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Manipulating the immune status and stress-responsiveness of pregnant females and their progeny through dietary supplementation

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Most immune response and other factors that compromise health are important in the pathogenesis and outcomes of infectious diseases. Often, findings reported from studies investigating the effects of stress on the immune system are conflicting and difficult to interpret. These discrepancies may partly be explained by types and durations of the stressors, age and physiological status, and the aspect of the immune system being measured—to name a few. We have begun to unravel other biological factors that may affect immune- and stress responsiveness as well as the maternal effects on her progeny. It was found that day of gestation is an important biological factor that can impact immune and endocrine statuses more-so than the stressor alone. Obtained data also indicate that feeding dietary modulators—high fiber or the probiotic *S. boulardii*—to pregnant pigs, impacts the immune and endocrine statuses of the female and can influence immune status and stress responsiveness of her progeny. Feeding pregnant pigs a high-fiber diet, differentially affects her immune status, resulting in a skewed adaptive immune profile, which may ultimately affect the growth and immune status of her progeny. Feeding pregnant pigs, probiotics may modulate the stress-responsiveness and immune status of the female and progeny during birthing and weaning processes. Taken together, these data imply that the physiological status of the female can impact immune and endocrine status and the stress response and immune status of the dam and her progeny can be changed with the inclusion of dietary supplementation.

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