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## Serological diagnosis of cystic and alveolar echinococcosis in humans: A two-step approach for identification and differentiation

Linda Schoenfeld EUROIMMUN AG, Germany

Cystic (CE) and alveolar echinococcosis (AE) are infectious diseases caused by the tapeworms *Echinococcus granulosus* and *Echinococcus multilocularis*, respectively. Imaging techniques such as MRI provide initial indications for diagnosis. CDC guidelines recommend serological tests before using invasive methods. Positive results in a screening assay (ELISA or IIFT) should be re-tested in a confirmatory blot-based assay. For a pre-characterized serum panel encompassing 107 echinococcus patients as well as 50 blood-donors and 50 tumor patients (University of Bern, Switzerland) results of Anti-Echinococcus ELISA (IgG) and a unique blot-technique (Anti-Echinococcus EUROLINE-Western blot (IgG)) were evaluated. Additional 122 sera of patients with other parasite infections were tested to measure cross-reactivity of the assays. Investigation of the above mentioned sera revealed a sensitivity of 97% and a specificity of 93% for Anti-Echinococcus ELISA whereas a sensitivity of 93% and a specificity of 100% for Anti-Echinococcus EUROLINE-WB were obtained. The two tests showed excellent reactivity to both AE and CE patient sera. Use of species-specific recombinant antigens in Anti-Echinococcus EL-WB additionally enables the physician to differentiate between *E. granulosus* and *E. multilocularis* infections in more than 80% of the examined cases. 22% of that other parasitic infection samples showed cross-reactivity in the Anti-Echinococcus ELISA which was in only 6% of the cases confirmed by the Anti-Echinococcus EUROLINE-WB and only for *Anisakis* and *Ascaris* infections, indicating the usefulness of confirmatory tests for positive reacting sera in screening assays. Combination of the ELISA and the EUROLINE-WB, thus, provides excellent sensitivity and specificity for identification and differentiation of echinococcosis.

## **Biography**

Linda Schoenfeld has completed her studies in Molecular Life Science with a Master's degree at the University of Luebeck in Germany. She is a developing Specialist for blot techniques and Team Leader at EUROIMMUN AG in Luebeck; one of the world's leading manufacturers of medical laboratory products for autoimmune and infection diagnostics.

I.schoenfeld@euroimmun.de

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