples. The terms given on the left are KEGG pathways annotation at level 1 and level 2 (from left to right).

**Supplementary** **Figure 3** Abundance of the predicted gene related to KEGG pathways at level 1 and 2 at 6 week. Note: Purple box: AGP samples, yellow box: BA3 samples, blue box: BA6 samples. The terms given on the left are KEGG pathways annotation at level 1 and level 2 (from left to right).

**Supplementary** **Figure 4** Abundance of the predicted gene related to KEGG pathways at level 1 and 2 at 12 week. Note: Blue box: AGP samples, red box: BA3 samples, yellow box: BA6 samples,dark blue box: BA12 samples. The terms given on the left are KEGG pathways annotation at level 1 and level 2 (from left to right).

**Supplementary** **Figure 5** Abundance of the predicted gene related to KEGG pathways at level 1 and 2 at 16 week. Note: Blue box: AGP samples, purple box: BA3 samples, yellow box: BA6 samples, dark blue box: BA12 samples, red box: BA16 samples. The terms given on the left are KEGG pathways annotation at level 1 and level 2 (from left to right).

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