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Evolution of antigen-specific immune responses in cutaneous leishmaniasis patients

Akram Miramin Mohammadi^a, Malcolm S. Duthie^b, Steven G Reed^b, Amir Javadi^c, Ali Khamesipour^a

^a Center for Research & Training in Skin Diseases & Leprosy (CRTSDL), Tehran University of Medical Sciences (TUMS), Tehran, Iran

^b HDT Bio, Seattle, WA, Saudi Arabia

^c Department of Social Medicines, Qazvin University of Medical Sciences, Qazvin, Iran

Corresponding author: Khamesipour, A.; Center for Research & Training in Skin Diseases & Leprosy (CRTSDL), Tehran University of Medical Sciences (TUMS), Tehran, Iran; email: ali.khamesipour@gmail.com

Abstract

Aims: Despite immunization appearing to be the most appropriate strategy for long-term control of the vector-borne leishmaniasis, no sustainable vaccine is currently available against any form of leishmaniasis. We therefore evaluated, in the context of vaccine antigen candidates, antigen-specific immune response at various stages of cutaneous leishmaniasis (CL). **Methods and results:** Peripheral blood mononuclear cells (PBMC) isolated from healthy volunteers and CL patients (caused by either *Leishmania major* or *L. tropica*) were incubated with crude *Leishmania* proteins (soluble *Leishmania* antigen; SLA), single recombinant proteins (TSA, LeIF, LmSTI1) or chimeric fusion proteins (LEISH-F2 and LEISH-F3). The concentrations of immune modulatory cytokines were then determined. While we did not detect appreciable antigen-specific IL-5 secretion, SLA induced secretion of interleukin (IL)-10 in cultures from early active lesion CL patients and even from healthy individuals. Conversely, interferon (IFN)- γ responses to SLA and recombinant proteins followed a similar pattern, developing only in the late active CL lesion phase. Once established, antigen-specific IFN- γ responses persisted in cured CL patients. **Conclusion:** Together, our results provide further insight into the development of immune responses during CL and further validate the selection of LEISH-F2 and LEISH-F3 as vaccine antigen candidates.