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Immune response to toxoplasma gondii by SAG1 encoded DNA vaccine

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In recent years, Toxoplasmosis is of major medical and veterinary importance. In recent years, significant progress has been made in the identification of vaccine candidates which can induce a protective response. Most of the works has focused on surface antigens of tachyzoites specially SAG1. In this research, after extraction of genomic DNA and PCR of SAG1 gene, the PCR product was cloned into pTZ57R/T vector MCS and sequenced. Sequence analysis showed that SAG1 gene sequence from the high virulent strain presented in this study (known as RH) had 100% sequence identity with P-Br strain, P strain and C Strain and high homology of 98% with RH strain and ZS1 strain.

Then, SAG1 was subcloned into pcDNA3 and after transfection into CHO cells; the expression of SAG1 was confirmed by SDS-PAGE and Western blotting. Immunization by pcSAG1 to toxoplasmosis was evaluated in BALB/c mice. Anti-*T.gondii* IgG values (OD) increased markedly in the pcSAG1, which were significantly higher than those of control groups ($P<0.05$). Survival percent in pcSAG1 group was higher than control groups. All mice in the control groups died within 7-9 days after challenge, whereas mortality in pcSAG1 group was begun in 9th day and continued to 20th day in pcSAG1. Results showed that both surveillance percent and antibody titer (OD) in pcSAG1 group was higher than controls groups than mice immunized by pcSAG1 alone were indicated that enhanced efficacy of for pcSAG1 immunization.

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