Characterisation of protective antigens and their genes from theileria annulata: application to sub-unit vaccines, epidemiology and diagnosis

Fact Sheet

Project Information

Grant agreement ID: TS3*910019
Funded under FP3-STD 3
Start date 1 June 1992
End date 30 April 1996
Overall budget € 0
EU contribution € 0

Coordinated by University of Glasgow United Kingdom

Objective

- To isolate and characterise the genes encoding surface antigens and invasion associated organelle proteins from two stages of the parasite (sporozoite and merozoite);
- To define the epitopes on these molecules which elicit an immune response from cattle and to test whether these antigens can elicit a protective immune response;
- To define the level of parasite diversity within an endemic area (Tunisia) and examine its relevance to immunisation with candidate protective antigens.

Expected Outcome

- The work undertaken will lead to an evaluation of the use of recombinant surface antigens to generate a protective immune response and as reagents for development of diagnostic reagents. The epidemiological studies will define the levels of parasite...
diversity within a region and generate data on the level of diversity in the candidate vaccine antigens. These studies will lay the groundwork for the potential development of a sub-unit vaccine and generate the reagents for future epidemiological and immunological studies of the disease.
- The mapping of bovine T & B cell epitopes on the recombinant sporozoite surface antigen SPAG-1 and the isolation and characterisation of further sporozoite surface antigens;
- The characterisation of the surface and rhoptry polypeptides of the merozoite and the cloning and sequencing of the genes encoding them;
- The development of an in vitro red blood cell merozoite invasion assay and the assessment of the invasion blocking activity of antibodies raised against recombinant merozoite antigen genes;
- The immunisation of calves with such recombinant antigens and the testing of their role in protection to parasite challenge;
- The collection of parasite samples from different regions of Tunisia and the assessment of the level of parasite diversity with particular reference to sporozoite and merozoite surface antigens;
- The study will focus on the collection of parasites from Tunisia, the isolation and characterisation of the merozoite and sporozoite surface antigens and the assessment of their diversity in the endemic area. The antigen genes will be sequenced and expressed in bacterial systems, sera to the recombinant antigens will be developed and used to test their activity in blocking assays and the recombinant antigens used to immunise calves.

**Programme(s)**

**Funding Scheme**

CSC - Cost-sharing contracts

**Coordinator**

University of Glasgow

Address

Bearsden Road
G61 1QH Glasgow

United Kingdom

**Participants (3)**