F(ab’)2 antibody fragments against Trypanosoma cruzi calreticulin inhibit its interaction with the first component of human complement

Aguilar, Lorena
Ramirez, Galia
Valck, Carolina
Molina, Maria C.
Rojas, Alvaro
Schwaebel, Wilhelm
Ferreira, Viviana
Ferreira, Arturo

Trypanosoma cruzi calreticulin (TcCRT), described in our laboratory, retains several important functional features from its vertebrate homologues. We have shown that recombinant TcCRT inhibits the human complement system when it binds to the collagenous portion of C1q. The generation of classical pathway convertases and membrane attack complexes is thus strongly inhibited. In most T. cruzi-infected individuals, TcCRT is immunogenic and mediates the generation of specific antibodies. By reverting the C1q/TcCRT interaction, a parasite immune evasion strategy, these antibodies contribute to the host/parasite equilibrium. In an in vitro correlate of this situation, we show that the C1q/TcCRT interaction is inhibited by F(ab’)2 polyclonal anti-TcCRT IgG fragments. It is therefore feasible that in infected humans anti-TcCRT antibodies participate in reverting an important parasite strategy aimed at inhibiting the classical complement pathway. Thus, membrane-bound TcCRT interacts with the col