

## **Evaluation of a hypothetical protein for serodiagnosis and as a potential marker for post-treatment serological evaluation of tegumentary leishmaniasis patients**

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The serodiagnosis for tegumentary leishmaniasis (TL) presents problems related to the sensitivity and/or specificity of the tests. In the present study, an enzyme-linked immunosorbent assay (ELISA) technique was used to evaluate the performance from a *Leishmania braziliensis* hypothetical protein, LbHyM, in an attempt to compare its serological reactivity with a soluble *Leishmania* antigenic preparation (SLA) for the serodiagnosis of cutaneous (CL) and mucosal (ML) leishmaniasis. LbHyM was predicted to be a kinesin-like protein by bioinformatics tools. Serum samples were collected from both CL and ML patients, as well as from those with Chagas disease and from healthy subjects living in endemic or non-endemic areas of TL. Also, sera were collected from patients before and after the treatments, seeking to evaluate their serological follow-up in relation to the anti-protein and anti-parasite antibody levels. When an ELISA-rLbHyM assay was performed, it proved to be significantly more sensitive than ELISA-*L. braziliensis* SLA in detecting both CL and ML patients. Also, when using sera from Chagas disease patients, the ELISA-rLbHyM proved to be more specific than ELISA-SLA. The anti-protein and anti-parasite antibody levels were also evaluated six months after the treatments, and treated patients showed significantly lower levels of specific-rLbHyM antibodies, when compared to the anti-parasite antibody levels. In conclusion, the ELISA-rLbHyM assay can be considered a confirmatory serological technique for the serodiagnosis of *L. braziliensis* infection and can also be used in the serological follow-up of treated patients, aiming to correlate the low anti-protein antibody levels with the improvement of the healthy state of the patients.

**Keywords:** Hypothetical proteins; *Leishmania braziliensis*; bioinformatics tools; follow-up; diagnosis; tegumentary leishmaniasis.

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