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Cloning and Expression of Methionine Aminopeptidase-1 from Trypanosoma cruzi

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Cloning and Expression of Methionine Aminopeptidase-1 from *Trypanosoma cruzi*

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Trypanosoma cruzi affects millions of people worldwide. This unicellular eukaryotic organism is the causative agent of Chagas' disease. This blood-borne pathogen is transmitted to humans by the hemophagous triatomine or kissing bug. The high toxicity of existing treatments and the lack of vaccines clearly demonstrate the demand for new drugs to treat this parasitosis. We propose to target *T. cruzi* Methionine Aminopeptidase (TcMetAP1). This enzyme catalyzes the removal of the N-terminal amino acid residues from peptides and proteins. Recent studies have shown promising results of MetAP1 inhibitors against malaria. We, therefore, hypothesize that specific inhibitors of the parasitic MetAP1 will clear the infection produced by this parasite. Using information from the *T. cruzi* genome project, primers were designed and the MetAP1 gene was amplified by PCR from genomic DNA. Subsequently it was cloned into the expression vectors pRSET A and pPink. The TcMetAP1 expressed in *E. coli* was insoluble; to overcome this problem we are currently working on the expression and purification of the recombinant enzyme in yeast Pichia expression system. The goal of this project is to develop a specific enzymatic assay to perform high-throughput screening of a small molecule inhibitors library.