THE CELLULAR AND HUMORAL IMMUNE RESPONSE AGAINST
PRIMARY INFECTION WITH COXIELLA BURNETII
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ABSTRACT

_Coxiella burnetii_ infection in mice results in a limited febrile illness that can be measured by examining splenomegaly, bacterial burden, and histopathology. In humans, this disease is known as Q fever. Using the mouse model, we examined both the T cell and the B cell response to primary infection with virulent _C. burnetii_. We discovered that Major Histocompatibility Complex class I and CD8+ Cytotoxic T cell lysis are critical for defense against primary infection. During the vaccine response, Major Histocompatibility Complex class II is essential for protective immunity. We also found that B1a B cells are important for producing cytokines and antibodies during primary infection. In addition, we discovered that avirulent _C. burnetii_ induces caspase-1 dependent pyroptosis in murine B1a B cells. These studies build the foundation for better understanding of the immune response to _C. burnetii_ infection and will hopefully lead to the development of new and more effective strategies for treating and preventing Q fever.