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CHOOSING SIDES: STRENGTHENING GLOSSINA ON THE STRUGGLE AGAINST TRYPANOSSOMA SPP

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Tsetse flies (Glossina spp.) are responsible for the transmission of the flagellated protozoa Trypanosoma spp. causing animal African trypanosomiasis (Nagana) and Human African trypanosomiasis (HAT). The later is endemic in 30 countries in sub-Saharan Africa and it is estimated that 60 million people are at risk of infection. Climate and environmental changes are likely to increase its incidence as well as its geographical distribution. Strategies undertaken to fight African trypanosomiasis will have to be multidisciplinary and articulated between the different components that comprise its biological system.

The development of molecular biology techniques has opened up new possibilities with respect to vector control. Despite the fact that the direct transgenesis of flies is hampered by tsetse´s adenotrofic viviparity, paratransgenesis emerged as an alternative.

In the present study, the coding sequences for the trypanocydal proteins attacin and defensin were cloned in plasmid vectors for expression in Sodalis glossinidius, an endosymbiont of Glossina spp. Thermal shock, chemical treatment and electroporation were applied for the symbiont transformation in order to express the recombinant proteins. Transformation was achieved by a combination of methods which was, for the best of our knowledge, successfully achieved for the first time. The expression of the recombinant proteins was evaluated indirectly by inhibition of E. coli growth upon co-culture with transformed S. glossinidius. The expression of attacin and defensin is now being further studied by real-time PCR and western blot. Protein purification is being attempted for the in vitro evaluation of trypanocydal effect.