MODULATION OF CRUZIPAIN AND ITS NATURAL INHIBITOR CHAGASIN ALONG METACYCLOGENESIS OF *TRYPANOSOMA CRUZI*.

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Trypanosoma cruzi has a complex life cycle alternating between an insect vector and a mammalian host. Epimastigotes proliferate inside the insect vector gut and by a metacyclogenesis process originate infective and nonreplicative forms, the trypomastigotes. Metacyclogenesis involves morphological, functional and protein expression changes, and can be reproduced *in vitro*. *T. cruzi* infectivity, intracellular growth and differentiation depend on the activity of cruzipain, the main lysosomal cysteine protease found mainly reservosomes in epimastigotes. Cruzipain is posttranscriptionally regulated during the parasite's life cycle, showing high levels in the epimastigote and amastigote forms and low levels in trypomastigotes. Chagasin, an endogenous cysteine protease inhibitor, colocalizes with cruzipain.
To determine the modulation of cruzipain and chagasin we analyzed parasites in the differentiation process. Percentages of epimastigotes, intermediate forms and trypomastigotes were determined by differential counting. Western blot and enzymatic assays showed a decrease in the expression and activity of cruzipain accompanied by an increase of chagasin, indicating an inverse correlation between them. Immunofluorescence of intermediate forms showed colocalization of the enzyme and its inhibitor in reservosomes and anterior region, but also compartments where only one of them was found. Changes in expression and activity of cruzipain and chagasin during metacyclogenesis may be very important for the whole process.
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