Oh, How the Mite-y Have Fallen

The immune response of dogs to *Demodex canis* mites, which play a key role in the pathogenesis of demodicosis, is poorly understood. Previous studies focused primarily on cell-mediated immune responses, with depressed T cell-mediated immune responses in dogs with demodicosis. This study aimed to explore the role of humoral immunity in canine demodicosis. Historically, lack of in vitro culture systems and commercially available *Demodex* spp antigens has been a major limiting factor in research. For this study, mites were harvested from 50 dogs with spontaneously occurring canine *D. canis* infestations to prepare a crude protein extract for a Western blot test. Antigen bands were compared using pooled sera from normal dogs (n = 19), dogs with canine juvenile generalized demodicosis (CanJGD) alone (n = 14) or CanJGD with secondary bacterial pyoderma (n = 17). Normal dogs showed 2 common bands at 55 and 72 kDa. Dogs with CanJGD and without a complicating secondary bacterial pyoderma showed bands at 10 kDa or at 55 and 72 kDa; dogs with secondary bacterial pyoderma only showed bands at 10 kDa. These results suggest the presence of a humoral immune response against *D. canis*, although the significance of this response remains uncertain. It is unclear why the dogs with secondary pyoderma reacted to a different molecular weight protein. Further research should include investigation of other immunoglobulin classes.

Commentary
This is 1 of the few recent studies on the immunology of canine demodicosis. Clearly, development of the 10 kDa band is an important finding or marker for canine demodicosis. What is interesting is the finding of only the 10 kDa band in dogs with generalized demodicosis and bacterial pyoderma. It would be interesting to use this research finding to do serial testing in dogs being treated for juvenile demodicosis. Maybe changes in the bands over time can be used as prognostic indicators. For example, maybe the development of bands at 55 and 72 kDa indicates cure and/or the persistent finding of 10 kDa indicates a dog likely to relapse. Given the hereditary component to the development of this disease, perhaps there is value as a screening tool.—Karen A. Moriello, DVM, DACVD

Source