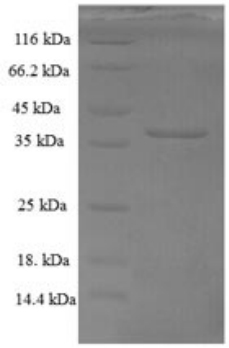
Recombinant Drosophila melanogaster Bursicon (burs)

Product Code	CSB-EP894207DLU
Relevance	Final heterodimeric neurohormone released at the end of the molting cycle, involved in the sclerotization (tanning) of the insect cuticle, melanization and wing spreading. Heterodimer specifically activates the G protein-coupled receptor rk.
Abbreviation	Recombinant Drosophila melanogaster burs 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.	Q9VD83
Alias	Bursicon subunit alpha;Cuticle-tanning hormone
Product Type	Recombinant Protein
Immunogen Species	Drosophila melanogaster (Fruit fly)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	QPDSSVAATDNDITHLGDDCQVTPVIHVLQYPGCVPKPIPSFACVGRCASYIQV SGSKIWQMERSCMCCQESGEREAAVSLFCPKVKPGERKFKKVLTKAPLECM CRPCTSIEESGIIPQEIAGYSDEGPLNNHFRRIALQ
Research Area	Others
Source	E.coli
Target Names	Burs
Expression Region	33-173aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	42.5kDa
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 Drosophila melanogaster Bursicon is produced in an E. coli expression system, spanning the full length of the mature protein from amino acids 33 to 173. The product includes an N-terminal GST tag that helps with purification and detection. Purity levels appear to exceed 90%, as confirmed by SDS-PAGE analysis. This recombinant protein is designed for research use only and is free from detectable endotoxins, which likely makes it compatible with various experimental applications.

Bursicon acts as a neurohormone in Drosophila melanogaster, playing what seems to be a crucial role in post-molt processes—particularly in cuticle hardening and wing expansion. As part of the insect neuropeptide family, it appears to be involved in regulating physiological changes that occur during development. Studying bursicon's activity and interactions may provide valuable insights into the broader mechanisms of neurohormonal control in insects.

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 GST Pull-Down Assays

The N-terminal GST tag on this recombinant bursicon protein allows researchers to use it in GST pull-down experiments for identifying and characterizing potential binding partners. Scientists can immobilize the GST-bursicon fusion protein on glutathione-sepharose beads, then incubate with Drosophila tissue lysates or purified candidate proteins. This approach might be particularly valuable for mapping the molecular interactions involved in bursicon signaling pathways. The high purity (>90%) should minimize background binding from contaminant proteins during pull-down experiments.

2. Antibody Development and Validation

This purified recombinant bursicon protein serves as what appears to be an excellent antigen for generating specific antibodies against Drosophila bursicon.

The mature protein region (33-173aa) represents the biologically relevant form, making it suitable for producing antibodies that recognize native bursicon in tissue samples. Scientists can use this protein as a positive control in Western blotting, immunohistochemistry, and ELISA experiments to validate antibody specificity. The GST tag also makes purification and immobilization easier during antibody screening and characterization processes.

3. Biochemical Characterization and Structural Studies

The high-purity recombinant protein provides material for detailed biochemical analysis of bursicon's physical and chemical properties. Scientists can perform circular dichroism spectroscopy to analyze secondary structure, dynamic light scattering to assess oligomerization states, and thermal stability assays to determine protein folding characteristics. These studies could contribute to understanding the molecular basis of bursicon function and its structural requirements for biological activity.

4. In Vitro Receptor Binding Assays

This recombinant bursicon can be used to develop and optimize receptor binding assays using membrane preparations or purified bursicon receptors from Drosophila. The protein may serve as a ligand in competition binding studies or direct binding experiments to characterize receptor-ligand interactions. The GST tag makes protein detection and quantification easier in these assays, while the mature protein region likely ensures physiologically relevant binding interactions.

5. Comparative Protein Analysis and Evolutionary Studies

The purified recombinant protein makes comparative studies with bursicon homologs from other insect species possible, helping researchers investigate evolutionary relationships and functional conservation. Scientists can perform cross-reactivity studies, comparative binding assays, and structural comparisons to understand species-specific differences in bursicon function. This protein also serves as a reference standard for analyzing bursicon expression levels and modifications in different Drosophila developmental stages or mutant strains.

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.