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## NOVEL TOOLS FOR THE DIAGNOSIS OF ACUTE AND CHRONIC BOVINE BESNOITIOSIS

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### Purpose

Bovine besnoitiosis caused by *Besnoitia besnoiti*, a cyst forming apicomplexan parasite, is re-emerging in Europe. Acute besnoitiosis is characterized by non-specific clinical signs like pyrexia, and in severe cases by subcutaneous edema. In the chronic phase, the skin may become lichenified and alopecic and bulls may develop infertility due to orchitis. There are major diagnostic problems as the first clinical signs may occur prior to the development of detectable antibodies and the low specificity of some serological tests may cause many false positive results.

### Methods

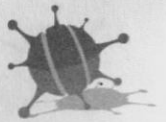
Diagnostic antigens were enriched by affinity purification using polyclonal antisera against *B. besnoiti* and *Neospora caninum* and used to establish a Western blot and a novel diagnostic ELISA (APure-BbELISA). The time-course of the development of the specific IgG antibody response of cattle recently infected by *B. besnoiti* was monitored and the ELISA was validated using sera from acutely and chronically infected cattle.

### Results

The phase of infection determines the recognized diagnostic antigen pattern in Western blot. The APure-BbELISA showed excellent sensitivity (100%) relative to a serological reference system in chronically, infected cattle. Specificity was high (99.8%) as determined in cattle from herds with *N. caninum*-associated abortions. The antibody levels in APure-BbELISA were correlated with the parasite load in the skin as determined by PCR.

### Conclusions

Affinity purified antigens are an excellent basis to develop a sensitive and specific ELISA test for bovine besnoitiosis. Knowledge on the diagnostic antigens identified in the present study could be used for a further refinement of serological tests.



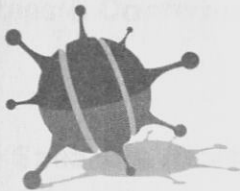
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