

# ADVANCEMENT OF CHAGAS DISEASE TREATMENT THROUGH THE IDENTIFICATION OF POTENTIAL NATURAL PRODUCT TARGETS IN THE *TRYPANOSOMA CRUZI* PROTEOME

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# RATIONALE

Chagas disease, (American Trypanosomiasis), is a tropical disease linked to *Trypanosoma cruzi*, a protozoan parasite infection which can be spread via triatomine insects and contact with bodily fluids.

Approximately 8-10 million people in Latin American countries have Chagas which is most prevalent in rural areas.

Current drugs, Nifurtimox and Benznidazole, are effective treatments for the disease in acute phases, but are limited in the chronic stages and display detrimental side effects. Further research and annotation of the *T. cruzi* proteome is critical in polypharmaceutical advancement or repositioning of existing drugs .

# PROPOSED RESEARCH

- Identification of natural products that might be effective against Chagas through the screening of the natural based drug library against the surface proteins Transialidase and GP63 of the *T. Cruzi* proteome.
  - Search for similar binding sites across the *T. Cruzi* proteome and determine if identified natural products display similar affinity
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# PROGRESS

- Discussed project with USM mentor
  - Further explored active site of TcTS and associated mechanisms with the binding of Lactose and inhibitor DANA
  - Prepared structures for docking and reviewed USM Autodock 3 protocol.
  - Read literature on target proteins
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# TENTATIVE PLANS

Prepare final structures of target proteins

Gather list of natural product library and NCI

Determine approximate grid coordinates for Autodock and test with original crystal ligands

Final Docking

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# CULTURAL ASPECT





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