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**RE:PERFORMANCE CONTRACT FOURTH QUARTER: OCTOBER 2013 TO
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1. PUBLICATIONS

Mousa A.A, Cao S, **Aboge G.O**, Terkawi MA, El Kirdasy A, Salama A, Attia M, Aboulaila M, Zhou M, Kamyngkird K, Moumouni PF, Masatani T, El Aziz SA, Moussa WM, Chahan B, Fukumoto S, Nishikawa Y, El Ballal SS, Xuan X.(2013).ExpParasitol. 2013 Oct; 135(2):414-20

Title: Molecular characterization and antigenic properties of a novel Babesia gibsoni glutamic acid-rich protein (BgGARP).

Abstract: Identification and molecular characterization of Babesia gibsoni proteins with potential antigenic properties are crucial for the development and validation of the serodiagnostic method. In this study, we isolated a cDNA clone encoding a novel B. gibsoni 76-kDa protein by immunoscreening of the parasite cDNA library. Computer analysis revealed that the protein presents a glutamic acid-rich region in the C-terminal. Therefore, the protein was designated as B. gibsoni glutamic acid-rich protein (BgGARP). A Blastp analysis of a translated BgGARP polypeptide demonstrated that the peptide shared a significant homology with a 200-kDa protein of Babesiabigemina and Babesiabovis. A truncated BgGARP cDNA (BgGARPt) encoding a predicted 13-kDa peptide was expressed in Escherichia coli (E. coli), and mouse antisera against the recombinant protein were used to characterize a corresponding native protein. The antiserum against recombinant BgGARPt (rBgGARPt) recognized a 140-kDa protein in the lysate of infected erythrocytes, which was detectable in the cytoplasm of the parasites by confocal microscopic observation. In addition, the specificity and sensitivity of enzyme-linked immunosorbent assay (ELISA) with rBgGARPt were evaluated using B. gibsoni-infected dog sera and specific pathogen-free (SPF) dog sera. Moreover, 107 serum samples from dogs clinically diagnosed with babesiosis were examined using ELISA with rBgGARPt. The results showed that 86 (80.4%) samples were positive by rBgGARPt-ELISA, which was comparable to IFAT and PCR as reference test. Taken together, these results demonstrate that BgGARP is a suitable serodiagnostic antigen for detecting antibodies against B. gibsoni in dogs.