

**Functional and structural characterization of the unique  
bifunctional enzyme complex involved in regulation of  
polyamine metabolism in *Plasmodium falciparum***

by

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## ABBREVIATIONS

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<b>3D</b>	<b>Three-dimensional</b>
<b>A</b>	<b>Adenosine</b>
<b>ACD</b>	<b>Available chemicals directory</b>
<b>AdoMet</b>	<b>S-adenosylmethionine</b>
<b>AdoMetDC</b>	<b>S-adenosylmethionine decarboxylase</b>
<b>AMA</b>	<b>Apical membrane antigen</b>
<b>AMP</b>	<b>Adenosine monophosphate</b>
<b>ATP</b>	<b>Adenosine triphosphate</b>
<b>AzBE</b>	<b>Antizyme binding element</b>
<b>bp</b>	<b>Base pair</b>
<b>BCBD</b>	<b>N<sup>1</sup>N<sup>4</sup>-bis(7-chloroquinoline-4-yl)butane-1,4-diamine</b>
<b>BLAST</b>	<b>Basic local alignment search tool</b>
<b>BSA</b>	<b>Bovine serum albumin</b>
<b>C</b>	<b>Cytosine</b>
<b>cAMP</b>	<b>Cyclic adenosine monophosphate</b>
<b>CARP</b>	<b>Clustered Asp rich protein</b>
<b>CCD</b>	<b>Charge coupled devise</b>
<b>cDNA</b>	<b>Complementary DNA</b>
<b>CSD</b>	<b>Cambridge structure database</b>
<b>CS</b>	<b>Circumsporozoïte</b>
<b>C-terminal</b>	<b>Carboxy terminal</b>
<b>dAdoMet</b>	<b>Decarboxylated S-adenosylmethionine</b>
<b>dNTP</b>	<b>Deoxyribonucleotide triphosphate</b>
<b>DD-Poly-T</b>	<b>Differential display poly-T primer</b>
<b>DDT</b>	<b>Dichlorodiphenyltrichloro ethane</b>
<b>ddUTP</b>	<b>Dideoxyuridine triphosphate</b>
<b>DEPC</b>	<b>Diethyl pyrocarbonate</b>
<b>DHFR</b>	<b>Dihydrofolate reductase</b>
<b>DHODH</b>	<b>Dihydroorotate dehydrogenase</b>
<b>DHPS</b>	<b>Dihydropteroate synthetase</b>
<b>DIG</b>	<b>Digoxigenin</b>
<b>DMF</b>	<b>Dimethylformamide</b>
<b>DMFO</b>	<b>DL-<math>\alpha</math>-difluoromethyl ornithine</b>
<b>DMSO</b>	<b>Dimethylsulphoxide</b>
<b>DNA</b>	<b>Deoxyribonucleic acid</b>
<b>DNAse</b>	<b>Deoxyribonuclease</b>
<b>dNTP</b>	<b>Deoxynucleotide triphosphate</b>
<b>ds</b>	<b>Double-stranded</b>
<b>DTT</b>	<b>Dithiotreitol</b>
<b>dUTP</b>	<b>Deoxyuridine triphosphate</b>
<b>EBA</b>	<b>Erythrocyte binding protein</b>
<b>EDTA</b>	<b>Ethanol diamine tetra-acetic acid</b>
<b>EtBr</b>	<b>Ethidium Bromide</b>
<b>FP</b>	<b>Ferriprotoporphyrin IX</b>



<b>G</b>	<b>Guanidine</b>
<b>G6-PD</b>	<b>Glucose-6-phosphate dehydrogenase</b>
<b>GM-CSF</b>	<b>Granulocyte macrophage colony stimulating factor</b>
<b>GPI</b>	<b>Glycophosphatidyl inositol</b>
<b>GRASP</b>	<b>Graphical representation and analyses of structural properties</b>
<b>GSP</b>	<b>Gene specific primer</b>
<b>GTP</b>	<b>Guanidine triphosphate</b>
<b>HABA</b>	<b>4-hydroxy azobenzene-2-carboxylic acid</b>
<b>HGPRT</b>	<b>Hypoxanthine-guanosine phosphoribosyltransferase</b>
<b>HIV</b>	<b>Human immunodeficiency virus</b>
<b>HRP</b>	<b>Histidine rich protein or horseradish peroxidase</b>
<b>HSP</b>	<b>Heat shock protein</b>
<b>I</b>	<b>Inosine</b>
<b>ICAM</b>	<b>Intracellular adhesion molecule</b>
<b>IFN</b>	<b>Interferon</b>
<b>IL</b>	<b>Interleukin</b>
<b>IMAC</b>	<b>Immobilised metal affinity chromatography</b>
<b>IMP</b>	<b>Inosine monophosphate</b>
<b>IPTG</b>	<b>Isopropyl-D-galactoside</b>
<b>IUBMB</b>	<b>International Union for Biochemistry and Molecular Biology</b>
<b>kb</b>	<b>Kilobase/kilobasepairs</b>
<b>LB</b>	<b>Luria Berthani</b>
<b>LDH</b>	<b>Lactate dehydrogenase</b>
<b>LD-PCR</b>	<b>Long-distance PCR</b>
<b>MAOPA</b>	<b>5'-[(3aminooxypropyl)methylamino]-5'-deoxyadenosine</b>
<b>MDR</b>	<b>Multi-drug resistance</b>
<b>MGBG</b>	<b>Methylglyoxal bis(guanylhydrazone)</b>
<b>MHC</b>	<b>Major histocompatibility complex</b>
<b>MI</b>	<b>Match index</b>
<b>mopp-DFB</b>	<b>1-methyl-3-oxo-3-phenyl difluoridoborate</b>
<b>MOPS</b>	<b>Morpholinopropanesulphonic acid</b>
<b>mRNA</b>	<b>Messenger RNA</b>
<b>MSA</b>	<b>Merozoite surface antigen</b>
<b>NBT</b>	<b>Nitroblue tetrazolium chloride</b>
<b>NCBI</b>	<b>National Center for Biotechnology Information</b>
<b>NCI</b>	<b>National Cancer Institute (USA)</b>
<b>Ni-NTA</b>	<b>Nickel-nitrolotriacetic acid</b>
<b>NMR</b>	<b>Nuclear magnetic resonance</b>
<b>NO</b>	<b>Nitric oxide</b>
<b>NOS</b>	<b>Nitric oxide synthase</b>
<b>nt</b>	<b>Nucleotide</b>
<b>N-terminal</b>	<b>Amino terminal</b>
<b>OAT</b>	<b>Ornithine aminotransferase</b>
<b>OD</b>	<b>Optical density</b>



ODC	Ornithine decarboxylase
ORF	Open reading frame
PASS	Prediction of the biological activity spectra of substances
PBS	Phosphate buffered saline
PCR	Polymerase chain reaction
PDB	Protein databank
PEG	Poly-ethylene glycol
PfAdoMetDC/ODC	<i>P. falciparum</i> S-adenosylmethionine decarboxylase/ornithine decarboxylase
Pfcr1	chloroquine resistance transporter
PfEMP	<i>P. falciparum</i> -infected erythrocyte membrane protein
PIR-PSD	Protein information resource-protein sequence database
PLP	Pyridoxal 5'-phosphate
PMSF	Phenylmethylsulfonyl fluoride
PPMP	<i>dl</i> -threo-1-phenyl-2-palmitoylamino-3-morpho-1-propanol
PPP	Pentose phosphate pathway
PPPK	Dihydroxymethylpterin pyrophosphokinase
PVM	Parasitophorous vacuolar membrane
RACE	Rapid amplification of cDNA ends
RAP1	Rhoptry-associated protein
RMSD	Root mean square deviation
RNA	Ribonucleic acid
RNAse	Ribonuclease
RR-MAP	Methylacetylenicputrescine
RT	Reverse transcription
RT-PCR	Reverse transcription PCR
SCOP	Structural classification of proteins
SDS	Sodium Dodecyl Sulphate
SDS-PAGE	SDS-Polyacrylamide gel electrophoresis
SE-FPLC	Size-exclusion fast protein liquid chromatography
SE-HPLC	Size-exclusion high-pressure liquid chromatography
SMART	Simple modular architecture research tool
STARP	Sporozoite Thr and Asp rich protein
T	Thymidine
$t_{1/2}$	Half-life
$T_m$	Melting temperature
TAE	Tris-acetate EDTA
TBS	Tris buffered sodium
TE	Tris EDTA buffer
TEMED	<i>N,N,N',N'</i> -tetramethylethylenediamine
TIM	Triosephosphate isomerase
TMAC	Trimethylammonium chloride
TNF $\alpha$	Tumor necrosis factor $\alpha$
TS	Thymidylate synthetase
TVM	Tubovesicular membrane network
UTR	Untranslated region
UV	Ultraviolet

**VCAM**      **Vascular cell adhesion molecule**

**WHO**      **World Health Organisation**

**X-gal**      **5-bromo-4-chloro-indolyl- $\beta$ -D-galactoside**