

5th Asia Pacific Global Summit and Expo on **Vaccines & Vaccination**

July 27-29, 2015 Brisbane, Australia

Vaccination with recombinant L7/L12-Truncated Omp31 protein induces Th1 response and protection against Brucella infection in BALB/c mice

Maryam Golshani, Sima Rafati, Seyed Davar Siadat, Mehdi Nejati-Mohimani, fereshteh Shahcheraghi and Saeid Bouzari
Pasteur Institute of Iran, Tehran, Iran

Background: Brucellosis is the most common bacterial zoonotic disease worldwide and, at present, no human vaccine is available for the prevention of brucellosis. *Brucella melitensis* and *Brucella abortus* are the most common causes of human brucellosis. The Outer membrane protein 31 (Omp31) and L7/L12 are immunodominant and protective antigens conserved in human *Brucella* pathogens.

Materials and Methods: In the current study, we evaluated the humoral and cellular immune responses induced by a fusion protein designed *in silico* based on the truncated form of Omp31 (TOmp31) and L7-L12 antigens and expressed *in vitro* in a prokaryotic host.

Results: Vaccination of BALB/c mice with the rL7/L12-TOmp31 provided the significant protection level against *B. melitensis* and *B. abortus* challenge. Moreover, rL7/L12-TOmp31 elicited a strong specific IgG response (higher IgG2a titers) and induced T cell proliferation marked with IFN- γ and IL-2 production.

Conclusion: The rL7/L12-TOmp31 could be a new potential antigen candidate for the development of a subunit vaccine against *B. melitensis* and *B. abortus*.

saeidbouzari@yahoo.com

Therapeutic potential of natural adjuvants PC, G2 and G2F vaccine on asthma, basic and clinical evidences

Mohammad Hossien Boskabady¹, Jalil Tavakol Afshari², Ali Neamati³ and Saleh Mohaghegh Hazrati⁴

¹Neurogenic Inflammation Research Centre

²Mashhad University of Medical Sciences

³Islamic Azad University, Mashhad Branch

⁴Tehran University of Medical Sciences & Dr. Mohaghegh's Foundation Researches on Industrial Biotechnology, Iran

PC adjuvant is a bacterial extract polypeptide, G2 adjuvant was prepared from buffalo spleen lipid and G2F preparation is the crude Sesame seed oil, all registered as a patent in the Iranian Patent Office as: Immune System Activator Vaccine with well known immune-regulatory effect agents. In a series of studies the effects of natural adjuvants vaccines PC, G2 and G2F on tracheal responsiveness to methacholine and ovalbumin, total and differential WBC counts, of lung lavage, the level of IL-4 and IFN- γ in serum and Th1/Th2 balance as well as pathological changes in sensitized guinea pigs, an animal model of asthma were shown. The effects of PC, G2 and their combination on total and differential WBC counts as well as the level of IL-4 and IFN- γ in, in lung lavage and lung pathology of ovalbumin sensitized BALB/c mice were also documented. The effects of natural adjuvants in asthmatic patients in a large clinical trial on asthma symptoms, pulmonary function tests eosinophil counts and some inflammatory mediators were also investigated. The effect of G2 vaccine on treatment of oral lichen planus also showed reduction of patient's symptoms and increase in CD4+ counts and rise in CD4+/CD8+ ratio. These results indicate therapeutic potential of natural adjuvants and their combination on sensitized animals and asthmatic patients as well as other inflammatory disorders associated with Th1/Th2 imbalance.

boskabady@ums.ac.ir