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Virus like particles containing *Toxoplasma gondii* rhoptry protein 18 or rhoptry protein 4 induces protection against *Toxoplasma gondii* infection

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Toxoplasma gondii is a ubiquitous protozoan parasite responsible for causing toxoplasmosis. Preventive measures for toxoplasmosis are currently lacking and as such, development of novel vaccines are of urgent need. In this study, we generated two virus-like particles (VLPs) vaccines expressing *T. gondii* rhoptry protein 4 (ROP4) or rhoptry protein 18 (ROP18) using influenza matrix protein (M1) as a core protein. Mice were intranasally immunized with VLPs vaccines and after the last immunization, mice were challenged with ME-49 cysts. Protective efficacy was assessed and compared by determining serum antibody responses, body weight changes and the reduction of cyst counts in the brain. ROP18 VLPs-immunized mice induced greater levels of IgG and IgA antibody responses than those immunized with ROP4 VLPs. ROP18 VLPs immunization significantly reduced body weight loss and the number of brain cysts in mice compared to ROP4 VLPs post challenge. These results indicate that *T. gondii* ROP18 VLPs elicited better protective efficacy than ROP4 VLPs, providing important insight into vaccine design strategy.

Biography

Fu Shi Quan received her PhD degree at Korea University Seoul, South Korea and had Postdoctoral training in the laboratory of Professor Richard W Compans (Department of Microbiology & Immunology, School of Medicine, Emory University, Atlanta, GA, USA). Currently, she is working on virus-like particle vaccines against respiratory virus and *Toxoplasma gondii* infections as a Professor at Kyung Hee University in South Korea.

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