The Comparative Gut Physiology Symposium titled “The Microbe-Gut-Brain Axis” was held at the Joint Annual Meeting of the American Society of Animal Science and the American Dairy Science Association on Thursday, July 21, 2016, in Salt Lake City, UT. The goal of the symposium was to present basic research conducted in the area of gut physiology with focus on the relationship between gut microbiota and health, stress, and neural function in humans as well as in health and production of livestock. From this symposium, 3 of the invited presentations were submitted as a review papers of the topics. Two of the speakers (G. Clarke and J. F. Cryan) combined their talks into a single paper for a total of 2 papers from this symposium.

Dr. G. Clarke (University College of Cork, Ireland) presented a talk entitled “The gut microbiome as a regulator of physiology, brain, and behavior: Implications for the treatment of stress-related disorders.” Data presented focused on the role of the microbiome in the stress response and biochemical mechanisms by which the microbiome communicates with the brain (Wiley et al., 2017). Specifically, the role of gut microbiota on tryptophan metabolism was discussed with regard to serotonin production and other neuroactive compounds produced through the kynurenine pathway. Regulation of this metabolic pathway by the microbiota in the gut could provide a treatment for serotonin-related disorders such as depression.

A follow-up talk was presented by Dr. J. F. Cryan (University College of Cork, Ireland), entitled “The microbiota-gut-brain axis: A key regulator of neural function across the life span.” This talk presented the developing body of literature on the role of disruptions in the microbiome early in life in development of pathological conditions such as obesity (Wiley et al., 2017). Data were presented on the role of microbiota in anxiety- and depressive-like behavior in aging individuals. The impact of stress on the brain-microbiome axis was discussed as well as the role of gut microbiome in behavior.

The final talk was presented by Dr. P. R. Myer (University of Tennessee, Knoxville), entitled “Analysis of the gut microbiome in beef cattle and its association with feed intake, growth, and efficiency.” Dr. Myer presented his extensive research on the microbiome throughout the gut of finishing beef cattle and the association of specific genera and operational taxonomic units with production traits, including feed intake, growth, and measures of feed efficiency (Myer et al., 2017). Data presented indicated that the diversity of bacteria in the gut was not associated with production traits, but there were finer associations of bacteria with production traits.

The Comparative Gut Physiology Symposium at the Joint Annual Meeting has been well attended by a variety of scientists and students from multiple disciplines. The comparative nature of this symposium provides greater exposure to recent developments that could likely have application in a range of research areas.

LITERATURE CITED
