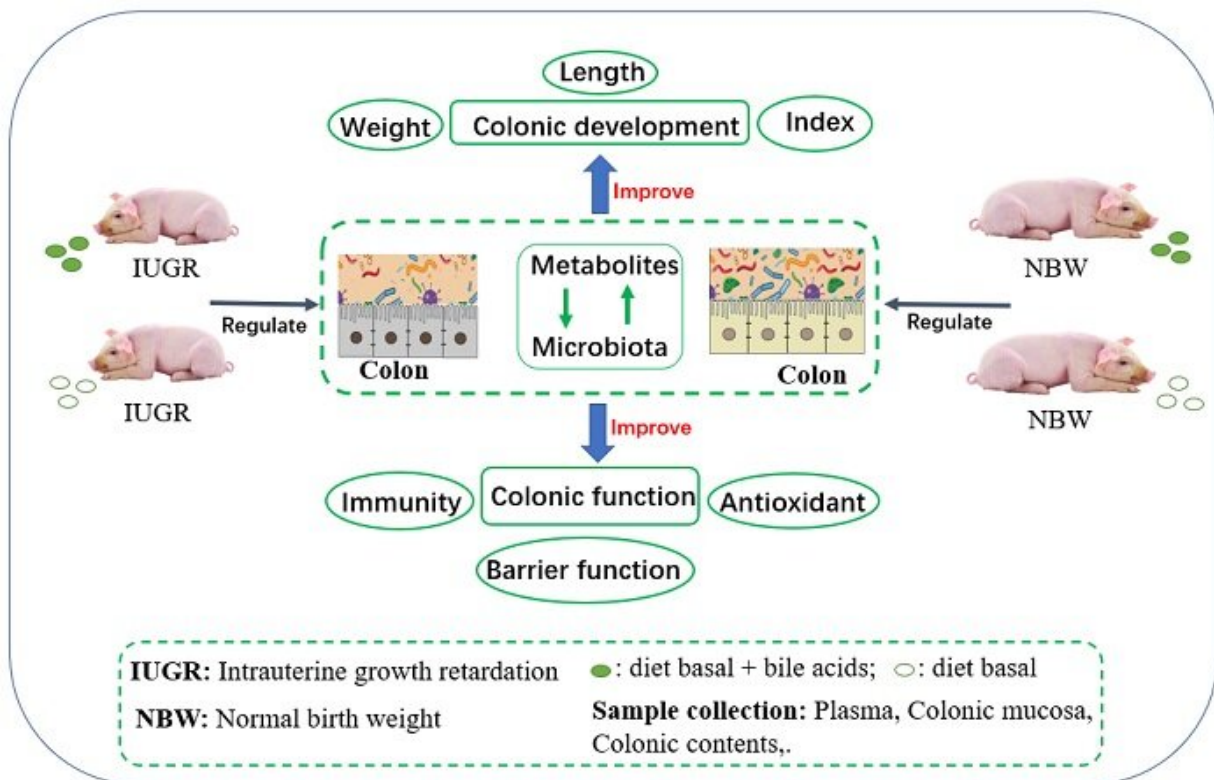


# Bile acid improves intrauterine growth retardation metabolism in piglets

December 30 2022, by Zhang Nannan



Schematic diagram of bile acid metabolism in normal birth weight piglets and IUGR piglets. Credit: LIU Yang

Intrauterine growth retardation (IUGR), defined as the impaired growth and development of a mammalian embryo/fetus or fetal organs during pregnancy, is a major concern in pig farming. IUGR animals exhibit

impaired growth and development, lower meat quality, and higher morbidity and mortality after birth. Therefore, IUGR is a major problem for the pig industry due to the lack of comprehensive understanding of the growth regulation mechanism of IUGR piglets.

Kong Xiangfeng's research team from the Institute of Subtropical Agriculture of the Chinese Academy of Sciences has systematically investigated the growth and development, [body metabolism](#), and intestinal microecological profiles of normal birth weight pigs and IUGR pigs at different growth stages.

Combining fecal microbial transplantation and [germ-free mice](#), the researchers verified that IUGR alters the diversity and metabolic pathways of the intestinal microbiota, resulting in abnormal intestinal energy, [amino acids](#), and bile acid metabolism, which hinders the later growth and development of IUGR pigs.

The application of dietary bile acid showed that bile acid supplementation can improve liver function, enhance the relative abundances of potentially beneficial bacteria in the intestine, and alleviate intestinal mucosal oxidative damage of IUGR piglets.

In addition, dietary bile acid supplementation can also improve the colonic barrier function and redox status of IUGR piglets, which is beneficial to intestinal health.

These findings suggest that the intestinal microbiota can be used as targets for regulating IUGR, and [bile acids](#) play an important role in improving IUGR metabolism and maintaining intestinal health in piglets.

The latest research is published in the *Journal of Animal Science and Biotechnology*, *Frontiers in Microbiology*, and *Frontiers in Nutrition*.

**More information:** W. Zhang et al, Gut microbiota of newborn piglets with intrauterine growth restriction have lower diversity and different taxonomic abundances, *Journal of Applied Microbiology* (2019). [DOI: 10.1111/jam.14304](https://doi.org/10.1111/jam.14304)

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