Tokai J Exp Clin Med., Vol. 23, No. 6, pp.333, 1999

Metacyclogenesis and Behavior in Infected Mice of Fresh Isolates of *Trypanosoma rangeli* in Guatemala

K. TANOURA, T. YANAGI, V. M. de GARCIA* and Hiroji KANBARA

Department of Protozoology, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan
**Department of Citohistology, Facultad de Ciencias Quimicas y Farmacia, Universidad San Carlos de Guatemala, Guatemala, C. A.*

Trypanosoma rangeli is a parasitic flagellate between triatomine vectors and mammalian hosts in Central America and northern parts of South America, where causative agent of Chagas' disease, *Trypanosoma cruzi* coexists. *T. rangeli* has a complex life cycle in both hosts, especially in a mammalian host the presence of a proliferative form is controversial. A sufficient number of metacyclic trypomastigotes (m-trypomastigotes) are required to clarify the above problem. In the present work, we attempted to generate m-trypomastigotes in vitro using two fresh isolates of *T. rangeli* from humans in Guatemala compared with long-maintained *T. rangeli* stocks. Since *T. rangeli* has similar characters to trypanosomes in the Salivaria, we applied the culture methods developed for African trypanosomes to this purpose.

Using fresh isolates high metacyclogenesis was achieved when culture forms mainly composed of epimastigotes in modified LIT medium were transferred into overlaid medium (MEM with 10% newborn bovine serum) on mouse fibroblasts at 27℃ in a 5% CO_2 atmosphere. Formed m-trypomastigotes were able to induce significantly high parasitaemia in both ICR and SCID mice. Parasitaemia was kept constant for about a week but thereafter decreased. Any tissue forms were not found in SCID mice that were examined 7 days after infection. On the other hand, metacyclogenesis using long-maintained stocks was slightly lower in one stock and much lower in the other, but infectivity of formed m-trypomastigotes of both stocks was very low. When the population containing high proportion of m-trypomastigotes were incubated in fibroblast cultures at 37℃ in a 5% CO_2 atmosphere, only trypomastigotes survived for two to three weeks but other forms, mainly epimastigotes died soon after inoculation. Electron-microscopy of surviving trypomastigotes for 7 days revealed that most of them had basket-like shape of kinetoplasts that were characteristic in the trypomastigote stage of *T. cruzi* known as the non-dividing stage, indicating that *T. rangeli* trypomastigotes may survive long in blood without proliferation.

Hiroji KANBARA, Department of Protozoology, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan