Identification of Secreted Antigen 3 from Babesia gibsoni

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Abstract

A cDNA expression library of Babesia gibsoni was screened with the serum collected from a dog experimentally infected with B. gibsoni. A novel antigen sharing homology with secreted antigen 1 of B. gibsoni was isolated. The genomic analysis indicated that the BgSA3 gene exists as multicopies in the genome of B. gibsoni. The putative peptide encoded by the BgSA3 gene showed some characteristics of secreted proteins. The serum raised in mice immunized with the recombinant BgSA3 expressed in Escherichia coli could recognize a native parasite protein with a molecular mass of 70 kDa. Moreover, a sandwich enzyme-linked immunosorbent assay with anti-BgSA3 antibodies could detect the circulating BgSA3 in the blood plasma of dogs experimentally infected with B. gibsoni. The identification of BgSA3 provided a useful target for the development of a diagnostic test for detecting specific antibodies and circulating antigens.