

A polyproteins-based vaccine identified in *Leishmania infantum* confers heterologous protection against a challenge using *Leishmania infantum* promastigotes

Daniel S. Dias¹; Mariana C. Duarte^{1,2}; Vívian T. Martins¹; Daniela P. Lage¹; Lourena E. Costa¹; Miguel A. Chávez-Fumagalli¹; Thaís T.O. Santos¹; Beatriz C.S. Salles¹; Patrícia A.F. Ribeiro¹; Fernanda F. Ramos¹; Mariana P. Lima¹; Ana M.R.S. Carvalho¹, Danniele L. Vale²; Grasielle S.V. Tavares¹; Débora V.C. Mendonça¹; Bruno M. Roatt²; Daniel Menezes-Souza^{1,2}; Eduardo A.F. Coelho^{1,2}

¹Programa de Pós-Graduação em Ciências da Saúde: Infectologia e Medicina Tropical, Faculdade de Medicina, UFMG, Brazil. ²Departamento de Patologia Clínica, COLTEC, UFMG, Brazil.

In the present study, two *Leishmania braziliensis* proteins, one hypothetical and the eukaryotic initiation factor 5a (eIF5a), were cloned and used as a combined vaccine in the protection from BALB/c mice against *L. infantum* infection. Animals were immunized with the antigens separately or in association, and in both cases saponin was used as an adjuvant. In the results, spleen cells from mice inoculated with the individual or combined proteins plus saponin and challenged produced significantly higher levels of protein- and parasite-specific IFN- γ , IL-12, and GM-CSF, when both a capture ELISA and flow cytometry were used in the analyses. Evaluating the parasite load by both a limiting dilution technique and RT-PCR, these animals presented significant reductions in their parasite number in all evaluated organs, as compared to the saline and saponin groups. The best protection was reached when the combined vaccine was employed. Protection was also associated with an IFN- γ production against parasite extracts, which was mediated by both CD4⁺ and CD8⁺ T cells and correlated with the antileishmanial nitrite production. In this context, this vaccine combining two *L. braziliensis* proteins was protective against VL, and it could be considered in future studies to be tested against other *Leishmania* species.

Keywords: Hypothetical proteins; eukaryotic initiation factor 5a; heterologous protection; vaccine; leishmaniasis; immune response.

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