

Characterization of Theileria parasites: application to the epidemiology of theileriosis in Zimbabwe.

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Abstract

Forty Theileria schizont-infected lymphocyte culture isolates from Zimbabwe were characterized using a panel of antischizont monoclonal antibodies (MAbs) and 4 Theileria parva DNA probes containing cloned extrachromosomal element, Tpr repetitive, ribosomal and telomeric sequences. The Theileria isolates were assigned as T. parva or T. taurotragi on the basis of reactivities with MAbs and restriction fragment length polymorphisms (RFLPs) detected using the extra-chromosomal element probe. Cattle-derived T. parva isolates were relatively homogeneous on the basis of reactivities with MAbs and RFLPs detected using Tpr repetitive and ribosomal DNA probes. In contrast to previous results from Kenya, most of the cattle-derived isolates from Zimbabwe exhibited very similar Tpr restriction fragment patterns, although the Tpr genotypes of buffalo-derived isolates were heterogeneous. This suggests that selection for a particular Tpr genotype may be occurring in cattle. Many isolates with similar Tpr genotypes were differentiated by RFLPs detected using the telomeric DNA probe. The T. parva Boleni immunizing stock was distinguished from all other isolates by telomeric RFLPs. The T. parva Boleni Tpr repetitive DNA probe cross-hybridized with T. taurotragi DNA and detected RFLPs between different T. taurotragi isolates.