

Summary of the Ph.D thesis No., **19216**. . **Immunology**, Faculty of Veterinary Medicine, Urmia University.

The academic year: 2023-2024

Author: **Ata Dizaj Mola Ghrabaglou**

Title: Combined Alum and metoclopramide on immune responses induced by killed preporationate *Listeria monocytogenes*

Abstract:

Alum, as the most widely used adjuvant, is only capable of inducing humoral immune responses. Meanwhile, making an effective vaccine against killed preparation of intracellular pathogens requires the induction of cellular immune responses by co-administrated adjuvant. In the past, it has been shown that inhibition of D2 dopamine receptors causes cellular immune responses. In the present study, the combination of dopamine (a D2 receptor antagonist) and alum was used to induce immune responses against the heat-killed preparation of *Listeria monocytogenes* (HKLM). Balb/C mice were vaccinated twice with a two-week interval with HKLM alone or in combination with alum, metoclopramide or a mixture of Alum-metoclopramide. Fourteen days after the last vaccination, the immune responses against *Listeria monocytogenes* were evaluated along with the protective potential of the vaccines. The combination of alum and metoclopramide as an adjuvant increased the potential of HKLM vaccine to increase lymphocyte proliferation and delayed type hypersensitivity reaction against *Listeria monocytogenes*. These results coincided with the polarization of the immune response towards the Th1 response and improved protective immunity against live preparation of *Listeria monocytogenes*. Overall, the combination of alum and metoclopramide as an adjuvant synergistically enhanced cellular and humoral immunity after immunization with HKLM vaccine.

Keywords: *Listeria monocytogenes*, alum adjuvant, metoclopramide , cellular immune.