

Proteomic analysis and immnunodetection of antigens from early developmental stages of *Trichinella britovi*

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Trichinellosis is an important food-borne parasitic worldwide zoonosis caused by nematodes belonging to the genus *Trichinella* and is known to have high socioeconomic and medical significance stages: muscle larvae, adult worms, and newborn larvae. The intestinal phase is the first step in the host-parasite interplay, and invasion of the intestinal epithelium by free muscle larvae is crucial to the establishment of new *Trichinella* infections. Parasite components such as structural and excreted and/or secreted proteins appear to have important roles during this process. Several reports indicate that the *Trichinella* antigens produced by adult worms, newborn larvae and muscle larvae are stage-specific. Our previous study indicated that together with stage-specific proteins, *Trichinella* produces species-specific and common proteins for each developmental stage. These *Trichinella* antigens can induce specific host immune responses, including eliciting a host's protective immune response, which has implications towards the diagnosis of *Trichinella* infected humans and animals.

T. spiralis is considered as an etiological agent of most human infections and deaths caused by trichinellosis globally. Over the years, numerous of trichinellosis cases have been attributed to *T. britovi*, considered the second-most common species of *Trichinella* and one that may affect human health. Although the clinical and biological features observed during human infection caused by *T. spiralis* and *T. britovi* are different, it is not possible to attribute these features to a single species because the number of infective larvae is unknown.

Early diagnosis of the infection is critical for the timely and effective treatment of trichinellosis because anthelmintic drugs are much more effective against adult worms in the intestine than to the encapsulated larvae in the muscle. Therefore, it is important to determine if other antigens from early developmental stages of the parasite life cycle, could play a major role during infection/establishment, development of larvae to adult worms, immune evasion strategies and/or modulatory effects on host responses. These antigens may provide novel and promising candidates that in conjunction with available adjuvants could induce better protection against the parasite or be used as possible immunomodulatory agents.

Currently, little is known about the protein profile shared by all developmental stages of *T. britovi*.

The aim of the present study was to identify the *T. britovi* antigens recognized by host immune system during early enteric infection. *T. britovi* adult worm extract and excretory-secretory antigens were separated by two-dimensional gel electrophoresis (2-DE) coupled with immunoblot analysis. In addition, any positively-visualized proteins were further identified by liquid chromatography-tandem mass spectrometry. These identified proteins were related to many significant molecular functions, cellular components and biological processes of the parasite.

To our knowledge, this is the first immunoproteomic identification of the antigenic proteins of adult worm of *T. britovi*.

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