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**Mechanisms of Humoral Immunity Against an Obligate Intracellular Bacterium**

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Previous work from our laboratory has demonstrated that the administration of specific antibody prior to or during infection protected susceptible SCID mice from lethal infection by the obligate intracellular bacterium *Ehrlichia chaffeensis*. We have hypothesized that protection in our model involved (1) enhanced opsonization and/or (2) cellular activation through antigen-antibody-Fc gamma receptor (FcγR) interactions. We have utilized the closely related ehrlichial strain *Ixodes ovatus ehrlichia* (IOE), which causes fatal infection in immunocompetent mice, to further our understanding of immunity against obligate, intracellular bacteria. Current experimental data indicate that: (1) mice genetically-deficient for FcγR, specifically FcγRI, succumb to sublethal inoculums of IOE, (2) mice lacking functional B cells are acutely susceptible to IOE infection, (3) mice experimentally depleted of complement or lacking complement receptors (CR) fail to resolve IOE infection, and (4) mice lacking functional NADPH oxidase or iNOS succumb to sublethal inoculums of bacteria. Together, these results suggest that, like with *E. chaffeensis*, protection against IOE is dependent on the presence of functional FcγR, specifically FcγRI. However, there is a greater dependence on the presence of functional B cells and a full system of complement with IOE infection compared to *E. chaffeensis*. Furthermore, the destruction of ehrlichiae from host cells and tissues appears require the generation of reactive oxygen and nitrogen species. Overall, data obtained using both infection models support, directly and indirectly, an important role for humoral responses in the immunity against these obligate intracellular bacteria.

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