

OP 10 - Characterization of antigens of *Enterobius vermicularis* (pinworm) eggsY. B. N. S. De Kostha¹, S. L. Pathirana¹, S. M. Handunnetti¹, S. Gunawardena^{2*}¹Institute of Biochemistry, Molecular Biology and Biotechnology, University of Colombo, Sri Lanka; ²Department of Parasitology, Faculty of Medicine, University of Colombo, Sri Lanka

Introduction: Enterobiasis or pinworm infection caused by *Enterobius vermicularis* is a common parasitic infection prevalent worldwide especially in children. Diagnosis of infection is done by microscopic identification of the characteristic eggs of *E. vermicularis* on peri-anal swabs. This study aimed to characterize the antigens of *E. vermicularis* eggs as a preliminary step towards identifying any that would be useful as diagnostic targets for detection in infected individuals.

Methods: The study was conducted between October 2019 and February 2020, following approval from Ethics Review Committee of the Faculty of Medicine, Colombo (EC-19-034). *E. vermicularis* eggs were harvested from peri-anal swabs using acetone and purified with 1X PBS (pH 7.2). A portion of eggs was used for preparing antigen slides, while the rest were sonicated and vortexed with glass beads and inoculated subcutaneously (with weekly booster doses) into a Wistar rat for developing antibodies. Blood drawing from rat was done weekly for five weeks. Confirmation of the presence of antiserum was done by surface immunofluorescence against eggs on the antigen slides. Protein bands were determined using SDS-PAGE assay and immunogenic antigen bands were determined by reacting with antiserum after immunoblotting. The band sizes of the proteins were determined against corresponding bands of a protein ladder.

Results: Surface immunofluorescence was positive with serum obtained from day 14 post-inoculation from the Wistar rat as well as that obtained from a patient with chronic enterobiasis. The most prominent and immunogenic protein bands identified from egg antigens were 21KDa, 66KDa, 83KDa, 96KDa, 112KDa, 121KDa, 140KDa and 151KDa.

Conclusions: Methods used in this study were effective in obtaining *E. vermicularis* egg antigens which were immunogenic. Furthermore, surface antigens of intact eggs reacted with antibodies developed against egg antigens. These findings may pave the way for the development of effective immunodiagnostics.

Keywords: Wistar rat, immunization, immunofluorescence, SDS-PAGE assay, immunoblotting

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