Evaluation of the immunogenicity and protective efficacy from *Leishmania infantum*-derived mimotopes to protect against a challenge using *Leishmania amazonensis* in a known murine model

Lourena E. Costa[1]; Beatriz C.S. Salles[1]; Patrícia T. Alves[2]; Ana C.S. Dias[2]; Emília R. Vaz[2]; Thaís T.O. Santos[1]; Fernanda F. Ramos[1]; Mariana P. Lima[1]; Daniela P. Lage[1]; Miguel A. Chávez-Fumagalli[1]; Vívian T. Martins[1]; Danniele L. Vale[3]; Daniel S. Dias[1]; Patrícia A.F. Ribeiro[1]; Grasiele S.V. Tavares[1]; Débora V.C. Mendonça[1]; Denise U. Gonçalves[1], Manoel O.C. Rocha[1], Luiz R. Goulart[2]; Eduardo A.F. Coelho[1,3]

[1]Programa de Pós-Graduação em Ciências da Saúde: Infectologia e Medicina Tropical, Faculdade de Medicina. [2]Instituto de Genética e Bioquímica, UFU, Brazil, [3]Departamento de Patologia Clínica, COLTEC, UFMG, Brazil.

In the present study, two mimotopes derived from *Leishmania infantum* species, which were identified by a phage display technology, were evaluated as vaccine candidates in BALB/c mice against *Leishmania amazonensis* infection. The epitope-based immunogens, presented as phage-fused peptides, were used without association of immune adjuvants and were administered isolated or in combination into animals. Both clones showed a specific production of IFN-, IL-12, and GM-CSF after *in vitro* spleen cells stimulation, and were able to induce a partial protection against infection. Significant reductions of parasite load in the infected footpads, liver, spleen, bone marrow, and paws' draining lymph nodes were observed in the immunized mice, in comparison to the control groups (saline, saponin, wild-type and non-relevant clones). Protection was associated with an IL-12-dependent production of IFN-, mediated mainly by $CD8^+$ T cells. Protected mice also presented low levels of IL-4 and IL-10, as well as increased levels of parasite-specific IgG2a antibodies. The association of both clones resulted in an improved protection in relation to their individual use. More importantly, the absence of adjuvant did not diminish the cross-protective efficacy against infection. This study describes for the first time two epitope-based immunogens selected by phage display against *L. infantum*-infected dogs sera, which induced a partial protection in mice against *L. amazonensis* infection.

Keywords: Phage display; mimotopes; vaccine; heterologous protection; leishmaniasis.

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