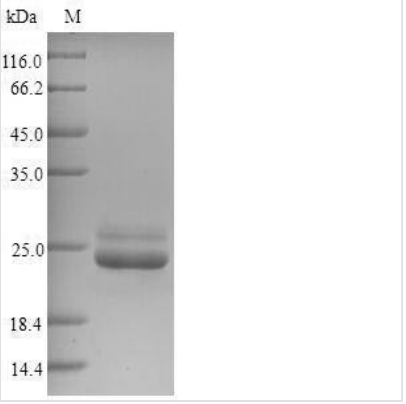
Recombinant Mouse-ear cress 2-Cys peroxiredoxin BAS1, chloroplastic (BAS1)

Product Code	CSB-YP822134DOA
Relevance	May be an antioxidant enzyme particularly in the developing shoot and photosynthesizing leaf. Involved in the detoxification of alkyl hydroperoxides with reducing equivalents provided through the thioredoxin system.
Abbreviation	Recombinant Mouse-ear cress BAS1 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.	Q96291
Alias	Thiol-specific antioxidant protein A
Product Type	Recombinant Protein
Immunogen Species	Arabidopsis thaliana (Mouse-ear cress)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	KAQADDLPLVGNKAPDFEAEAVFDQEFIKVKLSDYIGKKYVILFFYPLDFTFVCP TEITAFSDRHSEFEKLNTEVLGVSVDSVFSHLAWVQTDRKSGGLGDLNYPLIS DVTKSISKSFGVLIHDQGIALRGLFIIDKEGVIQHSTINNLGIGRSVDETMRTLQA LQYIQENPDEVCPAGWKPGEKSMKPDPKLSKEYFSAI
Research Area	Others
Source	Yeast
Target Names	BAS1
Protein Names	Thiol-specific antioxidant protein A
Expression Region	66-266aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	24.4 kDa
Protein Length	Full Length of Mature Protein
Image	



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

Description

Recombinant Arabidopsis thaliana 2-Cys peroxiredoxin BAS1, chloroplastic (BAS1) is produced in a yeast expression system, covering the mature protein from amino acids 66 to 266. The protein is expressed with an N-terminal 6xHis-tag to aid in purification and detection. Purity exceeds 90% as verified by SDS-PAGE, which appears to ensure reliable results for research applications.

2-Cys peroxiredoxin BAS1 plays a critical role in redox regulation within chloroplasts of Arabidopsis thaliana. It's involved in detoxifying peroxides and maintaining cellular redox homeostasis. This protein serves as a valuable tool for studying oxidative stress responses and redox signaling pathways in plants. It may provide insights into plant physiology and stress tolerance mechanisms.

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. Protein-Protein Interaction Studies Using His-Tag Pull-Down Assays

The N-terminal 6xHis-tag on this recombinant BAS1 protein allows for nickel-affinity based pull-down experiments to identify potential interaction partners from Arabidopsis chloroplast extracts. Being a chloroplastic 2-Cys peroxiredoxin, BAS1 likely participates in redox regulation networks within the chloroplast. This makes it valuable for mapping these protein interaction networks, though results will depend on experimental conditions. The >90% purity should minimize background binding from contaminant proteins during pull-down experiments. This approach could help clarify the molecular mechanisms of chloroplast redox homeostasis in plant cells.

2. Antibody Development and Validation

The high purity (>90%) and defined expression region (66-266aa) make this recombinant protein suitable as an immunogen for generating specific antibodies against Arabidopsis BAS1. The recombinant protein can serve as both positive control and standard for antibody specificity testing through

Western blot, ELISA, and immunoprecipitation assays. Its His-tag makes purification and immobilization straightforward for antibody screening and validation experiments. These antibodies would likely become valuable research tools for studying BAS1 expression and localization in plant tissues.

3. Biochemical Characterization and Enzyme Kinetics Analysis

This recombinant BAS1 protein can be used for detailed biochemical characterization studies. These include thermal stability analysis, pH optimization, and cofactor requirements typical of 2-Cys peroxiredoxins. The high purity level allows for reliable spectrophotometric and fluorometric assays to determine basic biochemical properties, though some variation between batches may still occur. Researchers can investigate the protein's response to various reducing agents and oxidative conditions to understand its redox behavior. The defined expression region should ensure relatively consistent results across different experimental batches.

4. Comparative Structural and Functional Studies

The recombinant BAS1 protein enables comparative studies with other plant peroxiredoxins or homologous proteins from different species. This may help researchers understand evolutionary relationships and functional conservation within this protein family. The yeast expression system and high purity should make experiments reproducible when comparing enzymatic properties, stability, and molecular interactions. Researchers can use this protein alongside other recombinant peroxiredoxins to study structure-function relationships. The His-tag allows for standardized purification protocols across different protein variants, which is important for fair comparison.

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.