

The effect of host blood in the in vitro transformation of bloodstream trypanosomes by tsetse midgut homogenates.

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Abstract:

Midgut homogenates prepared from *Glossina morsitans morsitans*, that had previously been fed on different host blood samples, were tested for their abilities to transform bloodstream *Trypanosoma brucei* into procyclic (midgut) forms in vitro. Compared to rat and goat blood samples, eland blood had the least capacity to support trypanosome transformation, whereas buffalo blood showed intermediate capacity. Fractionation of rat blood showed the importance of the cellular portion since both rat and eland red blood cells (RBCs) supported the process. Virtually no transformation was observed in rat and eland plasma or serum fractions. Suspending rat blood cells in eland plasma led to a reduction in parasite transformation rates. Further experiments showed that the RBC membranes were also capable of supporting the process. These results clearly show the important role played by blood, especially the red blood cells, in the transformation of bloodstream trypanosomes. In addition, the low transformation rates observed in eland blood is due to an inhibitory factor(s) present in the plasma fraction.