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Adjuvant-enhanced antibody and cellular responses to recombinant FhSAP2 correlates with protection of mice to *Fasciola hepatica*

Ana M. Espino and Fracheska Rivera
University of Puerto Rico, School of Medicine, USA

We recently reported the biochemical characterization of a novel *Fasciola hepatica* antigen termed FhSAP2, which has previously shown to elicit protection to *F. hepatica* infection in mice and rabbits when administered SC emulsified in complete Freund's adjuvant (CFA). The purpose of the current study was to ascertain whether FhSAP2 could also be protective when administer in less inflammatory adjuvants like Montanide ISA 720 or QS21 (saponin-derivative) and to characterize the immune responses induced by these formulations. We used BALB/c mice, which received four SC injections two weeks apart of FhSAP2 emulsified in ISA720 or QS21. Four weeks after the last injection animals received an oral challenge infection with 5 *F. hepatica* metacercariae and were necropsied 45-days after challenge. The FhSAP2-QS21 formulations reduced the fluke burden in a 50% while reduction obtained with the FhSAP2-ISA720 formulation was 62.5%. Protection was associated to high levels of CD4 Th1-mediate immune responses characterized by higher levels of IgG_{2a} than IgG_1 antibody as well as of vigorous lymphoproliferation, high IFNγ and TNFα and moderate IL-4 and IL-5 production. These high cell-mediated immune responses correlated with the reduction in mortality, fluke burden or liver damage in mice to the *F. hepatica* challenge infection. These results were confirmed by a proteomic analysis. Our results demonstrated that the protection induced by this protein is associated to a mechanism linked to the Th1-immune responses and support FhSAP2 as a good vaccine candidate against *F. hepatica* in experimental models.

Biography

Ana M. Espino completed her Ph.D at the age of 35 years at the Institute of Tropical Medicine "Pedro Kourí" (IPK) of Havana, Cuba and performed 4-year postdoctoral studies at the Department of Pathology, School of Medicine of University of Puerto Rico. At present, she is the director of Immunology and Molecular Parasitology laboratory, Department of Microbiology, School of Medicine. She has published more than 35 papers in reputed journals and serving as an editorial board member of reputed scientific journals.