

5th International Conference on

PARASITOLOGY & MICROBIOLOGY

July 12-13, 2018 Paris, France

Caffeic acid combined to autovlaved *Leishmania major* confers protection in *Leishmania major* infected BALB/c mice *In vivo* and restores phagocytes function *In vitro*

¹Radia Belkhefha-Slimani*, ²Catherine Ronet and ¹Bahia Djerdjouri¹University of Sciences and Technology Houari Boumediene, Algeria²University of Lausanne, Switzerland

Immunization with killed *Leishmania* promastigotes was considered as safe but gave variable levels of protection. The aim of this study was to identify an appropriate *Leishmania* vaccine adjuvant based on high Th1 cytokine production. We evaluated the adjuvant properties of caffeic acid (CA), a polyphenol, in cutaneous *Leishmaniasis*. We thus performed 9 weeks infection of BALB/c mice with *L. major* promastigotes, after a pre-treatment with autovlaved *Leishmania major* (ALM) alone or in association with CA or Freund's adjuvant (FA). Our results showed that *L. major* infection induced neutrophils and macrophages influx correlated with elevated IL-17 and MCP-1 levels, and reduced iNOS/Arg1 ratio and IFN- γ in footpad lesion. In parallel, ALM-CA, or ALM pre-treatment increased protection as defined by smaller lesion size, correlated to the restoration of iNOS/Arg1 ratio and IFN- γ level and to reduced IL-17 and MCP-1 levels compared to ALM-F vaccinated groups. Additionally, the effect of ALM-CA was evaluated on bone marrow derived cells from susceptible BALB/c mice. 24h after *L. major* infection, macrophages and dendritic cells exhibited higher iNOS/Arg1 ratio in the culture supernatant after ALM-CA stimulation. This was correlated to enhanced dendritic cells and macrophages maturation as assessed by MHC class II and CD40 expression. In conclusion, our results indicated that CA, when combined to ALM synergizes with *L. major* antigens for actively priming innate cells, and inducing early optimal Th1 response, leading to iNOS-dependant leishmanicidal activity of phagocytes. Thus, the use of polyphenols, as immuno-modulator molecules, opens up the way for new therapeutic strategies.

Key word: ALM, Dendritic cells, MHC class II, Caffeic acid, IFN- γ phagocytes.

Biography

Radia Belkhefha Slimani has completed her PhD in Biochemistry and Immunology from the university of Sciences and Technology, Algiers, Algeria. She is working in the field of development of novel therapeutics and vaccines on *Leishmaniasis* at the Laboratory of Cellular and Molecular Biology in the faculty of Biology at the University of Sciences and Technology in Algiers, Algeria. She is a lecturer in pharmacology and immunology and participate in different project on *Leishmaniasis*. She has published 3 papers in reputed journals and counts several participations in world and national conferences in parasitology and immunology.

radia.slimani@gmail.com

Notes: