Cross-protective efficacy from an immunogen firstly identified in *Leishmania infantum* against tegumentary leishmaniasis

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Experimental vaccine candidates have been evaluated to prevent leishmaniasis, but no commercial vaccine has been proved to be effective against more than one parasite species. LiHyT is a *Leishmania*-specific protein that was firstly identified as protective against *Leishmania infantum*. In this study, LiHyT was evaluated as a vaccine against two *Leishmania* species causing tegumentary leishmaniasis (TL): *Leishmania major* and *Leishmania braziliensis*. BALB/c mice were immunized with rLiHyT plus saponin and lately challenged with promastigotes of the two parasite species. The immune response generated was evaluated before and 10 weeks after infection, as well as the parasite burden in spleen, liver, bone marrow, draining lymph node and infected footpad at this time after infection. The vaccination induced a Th1 response, which was characterized by the production of IFN-ɣ, IL-12 and GM-CSF, as well as by high levels of IgG2a antibodies, after in vitro stimulation using both the protein and parasite extracts. After challenge, vaccinated mice showed significant reductions in infected footpads swelling, as well as in the parasite burden in this tissue and organs evaluated, when compared to the control groups. The anti-*Leishmania* Th1 response was maintained after infection, being the IFN-ɣ production based mainly on CD4+ T cells. In conclusion, we described that one conserved *Leishmania*-specific protein could compose a pan-*Leishmania* vaccine.

Keywords: Hypothetical proteins; cross-protection; tegumentar leishmaniasis.

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