INTEGRATION AND USE OF *SCHISTOSOMA MANSONI* GENOMIC DATA FOR THE DISCOVERY OF NEW DRUG TARGETS

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SchistoDB is a genomic database for *Schistosoma mansoni*, a human parasitic organism. The database uses the Genomics Unified Schema, GUS, and currently incorporates all available *S. mansoni* sequence data (Genomic, EST and GSS) in a single user-friendly database. SchistoDB contains a variety of tools including BLAST, protein motif searches, keyword searches of pre-computed BLAST results, Gene Ontology assignments, and protein family information. This release also contains ~16 thousand automated gene predictions generated with Augustus. The combination of an annotated genome and a relational architecture has facilitated the integration of the genome with other types of data and permitted the construction of automated analysis pipelines. Integrated into SchistoDB are SchistoCyc and KEGG DRUG. SchistoCyc is a prediction of the metabolic pathways of the organism based on the genomic information. KEGG DRUG contains chemical structure and data on approved drugs. Analysis of chokepoints (reactions that uniquely consume a substrate or uniquely produce a specific product) revealed over 140 metabolic reactions classified by life cycle stage of expression, using EST data. At least 12 chokepoints are known targets to 35 drugs. These chokepoints are of interest for drug targeting. We have also identified additional 2,395 proteins that are known drug targets. The creation of this database has provided a cadre of *Schistosoma* bioinformaticians. Chokepoit and drug target annotations will aid in the development of new drugs to schistosomiasis.

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