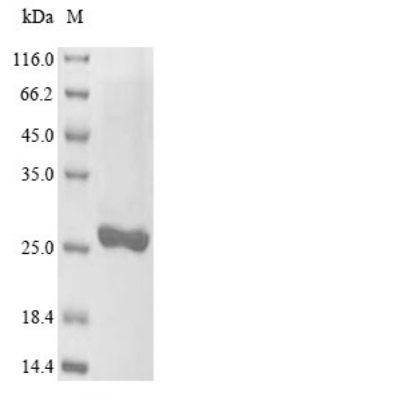
Recombinant Plasmodium falciparum Glutathione S-transferase (GST)

Product Code	CSB-YP847596PLO
Abbreviation	Recombinant Plasmodium falciparum GST protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q8MU52
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol.If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Proteins
Immunogen Species	Plasmodium falciparum
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MGDNIVLYYFDARGKAELIRLIFAYLGIEYTDKRFGVNGDAFVEFKNFKKEKDTP FEQVPILQIGDLILAQSQAIVRYLSKKYNICGESELNEFYADMIFCGVQDIHYKFN NTNLFKQNETTFLNEDLPKWSGYFEKLLKKNHTNNNNDKYYFVGNNLTYADLA VFNLYDDIETKYPSSLKNFPLLKAHNEFISNLPNIKNYITNRKESVY
Research Area	Metabolism
Source	Yeast
Target Names	GST
Protein Names	Recommended name: Glutathione S-transferase EC= 2.5.1.18Alternative name(s): PfGST
Expression Region	1-211aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged
Mol. Weight	27.3 kDa
Protein Length	Full Length
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Plasmodium falciparum Glutathione S-transferase (GST) gets expressed in a yeast system, covering amino acids 1-211 of the full-length protein. The product includes an N-terminal 10xHis-tag that makes purification and detection more straightforward. SDS-PAGE analysis shows this recombinant protein achieves over 85% purity, which appears to meet high-quality standards for research applications. This product is designed strictly for research use and meets rigorous specifications for reliable experimental outcomes.

Glutathione S-transferase (GST) from Plasmodium falciparum likely plays a crucial role in how the parasite handles detoxification. The protein works by catalyzing glutathione conjugation to various substrates, which helps neutralize toxic compounds. This makes GST particularly significant for research aimed at understanding how the parasite survives and for developing potential malaria interventions.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Biochemical Characterization and Enzyme Kinetics Studies

This recombinant P. falciparum GST can help investigate the enzymatic properties and substrate specificity of the parasite's glutathione S-transferase system. Researchers may perform in vitro enzyme assays to determine kinetic parameters like Km and Vmax using different glutathione conjugation substrates. The N-terminal His-tag makes purification and immobilization easier for detailed biochemical analysis. Studies like these could contribute to understanding the detoxification mechanisms that the malaria parasite uses.

2. Drug Resistance Mechanism Research

The protein serves as a valuable tool for investigating potential drug resistance mechanisms in P. falciparum, especially those related to oxidative stress

response and xenobiotic metabolism. Researchers can examine how this GST interacts with antimalarial compounds or their metabolites in controlled in vitro experiments. Using the recombinant protein allows for standardized assays to study GST's role in parasite survival under drug pressure. This application supports preclinical research into understanding resistance pathways without needing live parasite cultures.

3. Antibody Development and Immunological Studies

The His-tagged recombinant protein works as an antigen for generating specific antibodies against P. falciparum GST in research settings. The high purity level (>85%) makes it suitable for immunization protocols and subsequent antibody characterization. Researchers can develop polyclonal or monoclonal antibodies for use in various immunoassays, Western blotting, or immunofluorescence studies. The N-terminal His-tag also allows for tag-specific detection methods and purification of protein-antibody complexes.

4. Protein-Protein Interaction Studies

The recombinant GST can be used in pull-down assays and other interaction studies to identify potential binding partners within the P. falciparum proteome or host cell proteins. The His-tag makes immobilization on metal affinity matrices easier for capturing interacting proteins from parasite lysates or infected cell extracts. Such studies may reveal novel protein networks and regulatory mechanisms involving GST in parasite biology. This application supports fundamental research into parasite cellular processes and host-pathogen interactions.

5. Comparative Enzymology and Evolution Studies

This P. falciparum GST can be used in comparative studies with GSTs from other Plasmodium species or related organisms to understand evolutionary relationships and functional divergence. Researchers may perform side-by-side enzymatic assays and structural comparisons to identify species-specific adaptations. The standardized recombinant format allows for controlled comparative experiments examining substrate preferences and catalytic efficiencies. Research like this contributes to understanding how detoxification systems evolved in parasitic organisms.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.