# The Immunomodulatory Potential of Oral Administration of *Lactococcus lactis* Producing Hsp65 in the Treatment of Cutaneous Leishmaniasis Caused by *Leishmania major*

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**INTRODUCTION:** Leishmaniasis is a complex of neglected diseases caused by protozoan parasites of the genus *Leishmania*, endemic in more than 90 countries worldwide. Cutaneous leishmaniasis (CL) is the most common clinical form of the disease, with *Leishmania major* as the main species responsible for CL in the Old World. CL manifests as ulcerative lesions with nodular or thick borders, resulting from an imbalance between the inflammatory and immune responses, emphasizing the importance of developing therapeutic alternatives that modulate inflammation. In this context, a previous study performed by our group, based on the use of *Lactococcus lactis* producing HSP65 for the treatment of cutaneous leishmaniasis caused by *Leishmania braziliensis*, demonstrated the ability to modulate the immune response and attenuate inflammation caused by the infection. **OBJECTIVE:** To evaluate the immunomodulatory potential of oral administration of *Lactococcus lactis*-producing Hsp65 as an inducer of oral tolerance in the treatment of CL caused by *L. major*. **METHODOLOGY:** BALB/c and C57BL/6 mice were treated with *L. lactis* expressing Hsp65 before or after infection with *L. major*. We assessed lesion thickness, parasite load, and cytokine production. **RESULTS:** Mice were treated with *L. lactis*-producing Hsp65 before or after the infection with *L. major,* and did not result in significant differences in lesion development or parasite load. Furthermore, there were no significant differences in the production of IFN-γ, IL-10, and IL-4, among the different groups evaluated. **CONCLUSION:** The use of *L. lactis*-producing Hsp65 shows promising prospects as a treatment for cutaneous leishmaniasis caused by *L. braziliensis*. However, further investigations are necessary to better understand the role of this therapy in modulating the inflammatory and immune responses during CL caused by *L. major*.

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