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Trypanosoma (Nannomonas) congolense* in the basement lamina of the anterior midgut cells of *Glossina pallidipes

Short communication

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Most of the documented electron microscopic studies of the African trypanosomes of economic importance have been made mainly on the trypanosomes belonging to the subgenera *Trypanozoon* and *Duttonella* (Vickerman, 1974; Steiger, 1973). We hereby submit a preliminary communication on the electron microscopic findings of what we think is an important investigation regarding the vector-parasite relationships in the life cycle of *Trypanosoma (Nannomonas) congolense*. These observations are similar to those found in *Glossina morsitans* with *Trypanosoma rhodesiense* (Evans and Ellis, 1975).

Teneral tsetse flies (*Glossina pallidipes*) which emerged from wild pupae (obtained from Lugala, Uganda; and incubated at $26 \pm 2^\circ \text{C}$ and humidity of 70–90% were fed on albino rats which had been infected with *T. (N.) congolense* LUGALA/69/EATRO/1381) at rising parasitaemia. The flies were subsequently maintained on sheep blood meals at EATRO. They were sacrificed and their guts were processed using standard techniques for electron microscopy (Hayat, 1970).

In some of the flies sacrificed on day 16 post-infection there were sections of trypanosomes in contact with the basement lamina of the cells of the anterior midgut. Trypanosome flagella were found partly embedded in the basement lamina; and this made the basement lamina have thickenings appearing like humps (Fig. 1).

The vector part of the life cycle of *T. (N.) congolense*, according to the information available in literature, is known to involve passage in the ectoperitrophic and the endoperitrophic spaces, plus the mouth-parts (Davies, 1977). More detailed features related to (and the significance of) the present findings, with regard to the route of migration of *T. (N.) congolense* in *Glossina pallidipes* will be discussed in a later publication.

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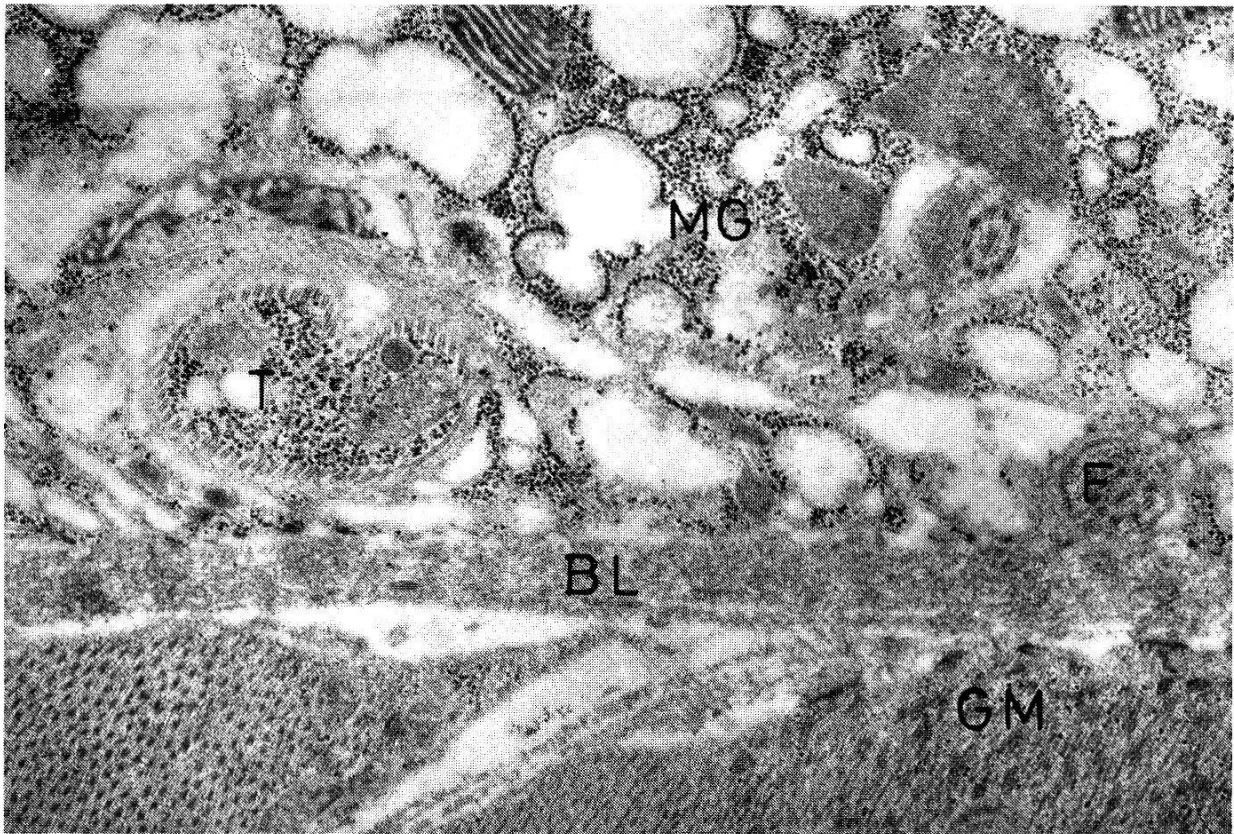


Fig. 1. Electron micrograph of part of a section of the anterior midgut of *Glossina pallidipes*. A trypanosome (T) is in contact with the basement lamina (BL) and a trypanosome flagellum (F) is partly embedded in the basement lamina. GM = gut muscle, MG = midgut cell. Magnification: 20,000 \times .

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Davies H.: Tsetse flies in Nigeria. 340 p. Oxford University Press 1977.

Evans D. A., Ellis D. S.: Penetration of midgut cells of *Glossina* by *Trypanosoma rhodesiense*. *Nature* (Lond.) 258, 231–233 (1975).

Hayat M. A.: Principles and techniques of electron microscopy. 412 p. Van Nostrand Reinhold Company, New York/Cincinnati/Toronto/London/Melbourne 1970.

Steiger R. F.: On the ultrastructure of *Trypanosoma (Trypanozoon) brucei* in the course of its life cycle and some related aspects. *Acta trop.* (Basel) 30, 64–168 (1973).

Vickerman K.: The ultrastructure of pathogenic flagellates. In: Trypanosomiasis and leishmaniasis, with special reference to Chagas' disease, p. 171–198. Ciba Foundation Symposium 20. Elsevier/Excerpta Medica/North Holland, Amsterdam 1974.