Immune Response Evaluation Induced in Mice by Three Predicted Outer Membrane Proteins of *Leptospira interrogans*

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**Introduction:** Leptospirosis is an emerging infectious disease caused by pathogenic species of the genus *Leptospira*. The human infection is accidental and results from direct or indirect contact with urine of infected animals. The genome of *L. interrogans* serovar Copenhageni has been sequenced and several predicted outer membrane proteins were identified. Proteins involved in host-bacteria interaction, such as membrane proteins, should provide new insights on leptospiral pathogenesis. **Objectives:** These studies propose to clone and to express three genes encoding for hypothetical proteins (LIC11360, LIC13011 and LIC13477) and to evaluate their immunogenicity in mice. **Methods:** The gene was cloned and expressed in *E. coli* by using the expression vector pAE. The recombinant protein tagged with N-terminal hexahistidine was purified by metal chelating affinity chromatography. Four-week-old BALB/c mice were immunized subcutaneously three times, at 2-week interval, bled from the retro-orbital plexus and the antibody response evaluated by ELISA and Western blotting. The animals were sacrificed, and the splenocytes isolated for evaluation of lymphocyte proliferation and cytokine profiles in response to prime boosted antigen. **Results and Discussion:** Our results with immunization assays showed that all recombinant proteins have elicited a Th2 response as revealed by the increase in antibody titers during subsequent boosters and production of IL4 and IL10. Altogether we observed lymphoproliferation when splenocytes were stimulated with live leptospiras (MOI 1:40). **Conclusion:** We have three recombinant proteins that are promising vaccine candidates that will be used to immunization assays in hamsters followed by evaluation of immunoprotection activity against leptospirosis.

Keywords: *Leptospira*, leptospirosis, recombinant protein

Supported by FAPESP, CNPq and Fundação Butantan