

IL-13 key role in the course and outcome of Leishmaniasis in BALB/C mice

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Abstract

Leishmaniasis is one of the main vector-borne diseases caused by an intracellular protozoan parasite of the genus *Leishmania*. Cutaneous Leishmaniasis (CL) is the most common form of the disease. In the absence of an effective vaccine and a well-proven therapeutic approach to cure the disease, a deeper understanding of the immunity against leishmaniasis, especially the study of the impact of cytokines on the course and outcome of infection, is the key to optimize the management of the disease. To address this, an experimental model of CL was developed to assess the role of IL-13 in shaping the course of infection in BALB/c mice infected with low and high dose of *L. major*. This model offered a perfect venue to assess the effect of IL-13 on the parasite burden and on the paw thickness. Furthermore, it was possible to investigate the cytokine mode of action by monitoring its impact on the levels of key Th1 and Th2 cytokines. Our findings suggest that susceptible BALB/c mice infected with high and low dose of *L. major* exhibit high parasite burden and paw swelling in the presence of IL-13, which leads to a Th2 inflammatory response causing a non-healing track of the disease. Our work also highlights the ability of hypoalgesic exogenous IL-13 to induce susceptibility to *L. major* infection.

Biography

Zaatar holds a PhD in Immunology-Physiology & Biology of Organisms from Lille I University, France. She is passionate about research and teaching and has been working in reputable institutions in Lebanon and in the UAE since 2010 before joining University of Balamand Dubai (UOBD) in 2018. She is the head of the Biology department at UOBD. She

was also involved in clinical trials in several fields, such as dermatology, heart failure, transplantation, respiratory and ophthalmology. Her main research interests are in the fields of immunology, neuroimmunology, and physiology. She has several publications and has received multiple national and international awards.