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Immune adjuvant effect of a *Toxoplasma gondii* profilin-like protein in autologous whole-tumor-cell vaccination in mice

Eun-Hee Shin^{1,2}¹Seoul National University, South Korea²Seoul National University Bundang Hospital, South Korea

Profilin-like protein in *Toxoplasma gondii* (TgPLP) is a Toll-Like Receptor (TLR) agonist. In this study, we investigated whether TgPLP has an adjuvant effect on immune function in autologous whole-tumor-cell vaccine (AWV) treatment. Mice vaccinated with AWV together with recombinant TgPLP protein had smaller CT26 tumors and increased survival. TgPLP treatment strongly increased the production of IL-12 through MyD88 signaling and several chemokines, including CCL5, CCL12 and XCL1, in bone marrow-derived macrophages (BMMs). In addition, TgPLP increased the phagocytosis of tumor cells by BMMs and promoted immune cell mobility on a tumor-matrigel scaffold. TgPLP triggered immune responses as demonstrated by increased expression of antigen presenting cell markers (MHC class I and II, B7.1 and B7.2) in BMMs and increased IL-12 and IFN- γ expression in mice. Mice vaccinated with AWV and TgPLP had more immune cells (CD4+ and CD8+ T cells, natural killer cells and macrophages) in the spleen and higher total IgG and IgG2a concentrations in the blood than mice vaccinated with AWV alone. These findings suggest that TgPLP is a TLR-based vaccine adjuvant that enhances antitumor immune responses during vaccination with AWV.

Biography

Eun-Hee Shin has her expertise in immunology and diagnosis in parasitology and tropical medicine. In particular, she studied on biological and immunological response of a protozoa, *Toxoplasma gondii* in the infected host and published many papers in this area. Besides, she has worked in the field of the mucosal immunity in other water-borne protozoa and food borne trematode. Moreover, she studied on the immune response of natural products as an immunologist.

ehshin@snu.ac.kr

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