Research abstract

Detection of circulating antigens in individuals infected with schistosomiasis using monoclonal antibody and fast dot-ELISA

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In this study, fast dot-enzyme linked immunosorbent assay (FD-ELISA) was used for detection of circulating antigens shedding in the urine of *Schistosoma mansoni*-infected patients, using BRLF4 monoclonal antibody (BRLF4-mAb) originated in mice infected with *S. mansoni*. In this study, 333 urine samples of *S. mansoni*-infected patients and 113 urine samples of non-infected individuals (diagnosed parasitologically) were subjected to FD-ELISA. The assay detected 309 out of 333 infected patients with a sensitivity of 93% and positive predictive value of 97%. The assay also detected 9 false-positive cases from 113 non-infected individuals, giving 92% specificity and 81% negative predictive value. The target antigen for the BRLF4-mAb was detected at a molecular mass of 74 kDa in the three developmental stages of *S. mansoni* extracts (eggs, cercariae, and adult worms) and in urine of *S. mansoni*-infected patients by SDS-PAGE (sodium dodecyl sulfate polyacrylamide gel electrophoresis) and Western blot techniques. This antigen was immunopurified using cyanogen bromide (CNBr)-activated sepharose beads coupled with the BRLF4-mAb, and showed a single peak when analysed by high performance liquid chromatography (HPLC) and high performance capillary electrophoresis (HPCE) techniques. The immunopurified antigen was further characterized as a protein in nature, with 65.3% hydrophilic amino acids and 34.7% hydrophobic amino acids. The immunochemical purification and characterization of the 74 kDa antigen enhanced the use of this antigen in immunization against *S. mansoni* infection.

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