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Intervarietal fecal microbiota transplantation from local adult pigs to newborn piglets

Luansha Hu, Xiaojing Yue and Xinyan Han
Zhejiang University, China

There are enormous amount of microbes in the gut of animal. When the intestine got affected by the change of gut microbiota diversity and balance, the whole body system can get affected. Diseases caused by imbalance of intestinal microbiota can be treated by treatments involving microbiota, such as probiotics, prebiotics, symbiotic and fecal microbiota transplantation (FMT). This study was conducted to investigate the effect of intervarieta FMT on recipient piglets. Twelve litters of Duroc×Landrace×Yorkshire (DLY) piglets of the same birth and parity were weighed and divided into two groups. One group (recipient piglets) were oral inoculated with suspension daily from 1 to 11 days, the other (control) were given orally to the same volume of sterile physiological saline, the feeding trial lasted 27 days. The results showed that recipient piglets had higher relative abundance of *Firmicutes* and *Proteobacteria* than control. Compared with control, relative abundance of *Ruminococcus*, *Prevotella*, *Oscillospira*, *Prevotellaceae*, *Lachnospiraceae* in recipient piglets were increased. Compared with control, *Sutterella*, *Escherichia*, *Bacteroides*, *Fusobacteriaceae*, *Clostridiaceae*, *Pasteuriaceae*, *Alcaligenaceae*, *Bacteroidaceae* and *Veillonellaceae* were lower. FMT decreased diarrhea incidence of recipient piglets during the experiment. The ratio of villus height to crypt depth in small intestine of the FMT was increased. FMT increased the optical density of sIgA⁺ cell in the colon of FMT. The number of goblet cells in the ileum and colon of recipient piglets were also increased compared with control. The expression of MUC2 in ileum and colon of recipient piglets were higher than control. Compared with control, TLR2 and TLR4 receptors in the colon mucosa of recipient piglets were increased. The expressions of β-defensin 2 in ileum of recipient piglets were higher than control. These results indicated that FMT can not only change the structure of intestinal microbiota of the recipient, but also promote the development of intestinal mucosa, and thus enhance resistance to disease of recipient, thereby promoting the growth performance of the recipient piglets.

Biography

Luansha Hu has received her Bachelor's degree from South China Agricultural University and is studying for a Master's degree at Zhejiang University. She is majoring in Animal Nutrition and Feed Science.

luanshahu@yahoo.com

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