Investigations for the possible use of a monoclonal antibody produced against strongyloides ratti antigen as an immunodiagnostic reagent for active strongyloidiasis

ABSTRCT

Background:

Currently, most of the available serological diagnostic kits for strongyloidiasis are based on the use of the crude antigens of Strongyloides ratti, which are good, but with less sensitivity towards the infection. Hence, this study aimed to produce and evaluate monoclonal antibody for detecting soluble parasite antigen in animal sera.

Methods:

The study was conducted in the Department of Medical Microbiology and Parasitology, University Putra Malaysia in 2014-2017. Saline extract protein from the infective larvae of S. ratti was used to immunize BALB/c mice and subsequent fusion of the B-cells with myeloma cells (SP2/0) using 50% PEG. The hybridomas were cultured in HAT medium and cloned by limiting dilutions. Positive hybrids were screened by indirect ELISA. The ascites fluid from the antibody-secreting hybridoma was purified and the MAb was characterized by western-blots and evaluated in sandwich ELISA for reactivity against the homologous and heterologous antigens.

Results:

An IgG1 that recognizes a 30 and 34 kDa protein bands was obtained. The MAb was recognized by all S. ratti-related antigens and cross-reacted with only Toxocara canis antigens in both assays. The minimum antigen detection limit was found to be 5 ng/ml. All antibody-positive rat and dog sera evaluated have shown antigen-positive reactions in Sandwich-ELISA.

Conclusion:

The MAb produced, was able to detect antigens in strongyloidiasis and toxocariasis in animal models and may also be useful for the serological detection of active strongyloidiasis and visceral toxocariasis in human sera.

Keyword: Monoclonal antibody; Strongyloides ratti; Antigen; Active strongyloidiasis; Visceral toxocariasis; Immunodiagnostic reagent.