Unraveling the Genetics of Bovine Johne’s Disease

Unraveling the Genetics of Bovine Johne’s Disease was obviously written by experienced investigators at the University of Guelph who are passionately interested in the immunopathology, molecular mechanisms, and genomics associated with Mycobacterium avium sub. paratuberculosis (MAP) infection and Johne’s disease transmission. The coauthors have produced an excellent, practical, and concise narrative for understanding the genetic components of Johne’s disease infection in cattle, providing a comprehensive survey regarding current findings and future directions for genome-based studies. The text is user-friendly and fits a broad audience of readers, ranging from undergraduates, research technicians, scientists, and clinicians in the areas of animal science, genetics, and veterinary pathology.

The book is thoughtfully organized into nine chapters—“MAP and the Bovine Immune Response,” “A Role for CD8+ and T Cells in Early Infection,” “The Host Response During the Sub-clinical Phase of Infection,” “Clinical Phase,” “Pathological Similarities Between Johne’s Disease and Crohn’s Disease,” “A Genetic Basis for Mammalian IBDs,” “Potential Susceptibility Loci Conserved Across Mammalian IBDs,” “Impact of Alternate Mechanisms of Gene Regulation”—and a conclusion to wrap things up.

As part of the “Digestive Diseases—Research and Clinical Developments” series of short titles by Nova Science Publishers, this volume achieves its intended purpose as a global overview of the topic of interest but was superficial at times in respect to the current methodologies (genome-wide association studies, gene set enrichment analysis, etc) utilized within the field. The inclusion of photomicrographs of normal and infected tissues (eg, distal ileum, mesenteric lymph nodes) and illustrated models detailing the mechanism of action involved with inflammatory responses following MAP tissue infection would be a useful addition to the narrative. Along those lines, a more thorough discussion about the similarities, differences, and controversy regarding the involvement of MAP in Johne’s disease in cattle and Crohn’s disease in humans would go a long way toward making this a must-have reference to aid educators, investigators, pathologists, and others interested in chronic, contagious inflammatory bowel diseases.

The plethora of knowledge gained from linkage and association studies in regard to susceptibility to MAP tissue infection and tolerance to Johne’s disease in cattle necessitate inclusion in a future revision. I highly recommend.