The role of the heme-peroxidase and superoxide dismutase in infectivity of *Trypanosoma cruzi*

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INTRODUCTION: Chagas disease is caused by infection of *Trypanosoma cruzi*, which have a high phenotype variation and the capacity to surmount innate immunity response promoted by phagocytosis of the tissue resident macrophages. The production of reactive oxygen and nitrogen species are the central response mechanism of macrophage to resist to *T. cruzi* infection, whereas the parasite possess an efficient antioxidant system to antagonize and scape from phagolysosomes to cytosol. **OBJECTIVE:** In this metabolic context, our aim will be to explore the relationship between the production of reactive oxygen and nitrogen species by the host cells and the enzymatic antioxidant response of *T. cruzi*, during infection. **MATERIALS AND METHODS:** To do these, parasites will be treated with specific inhibitors (sodium diethyldithiocarbamate and 1,2,3-triazole) of superoxide dismutase and heme-dependent peroxidases and then these parasites will be used to infect murine macrophage (lineages RAW 264.7 and J774A.1) and rat myoblasts (lineage H9c2). The response will be evaluated by quantification of the intracellular parasites, 2 days after infection, superoxide production, gene expression and activity of redox enzymes of host cells and parasites will be determined. Briefly, for the host will be evaluated: myeloperoxidase, extracellular superoxide dismutase, nitric oxide synthase (endogenous and induced), arginase and NADPH oxidase. In addition, for parasite response elucidation, will be evaluated: glutathione peroxidase (cytosolic and reticular), tryparedoxin (cytosolic and mitochondrial), trypanothione synthetase, Glucose-6-phosphate dehydrogenase, superoxide dismutase iron-dependent (cytoplasmic and mitochondrial), ascorbate peroxidase and trypanothione reductase. **DISCUSSION AND RESULTS**: The experimental procedures of the project are being planning. **CONCLUSION:** We expect that present investigation could help a better understanding of the redox interaction between host cells and the parasite.

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