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Development and evaluation of SPR sensor platforms based in specific *T. cruzi* antigens

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Statement of the Problem: Chagas disease (CD) is a parasitic illness caused by the protozoan *Trypanosoma cruzi* (*T. cruzi*). The development of surface plasmon resonance (SPR)- based immunoassays for the detection of anti- *T. cruzi* antibodies in serum has been successfully accomplished by immobilizing the parasite lysate on the sensor surface, fact that could lead to cross reactivity among sera from patients suffering from other parasitoses. In this work, sensor platforms based in the specific *T. cruzi* antigens trans-sialidase and cruzipain are constructed and used to develop SPR-based immunoassays intended to detect anti- *T. cruzi* antibodies in sera.

Methodology & Theoretical Orientation: *T. cruzi* antigens are immobilized on SPR sensor surfaces via activated-short and long carboxylated thiol monolayers by amide coupling. The capacity of the sensor surfaces to detect anti- *T. cruzi* antibodies is evaluated using a pool of canine sera infected with *T. cruzi*

Findings: The following operational parameters of the immunoassay were optimized and defined: time of immobilization and antigen concentration at 20 min and 15 ug mL−1, serum dilution at 1:400, preventing of nonspecific bindings with solution of BSA 1.0% and surface regeneration by injection of SDS 0.5 %.

Conclusion & Significance: The proposed immunosensor was successfully developed and the immunoassay showed high capability in the discrimination of positive and negative sera, which represents an encouraging field for the progress of the diagnosis of Chagas disease.

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