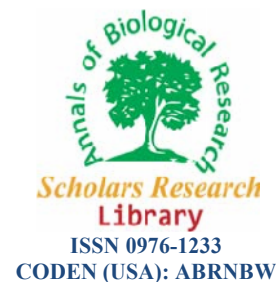




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Peptide-based polyclonal antibody production against SAG1 (P30) protein of *Toxoplasma gondii*

Mohadeseh Naghi Vishteh^{1,2}, Seyyed Javad Seyyed-Tabaei¹, Ali Haghghi¹, Amir Hassan Zarnani^{3,4}, Nazila Amini^{2,5}, Omid Zarei^{2,6}, Reza Hadavi², Hodjattallah Rabbani², and Mahmood Jeddi-Tehrani^{2*}

¹Department of Parasitology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Monoclonal Antibody Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

³Nanobiotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran

⁴Immunology Research Center, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

⁵Department of Biology, Sciences and Research Branch, Islamic Azad University, Tehran, Iran

⁶Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran

ABSTRACT

Toxoplasma gondii is an intracellular protozoan parasite that could infect a wide range of warm-blooded animals. Approximately 1/3 of people in the world are infected by this parasite. Humans as intermediate hosts are infected by ingesting infectious oocytes, tissue cysts or through placenta in pregnant women. The aim of this study was to produce polyclonal antibodies against a synthetic peptide from SAG1 (P30) protein of *T. gondii* in order to use in different applications. A synthetic peptide from SAG1 (P30) protein was conjugated to Keyhole Limpet Hemocyanin (KLH) and used for immunization of a New Zealand White rabbit. The produced antibody was purified from the rabbit serum by affinity chromatography and its specific interaction with immunizing peptide was determined by ELISA. Immunoreactivity of the antibody was also tested by Western blotting in *T. gondii* cell lysate. Results showed that the produced antibody had reactivity with the immunizing peptide and also detected a single band of 35 kDa corresponding to SAG1 protein. This antibody might be used as a diagnostic tool to study of *Toxoplasma gondii*.

Key words: *Toxoplasma gondii*, SAG1, P30, Antibody, Peptide

INTRODUCTIN

Toxoplasma gondii is an obligate intracellular protozoan parasite belonging to Apicomplexa phylum that could infect a wide range of warm blooded animals [1-2]. The life cycle of this organism consists of a sexual cycle in the intestine of definitive hosts, members of the family Felidae, and an asexual cycle in various tissues of intermediate hosts [3-4]. Humans as intermediate hosts are infected by ingesting the infectious oocytes and tissue cysts [5]. Also because of vertical transmission potential of the parasite in intermediate hosts, congenital transmission can occur [6]. Approximately 1/3 of people in the world are infected by this parasite [7]. Toxoplasmosis may cause severe disorders such as neurological and ophthalmological diseases in developing fetuses and immune-deficient patients [8-9]. Moreover, due to severe side effects of available drugs and emergence of resistance to some drugs, treatment of toxoplasmosis, especially in chronic toxoplasmosis, seems difficult [10]. SAG1 (P30), one of the five specific surface antigens of tachyzoite stage [11], is an immunodominant protein [12] that mediates attachment and invasion of the parasite to host cells [13-15]. The protective role of this antigen has been shown in several studies [16-18]. The aim of this study was to produce and characterize a polyclonal antibody against a synthetic peptide derived from C-terminal part of the SAG1 protein as a tool for diagnostic and research applications.