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| Author(s) | ASADA, Maki |
| Citation | Japanese Journal of Veterinary Research, 44(1), 31-31 |
| Issue Date | 1996-05-31 |
| Doc URL | https://hdl.handle.net/2115/2531 |
| Type | departmental bulletin paper |
| File Information | KJ00002398215.pdf |

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# MOLECULAR CLONING OF cDNA ENCODING P23, A PIROPLASM SURFACE PROTEIN OF *THEILERIA SERGENTI* AND ANALYSIS OF ITS GENETICAL DIVERSITY

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*Theileria sergenti* is a tick-borne protozoan parasite in cattle that causes chronic anemia as intraerythrocytic piroplasms. Proteins with molecular weights of 32kDa (p32) and 23kDa (p23) of *T. sergenti* are known to be immunodominant surface antigens.

In this study, the cDNA encoding the C (Chitose)-type p23 of *T. sergenti* was cloned into λ gt11, and its nucleotide sequence was determined. The gene encoded a polypeptide of 223 amino acids with a 28 residual N-terminal signal peptide, as deduced from its nucleotide sequence. By using the polymerase chain reaction (PCR), the open reading frame of I (Ikeda)-type p23 was amplified from genomic DNA of Ikeda stock and its nucleotide sequence was also determined. Comparison of the I-type sequence with that of the C-type, showed 90.1% homology at the amino acid level.

By Southern blot analysis using cDNA of p23 as a probe, 3 allelic forms of p23 (C-, I- and B-types) in the isolates from Japan were demonstrated. Genotypes of the parasite stocks isolates analyzed by the p23 cDNA probe were correlated with those determined by a p32 cDNA. Changes in a dominant parasite population were demonstrated during persistent infection in an individual calf by PCR specific for p23 alleles.

These results suggested that different parasite populations bearing different allelic forms of p23 may coexist in calves, and supported hypothesis that a transition of predominant parasite populations might occur to evade the host immune response.