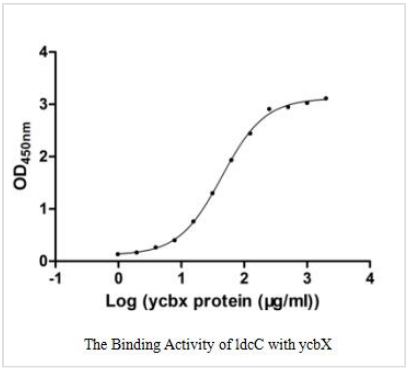
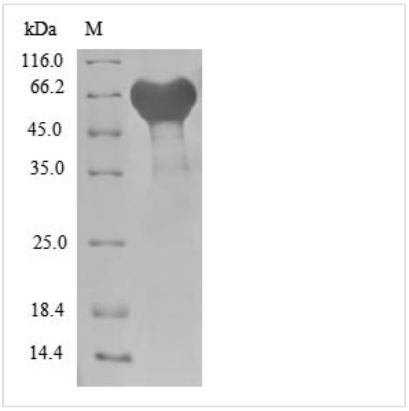
Recombinant Escherichia coli Uncharacterized protein YcbX (ycbX) (Active)

Product Code	CSB-EP301162ENV
Abbreviation	Recombinant E.coli Uncharacterized protein YcbX protein (Active)
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.	P75863
Product Type	Other
Immunogen Species	Escherichia coli (strain K12)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized ldcC at 2 μg/ml can bind human ycbX, the EC50 of human ycbX protein is 40.54-47.97 μg/ml.
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MATLIRLFIHPVKSMRGIGLTHALADVSGLAFDRIFMITEPDGTFITARQFPQMV RFTPSPVHDGLHLTAPDGSSAYVRFADFATQDAPTEVWGTHFTARIAPDAINK WLSGFFSREVQLRWVGPQMTRRVKRHNTVPLSFADGYPYLLANEASLRDLQ QRCPASVKMEQFRPNLVVSGASAWEEDRWKVIRIGDVVFDVVKPCSRCIFTT VSPEKGQKHPAGEPLKTLQSFRTAQDNGDVDFGQNLIARNSGVIRVGDEVEIL ATAPAKIYGAAAADDTANITQQPDANVDIDWQGQAFRGNNQQVLLEQLENQGI RIPYSCRAGICGSCRVQLLEGEVTPLKKSAMGDDGTILCCSCVPKTALKLAR
Research Area	Others
Source	E.coli
Target Names	ycbX
Expression Region	1-369aa
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	67.6 kDa
Protein Length	Full Length
Image	



The Binding Activity of ldcC with ycbX



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

Description

Recombinant Escherichia coli Uncharacterized protein YcbX (ycbX) is produced in an E. coli expression system and is available as a full-length protein from amino acids 1 to 369. The protein carries an N-terminal GST tag, which makes purification and detection more straightforward. SDS-PAGE analysis shows purity levels exceeding 85%, making this product suitable for research applications. Functional ELISA has confirmed biological activity, demonstrating binding to immobilized ldcC with an EC50 of 40.54-47.97 μg/ml.

The YcbX protein from Escherichia coli remains largely mysterious—its exact biological functions haven't been fully worked out yet. What we do know is that it can bind specific molecules, which suggests it may play a role in various cellular processes. As research continues, understanding how YcbX binds and what it does could shed light on its contribution to bacterial physiology and its potential connections to broader biological pathways.

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 with LdcC

The binding activity between this recombinant YcbX protein and ldcC (lysine decarboxylase) offers a solid starting point for investigating how they interact.

The functional ELISA data showing specific binding with an EC50 range of 40.54-47.97 μg/ml indicates measurable affinity that researchers can characterize further. This protein could help scientists study binding kinetics, determine dissociation constants, and map which domains are responsible for the YcbX-ldcC interaction. The N-terminal GST tag makes purification and immobilization for various binding assays relatively simple.

2. GST Pull-Down Assays for Identifying Binding Partners

That N-terminal GST tag makes this recombinant YcbX protein particularly useful for GST pull-down experiments to fish out potential binding partners from E. coli cell lysates. Since we already know it binds ldcC, this protein can act as bait to capture and identify other interacting proteins that might be involved in similar cellular pathways. The GST tag allows for straightforward immobilization on glutathione-sepharose beads and subsequent elution of protein complexes for mass spectrometry analysis. This approach may help researchers piece together the functional network surrounding the still-mysterious YcbX protein.

3. Biochemical Characterization of an Uncharacterized E. coli Protein

Since YcbX remains uncharacterized, this recombinant protein presents an opportunity for fundamental biochemical studies to figure out what it actually does in cells. The confirmed biological activity and binding capability suggest it likely plays a role in protein-protein interactions within E. coli. Researchers can put this protein to work in structural studies, enzymatic activity screening, and functional annotation experiments. The high purity (>85%) and full-length expression (1-369aa) should ensure the protein maintains its native folding and whatever biological functions it naturally has.

4. Development of Binding Assays and Screening Platforms

The established binding activity with ldcC and those defined EC50 values make this protein a good candidate for developing standardized binding assays. Researchers could use this recombinant YcbX protein to create ELISA-based screening platforms for identifying small molecules or other proteins that might interfere with or enhance the YcbX-ldcC interaction. Those reproducible binding parameters provide a useful baseline for assay development and validation. Platforms like these could prove valuable for studying metabolic pathways involving lysine decarboxylase and related enzymatic processes in bacterial systems.

5. Antibody Development and Validation

This recombinant YcbX protein could work well as an immunogen for generating specific antibodies against this uncharacterized E. coli protein. The high purity and full-length expression should ensure that antibodies will recognize the native protein in bacterial cells. Scientists can use the GST tag for antibody purification through affinity chromatography, while the confirmed biological activity validates that the recombinant protein appears to maintain proper folding. These antibodies would become valuable research tools for studying YcbX expression, localization, and function in E. coli under different growth

	conditions.
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.