Persistent Infection with *E. canis*  
Some dogs infected with the obligate intracellular bacterial parasite *Ehrlichia canis* fail to clear the organism, leading to either asymptomatic or chronically symptomatic carrier states. Chronically infected dogs can develop immune-mediated diseases or opportunistic infections that suggest immune dysregulation, but the immunopathogenesis is not well understood. Dogs may acquire defects in cell-mediated immunity (CMI) as a result of *E. canis* infection, which then allows the organism to persist. Other features of dogs with chronic ehrlichiosis suggest aberrant humoral immunity (HI), and this contributes directly to pathogenesis. Whether defective CMI and aberrant HI occur together early in *E. canis* infection is not known. This study sought to characterize immune function in dogs experimentally infected with *E. canis*. Twelve dogs were assigned to 1 of 3 groups (n = 4/group): untreated dogs infected with *E. canis*, untreated dogs that had been sham-inoculated, and infected dogs that were treated with doxycycline then rechallenged with *E. canis*. The dogs were evaluated for changes in seroreactivity, serum immunoglobulin (Ig) concentrations, peripheral blood T-cell subsets, lymphocyte blastogenesis, and lymphokine-activated killer activity over a 4-month period. The authors found serum IgM, IgG, and IgA concentrations to be unaffected by *E. canis* and that there was no difference in the percentage of circulating CD4+ T-cells between the groups at any point. A relative CD8+ lymphocytosis that developed in infected dogs 6 weeks after inoculation subsided within 4 weeks despite organism persistence. There were no observed functional defects of CMI. The authors suggest that failure to see the expected immunologic changes may be attributed to the fact that such abnormalities develop over a longer period than the 4 months of this study or that the magnitude of the changes may have been below detectable limits. Other factors that may contribute to predisposition for chronic ehrlichiosis include organism virulence, heritable idiosyncratic or breed susceptibilities to the disease, or acquired host factors (e.g., endoparasitism). The authors conclude that inoculation of young dogs with *E. canis* fails to cause immunosuppression during the first several months. However, they also note that their study reveals the limitations of current experimental canine models in understanding the immunopathogenesis of ehrlichiosis and thus should be helpful in designing future studies. Study supported in part by Fort Dodge Laboratories.

**COMMENTARY:** In this study, the authors attempted to answer an interesting question: why do some dogs become carriers after *E. canis* infection instead of clearing the organisms, regardless of treatment? Several tests of immune system activity, both humoral and cell-mediated, were conducted after experimental infection. No significant changes in immune responses occurred among the various groups. Clinicians are reminded by this study that some dogs, despite mounting strong antibody responses to infection with *E. canis*, fail to get rid of the organisms and become carriers (asymptomatic or chronically symptomatic). The reason for this is still unknown, and more studies are needed.—*Craig Datz, DVM, Diplomate ABVP (Canine & Feline Practice)*

*Experimental Ehrlichia canis infection in the dog does not cause immunosuppression.*  