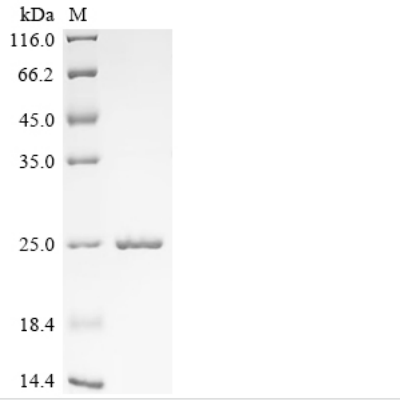
Recombinant Bovine Odorant-binding protein

Product Code	CSB-EP362133BO
Relevance	This protein binds a wide variety of chemical odorants.
Abbreviation	Recombinant Bovine Odorant-binding 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.	P07435
Storage Buffer	Tris-based buffer,50% glycerol
Product Type	Recombinant Proteins
Immunogen Species	Bos taurus (Bovine)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	AQEEEAEQNLSELSGPWRTVYIGSTNPEKIQENGPFRTYFRELVFDDEKGTVD FYFSVKRDGKWKNVHVKATKQDDGTYVADYEGQNVFKIVSLSRTHLVAHNINV DKHGQTTELTELFVKLNVEDEDLEKFWKLTEDKGIDKKNVVNFLENEDHPHPE
Research Area	Others
Source	E.coli
Target Names	N/A
Protein Names	Olfactory mucosa pyrazine-binding protein
Expression Region	1-159aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal S-tagged
Mol. Weight	22.3 kDa
Protein Length	Full Length
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Bovine Odorant-binding protein is produced in E. coli, covering the full-length amino acid sequence from 1 to 159. This product is tag-free and achieves a purity level of over 85%, as verified by SDS-PAGE analysis. It's designed for research use with a focus on accuracy and reliability, ensuring minimal endotoxin interference to suit various scientific applications.

Odorant-binding proteins appear to be integral to the olfactory system, carrying odor molecules to receptors. In bovines, these proteins may play a crucial role in detecting and binding odorants, which is essential for understanding olfactory signaling pathways and the mechanisms of scent detection. This recombinant protein serves as a valuable tool for research into sensory biology and protein-ligand interactions.

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

This recombinant bovine odorant-binding protein can be used to investigate its binding interactions with various odorant molecules and potential protein partners. Techniques such as surface plasmon resonance (SPR) or bio-layer interferometry (BLI) offer promising approaches. The >85% purity level appears sufficient for these binding assays, allowing researchers to characterize the protein's binding specificity and affinity constants. Such studies would likely provide valuable insights into the molecular mechanisms of olfactory signal transduction in bovine species. The full-length expression region (1-159aa) ensures that all potential binding domains are preserved for accurate interaction analysis.

2. Biochemical Characterization and Stability Studies

The purified protein can serve as a substrate for comprehensive biochemical analysis. This includes thermal stability assessment, pH tolerance testing, and buffer optimization studies. Researchers can use techniques such as differential scanning fluorimetry (DSF) and dynamic light scattering (DLS) to determine optimal storage and experimental conditions. The tag-free nature of the protein eliminates potential interference from fusion tags in these analytical measurements. These characterization studies are essential for establishing proper handling protocols and understanding the protein's biophysical properties.

3. Antibody Development and Validation

This recombinant protein can work as an immunogen for generating polyclonal or monoclonal antibodies specific to bovine odorant-binding protein. The >85%

purity is adequate for immunization protocols, and the full-length sequence ensures presentation of all potential epitopes. Subsequently, the same protein preparation can serve as a positive control in antibody validation experiments. These include Western blotting, ELISA development, and specificity testing. Such antibodies would likely be valuable research tools for studying odorant-binding protein expression and localization in bovine tissues.

4. Comparative Structural and Functional Analysis

The recombinant protein can be used in comparative studies with odorant-binding proteins from other species to investigate evolutionary relationships and functional conservation. Researchers can perform cross-species binding assays and structural comparisons. Circular dichroism spectroscopy, for instance, may help analyze secondary structure content. The E. coli expression system provides a cost-effective platform for producing sufficient quantities needed for these comparative analyses. These studies would contribute to understanding the molecular evolution and species-specific adaptations of olfactory systems.

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.