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### **Potentiating of human papilloma vaccine candidate using Naloxone/Alum mixture as adjuvant: Increase of the immunogenicity and polarization to Th-17**

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*Human papillomaviruses* (HPVs) are a group of more than 150 related viruses and one of the most common viruses transmitted through sexual contact. Studies have demonstrated an association between oncogenic HPV and cervical cancer. HPV types 16 and 18 are responsible for the majority of cervical cancer. Cervical cancer is the most common malignancy of the female genital tract and second leading cause of death among women in developed countries. The Food and Drug Administration (FDA) has approved two vaccines to prevent HPV infection: Gardasil® and Cervarix®.

Naloxone (also known as Narcan®) the antagonists of opioid receptors can react to its receptors and contribute to the shifting Th2 response to Th1 and promotion of cellular immune response. In the present study, we studied the adjuvant activity of Naloxone/Alum mixture on HPV vaccine-E7d vaccine candidate in mouse model versus Alum adjuvant.

Mice were divided into 8 groups (n=6) and immunized with E7d/NLX/Alum, E7d/Alum, E7d /NLX, E7d, NLX/Alum, NLX, Alum and PBS control groups. Mice were immunized with 10 µg of vaccine s.c three times with two weeks interval. Two weeks after the last immunization, total antibody, IgG1 and IgG2a were assessed with ELISA. Lymphocyte proliferation was evaluated with BRDU method and IL-4, IFN- and IL-17 cytokines were measured with commercial ELISA kits. Our results show that administering NLX/Alum mixture as adjuvant with E7 vaccine leads to enhancement of lymphocyte proliferation, shift the immune response toward a Th1 and Th17 cytokine pattern and also boost humoral immune responses.

#### **Biography**

Mahsa Yasaghi completed professional doctorate of Pharmacy. Mahsa Yasaghi technical responsible of drug store and work in the field of cancer vaccine research.

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