Evaluation of Adjuvant Effect of BCG along with E7d Vaccine for the Iimmunotherapy of TC1 Induced Cancer in Mice Model

Mohammad Hossein Yazdi, Ph.D

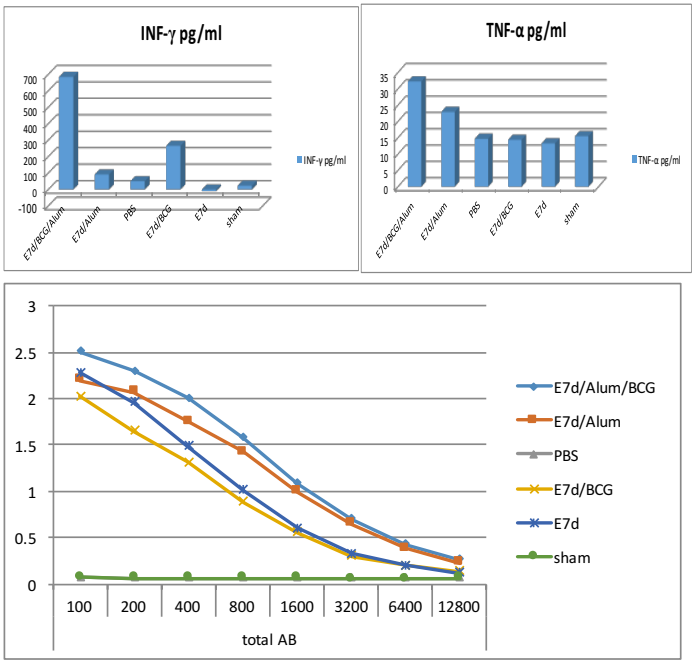
Biotechnology Research Center and Recombinant Vaccine Research Center, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran

ABSTRACT

Background: Induction of cellular immune response in tumor bearing mice and decrease of suppressor factors may result in controlling and inhibition of tumor progression. In the present study, after immunization with HPV17E7d vaccine using BCG bacteria as adjuvant in tumor bearing mice, the balance of inflammatory and anti-inflammatory cytokines was assessed. **Material and Methods:** Tumor was established in C57BL/6 mice with transplantation method. Experimental C57BL/6 tumor bearing mice were vaccinated three times with 10 days intervals with E7d protein formulated in Alum and BCG vaccine adjuvants. One week after final immunization, serum samples were obtained from five mice in each group. Then the quantity of IL-4, INF-γ, TNF-α cytokines and total IgG Antibody were evaluated with commercial ELISA kits. Also, the level of IgG1 and IgG2a were measured. In addition, survival and volume of tumors were monitored during the study period.

Result: Results showed that immunization with vaccine formulated in BCG as adjuvant increased INF-γ and its ratio to IL-4. Also, TNF-α and total Antibody level were significantly higher when compared to PBS control and E7d Alum vaccine groups. In addition, survival of vaccinated mice with BCG adjuvant showed longer lifespan and the tumor volume of mice in this group were significantly lower than others.

Conclusion: Regarding to the present sata it can be concluded that formulation of E7d vaccine in BCG Alum can shift the immune responses to Th1 pattern and cause a better outcome in terms of tumor progress and survival rate.



Recent Publications (if any-minimum 5)

1. M Molanouri Shamsi, S Chekachak, S Soudi, R Gharakhanlou, LS Quinn, K Ranjbar, S Rezaei, F Jalali Shirazi, B Allahmoradi, **MH Yazdi**, M Mahdavi, FA Voltarelli. Effects of Exercise Training and Supplementation with Selenium Nanoparticle on T-helper 1 and 2 and Cytokine Levels in Tumor tissue of Mice bearing the 4T1 Mammary Carcinoma. DOI: 10.1016/j.nut.2018.05.022

2. Ahmad Reza Shahverdi, Faranak Shahverdi, Elnaz Faghfuri, Mohammad Reza khoshayand, Faranak Mavandadnejad, **Mohammad Hossein Yazdi**, Mohsen Amini. Characterization of Folic Acid Surface-Coated Selenium Nanoparticles and Corresponding In Vitro and In Vivo Effects Against Breast Cancer. https://doi.org/10.1016/j.arcmed.2018.04.007.

3. Faranak Mavandadnejad, **Mohammad Hossein Yazdi**, Seyed Mehdi Hassanzadeh, Mehdi Mahdavi, Mohammad Ali Faramarzi, Hamidreza Pazoki-Toroudi, Ahmad Reza Shahverdi. Biosynthesis of SeNPs by Mycobacterium bovis and their enhancing effect on the immune response against HBs antigens: an in vivo study. 2018, 12;1: 57-63.

4. Yazdi MH, Faramarzi MA, Nikfar S, Abdollahi M. Comparative safety and efficacy of tyrosine kinase inhibitors (TKIs) in the treatment setting of different types of leukemia, and different types of adenocarcinoma. Biomed Pharmacother. 2017, 22;95:1556-1564.**6.** Hajar **5.** Hajar Rostami, Masoumeh Ebtekar, Mehdi Shafiee Ardestani, **Mohammad Hossein Yazdi**, Mehdi Mahdavi: Co-utilization of a TLR5 agonist and nano-formulation of HIV-1 vaccine candidate leads to increased vaccine immunogenicity and decreased immunogenic dose: a preliminary study. Immunology letters 05/2017;, DOI:10.1016/j.imlet.2017.05.002.

Biography



Mohammad Hossein Yazdi got his PhD in the field of Pharmaceutical Biotechnology by 2014 from Tehran University of Medical Sciences, School of Pharmacy. His PhD work was about cancer vaccine and immunotherapy. He is now working as Assistant Professor at Biotechnology Research Center and Recombinant Vaccine Research Center of Tehran University of Medical Sciences and pursues his interest in both vaccine and immunotherapy of cancer and infectious diseases. He has published more than 35 papers in reputed journals and has been serving as senior lecturer of advanced immunology and immunotherapy at Tehran University of Medical Sciences.

Presenting author details
Full name: Mohammad Hossein Yazdi
Contact number: +989123793307
Linked In account: Mohammad Hossein Yazdi
http://tums.ac.ir/faculties/mh-yazdi
Email: mh-yazdi@tums.ac.ir