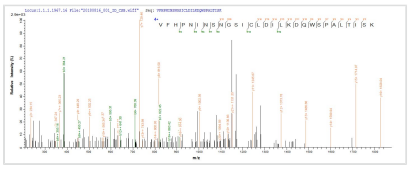
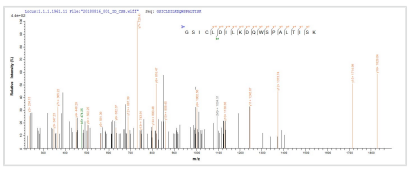
Recombinant Oryza sativa subsp. japonica Ubiquitin-conjugating enzyme E2 5A (UBC5A)

Product Code	CSB-EP848293OFG
Abbreviation	Recombinant Oryza sativa subsp. japonica UBC5A 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.	Q8S920
Product Type	Recombinant Protein
Immunogen Species	Oryza sativa subsp. japonica (Rice)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MASKRIQKELKDLQKDPPTSCSAGPVGEDMFHWQATIMGPSDSPYAGGVFLV TIHFPPDYPFKPPKVAFRTKVFHPNINSNGSICLDILKDQWSPALTISKVLLSICS LLTDPNPDDPLVPEIAHMYKTDRHKYENTARTWTQRYAM
Research Area	Cell Biology
Source	E.coli
Target Names	UBC5A
Protein Names	Recommended name: Ubiquitin-conjugating enzyme E2 5A EC= 6.3.2.19 Alternative name(s): Ubiquitin carrier protein 5a Short name= OsUBC5a Ubiquitin-protein ligase 5A
Expression Region	1-147aa
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 and C-terminal Myc-tagged
Mol. Weight	23.6 kDa
Protein Length	Full Length
Image	



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP848293OFG could indicate that this peptide derived from E.coli-expressed Oryza sativa subsp. japonica (Rice) UBC5A.



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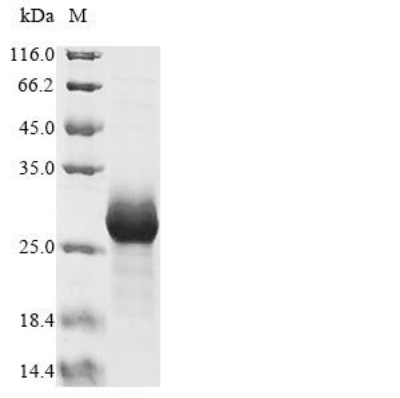

(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Oryza sativa subsp. japonica Ubiquitin-conjugating enzyme E2 5A (UBC5A) is produced in E. coli and contains the full-length protein with an expression region spanning 1-147 amino acids. The protein carries an N-terminal 10xHis tag and a C-terminal Myc tag, which should make purification and detection more straightforward. SDS-PAGE analysis indicates the product achieves greater than 85% purity, suggesting it may be suitable for various research applications.

Ubiquitin-conjugating enzyme E2 5A appears to play a critical role in the ubiquitination pathway. Here, it likely functions as a key mediator that transfers ubiquitin from E1 to E3 ligases. This process seems essential for protein degradation, signal transduction, and regulation of various cellular processes. UBC5A has drawn particular interest from researchers studying proteostasis and cellular stress responses.

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. In Vitro Ubiquitin Conjugation Assays

This recombinant rice UBC5A protein could be useful for studying the enzymatic activity of plant E2 ubiquitin-conjugating enzymes in controlled laboratory systems. Scientists might investigate how well the protein transfers ubiquitin from E1 activating enzymes to target substrates or E3 ligases using fluorescent or biotinylated ubiquitin. The dual His and Myc tags should help with protein purification and detection in these biochemical assays. Studies like these may provide insights into how plant ubiquitin conjugation pathways actually work.

2. Protein-Protein Interaction Studies

Both the N-terminal His tag and C-terminal Myc tag make this protein potentially suitable for pull-down assays aimed at identifying E1 activating enzymes, E3

ligases, or substrate proteins that might interact with rice UBC5A. Scientists could perform co-immunoprecipitation experiments using anti-Myc antibodies with rice plant extracts or other recombinant proteins. These interaction studies might help map the ubiquitin conjugation network in rice and possibly identify novel regulatory pathways. The tagged protein can also be immobilized on nickel columns for affinity purification of binding partners.

3. Comparative Plant E2 Enzyme Analysis

This recombinant rice UBC5A could serve as a reference protein for comparative studies that examine E2 enzyme diversity across different plant species. Researchers might analyze structural and functional differences between rice UBC5A and similar E2 enzymes from other crops or model plants like Arabidopsis. The standardized expression system and purification tags should allow for consistent preparation when making side-by-side biochemical comparisons. Comparative analyses like these could potentially reveal species-specific adaptations in ubiquitin conjugation systems.

4. Antibody Development and Validation

The purified recombinant protein could work as an immunogen for generating specific antibodies against rice UBC5A or as a positive control for validating existing antibodies. The Myc tag offers an internal control for protein detection and quantification in immunoassays. Researchers might develop ELISA-based detection systems using the His tag for capture and anti-Myc antibodies for detection. These antibodies would likely prove valuable for studying endogenous UBC5A expression and localization in rice tissues.

5. Structural and Biophysical Characterization

The recombinant protein appears suitable for structural studies including X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy to understand the three-dimensional architecture of rice UBC5A. Biophysical techniques such as dynamic light scattering, circular dichroism spectroscopy, and thermal stability assays could characterize the protein's folding properties and stability. The high purity level suggests it may work well with these sensitive analytical techniques. Structural information like this could provide insights into the molecular basis of E2 enzyme function in plants.

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.