SCHIZODEME ANALYSIS WITH THE RESTRICTION ENDONUCLEASE RSA I DIFFERENTIATES BETWEEN TRIpanosoma RANGELI AND TRIpanosoma CRUZI

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While characterizing several isolates of these parasites from Colombia and Brazil by schizodeme analysis (C. M. Morel et al., 1980, Proc. Nat Acad. Sci. USA, 77: 6810-6814), we found that they could be easily distinguished using the endonuclease Rsa I. The figure shows that digestion of the kinetoplast DNA minicircles from T. cruzi with this enzyme originates a major band of around 350 base pairs (bp) (arrow). This is consistent with the restriction site for Rsa I (GT/AC) being located in the minirepeat, a constant sequence of 120 bp repeated four times along the 1400 bp minicircle molecule of T. cruzi (W. Degreve et al., 1988, Mol. Biochem. Parasitol., 27: 63-70). By contrast, a similar treatment of T. rangeli kinetoplast DNA originates a more complex restriction fingerprint with fragments distributed over a wide range of molecular weight.

DNA sequence analysis of kinetoplast DNA minicircles from T. rangeli is being carried out in our laboratories to investigate their structure and determine the distribution of Rsa I sites. The present results, however, already indicate that Rsa I schizodeme analysis can be a simple and reliable method for the differentiation of this parasite from T. cruzi.

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Rsa I schizodeme analysis of isolates of *Trypanosoma rangeli* and *T. cruzi*. Kinetoplast DNA samples were prepared and processed as described by C. M. Morel et al. (1980, *Proc. Nat. Acad. Sci. USA*, 77: 6810-6814) and A. M. Gonçalves et al. (1984, p. 95-109 in C. M. Morel *Genes and Antigens of Parasites*, Oswaldo Cruz Foundation, Rio de Janeiro) using Rsa I from New England Biolabs. The restriction fragments were analyzed on a 6-10% polyacrylamide silver-stained gel according to A. M. Gonçalves et al. (1990, *Mem. Inst. Oswaldo Cruz*, 85: 101-106). A: *T. rangeli* (seven isolates from Colombia, two from human cases, five from the insect host *Rhodnius prolixus*). B: *T. cruzi* (three isolates from Brazil – two from human cases, one from a triatomine; three isolates from Colombia – one from a human case and two from *Didelphis marsupialis*). The arrow indicates the fragment of MW = 350 bp (1/4 th the MW of a minicircle).