

Biochemical and Computational Studies on Drug Target Enzyme of *Leishmania*.

A thesis

Submitted in partial fulfillment

For the Award of Degree of

DOCTOR OF PHILOSOPHY

by

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**Dedicated to all those who have been part of this
journey, making it meaningful**

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Manash Sarma.

List of Abbreviations

AIF	Apoptosis-Inducing Factor
APX	Ascorbate Peroxidase
BSO	Buthionine-S, R-Sulfoximine
CAD	Caspase Activated Dnase
CL	Cutaneous Leishmaniasis
CRISPR	Clustered Regularly Interspaced Short Palindromic Repeats
CS	Cysteine Synthase
DMD	Duchenne Muscular Destrophy
FAD	Flavin Adenine Dinucleotide
FDA	Food and Drug Administration
GR	Glutathione Reductase
GS	Glutathione Synthetase
GSD	Glutathione Deficiency
GSH	Glutathione
GSSG	Glutathione Oxidized
HCV	Hepatitis C Virus
HTS	High Throughput Screening
IC50	Half-Maximal Inhibitory Concentration
INF	Interferon
IPTG	Isopropyl B-D-Thiogalactopyranoside
LAMP	Lysosome-Associated Membrane Protein
LINCS	Linear Interaction Network Cellular Signatures
LPG	Lipophosphoglycan
MCL	Mucocutaneous Leishmaniasis
MDS	Molecular Dynamics Simulations
MMPBSA	Molecular Mechanics Poisson-Boltzmann Surface Area
NAC	N-Acetylcysteine
NADH	Nicotinamide Adenine Dinucleotide (Hydrogen)
NCBI	National Center for Biotechnology Information
NEB	New England Biolabs
NO	Nitric Oxide

NTD	Neglected Tropical Disease
NPT	Constant number of particles (N), pressure (P), and temperature (T)
NVT	Constant number of particles (N), volume (V), and temperature (T)
ODC	Ornithine Decarboxylase
ORF	Open Reading Frame
OSH	Ovothiol
PBS	Phosphate Buffer Saline
PCR	Polymerase Chain Reaction
PDB	Protein Data Bank
PDBQT	Protein Data Bank Partial Charge (Q) and Atom Type (T)
PEP	Phosphoenol Pyruvate
PI	Propidium Iodide
PKC	Protein Kinase C
PKDL	Post Kala Azar Dermal Leishmaniasis
PMA	Phorbol 12-Myristate 13-Acetate
PME	Particle Mesh Ewald
PS	Phosphatidylserine
PV	Parasitophorous Vacuole
RCSB	Research Collaboratory for Structural Bioinformatics
RMSD	Root Mean Square Deviation
RNS	Reactive Nitrogen Species
RNA	Ribonucleic Acid
RNAP	RNA Polymerase
ROS	Reactive Oxygen Species
RPMI	Roswell Park Memorial Institute Medium
SAG	Sodium Antimony Gluconate
SAT	Serine Acetyltransferase
SDS	Sodium Dodecyl Sulfate
SNARE	Soluble N-Ethylmaleimide-Sensitive Factor Attachment Protein Receptor
SEM	Scanning Electron Microscope
SOD	Superoxide Dismutase
SpCas9	Streptococcus Pyogenes Cas9
TGF	Transforming Growth Factor
TR	Trypanothione Reductase

TXN	Tryparedoxin
VL	Visceral Leishmaniasis
WHO	World Health Organization

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