CLONING AND EXPRESSION OF TOXOPLASMA GONDII DENSE GRANULE ANTIGEN 2 (GRA2) GENE BY PICHIA PASTORIS

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Abstract. Detection of Toxoplasma gondii infection is essential in pregnant women and immunosuppressed patients. Numerous studies have shown that the recombinant production of several Toxoplasma antigens, including dense granule antigens (GRAs) has high potential as diagnostic reagents. In the present study, we produced GRA2 using Pichia pastoris system. RNA of T. gondii RH strain tachyzoite was used as a template to produce cDNA clones of full-length GRA2 via reverse transcriptase PCR. Amplicons were inserted into pPICZα A and the recombinant plasmid transformed into P. pastoris, X-33 strain. The expressed recombinant protein was identified by SDS-PAGE and Western blotting. A recombinant protein of ~28 kDa was produced, which could be detected by toxoplasmosis positive human sera indicating that the recombinant protein retained its antigenicity. The present study indicates that P. pastoris-expressed GRA2 should be useful for detection of Toxoplasma infection.

Keywords: Toxoplasma gondii, GRA2, expression, Western blot