Biochemical characterisation and essentiality of proteins involved in *myo*-inositol metabolism from the parasite *Trypanosoma cruzi*

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myo-Inositol is one of the nine naturally occurring inositol stereoisomers. It is ubiquitous amongst eukaryotes and acts as an essential metabolite with roles in signal transduction and membrane formation. In the protozoan parasite *Trypanosoma cruzi*—the causative agent of Chagas' disease—*myo*-inositol acts as a precursor to phosphatidylinositol (PI), an essential membrane lipid component. PI in turn is then required for formation of inositol phosphoceramide (IPC), various phosphoinositides, and glycophosphatidylinositol (GPI)-anchored mucin-type glycoproteins, which coats the parasite's cell-surface allowing the parasite to participate in multiple essential steps in parasite-host interactions.

In *T. cruzi, myo*-inositol is proposed to be both *de novo* synthesised and scavenged from the environment, however, the proteins involved in both pathways have not been fully studied in *T. cruzi.* Therefore, the aim of this project is to genetically validate and biochemically characterise the putative inositol-3-phosphate synthase (*Tc*INO1) from the *de novo* synthesis pathway as well as the *myo*-inositol transporter (*Tc*MIT) from the extracellular uptake pathway.

Both proteins—*Tc*INO1 and *Tc*MIT—are genetically validated as essential and biochemically characterised. In addition, localisation and phenotyping of *TcINO1* and *TcMIT* genetically altered *T. cruzi* has been completed, which helps establishes how *T. cruzi* differentiate between *de novo* and scavenged *myo*-inositol.