

Evaluation of IFN- γ And IL-4 Response Against *Brucella abortus* S99 Lipopolysaccharide_ *Neisseria meningitidis* Serogroup B Complex in Animal Model

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Background & Objectives: There is no licenced human vaccine against brucellosis. Lipopolysaccharide (LPS) is the main antigenic structure expressed on the surface of smooth strains of *Brucella* that has been considered for design subunit vaccine. It has been shown that OMV of *Neisseria meningitidis* efficiently promote IgG and IgM response against the administrated antigen as an adjuvant. In the present study, the efficacy of LPS-OMV noncovalent complex to promote IFN-g and IL-4 evaluated to determine the pattern of T-helper population activation.

Methods: LPS extracted by on optimized methods based on hot phenol-water extraction. After chemical evaluation of the extracted sample, BALB/C mice were immunized with *B. abortus* LPS-*N. meningitidis* serogroup B OMV non covalent complex. Titer of IFN- γ and IL-4 in the sera of immunized animals assayed by ELISA.

Results: Immunization with *B. abortus* LPS demonstrated significant increase of IFN-g, but there was not shown any significant increase in level of IL-4 in hyper immune mice. Immunization with non-covalent complex of *B. abortus* LPS-*N. meningitidis* serogroup B OMV induced high level of IL-4 and low level of IFN-g in comparison of *B. abortus* LPS alone, since the level of IFN-g is higher than IL-4 when this complex is administered.

Conclusion: The increase of IFN-g following the immunization with both compounds indicates the activation of Th1 population that would be correlated to the clearance of the organism by activation of phagocytosis. Low levels of IL-4 following the injection of both compounds would be a sign of Th1 responses dominancy or inhibition of Th2 population proliferation and activity.

Keywords: *Brucella abortus*; *Neisseria meningitidis*; Cytokine