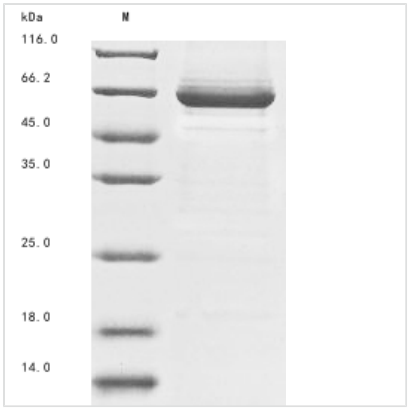
Recombinant Saccharomyces cerevisiae Alpha-1,3-mannosyltransferase MNT3 (MNT3), partial

Product Code	CSB-BP328134SVG1
Abbreviation	Recombinant Saccharomyces cerevisiae MNT3 protein, partial
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.	P40549
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Proteins
Immunogen Species	Saccharomyces cerevisiae (strain ATCC 204508 / S288c) (Baker's yeast)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SRNVTSSNKLNNHASERTAVESSAFNWIEKRQHQVRSENLMNRLSAYFLPFLS RSSHKERVLLRQLGNNEIAKSDKCRYIFEVLYKIDPDWDNAQTAKFYNVDGVD NTLASLLGERLRSYDYCFLSGQLDPTAIFANSTVNPHDLQNRMFPFLKKINEES KTVMWPIITDMTTGEAVPAPEVDMESSNFNGNFWSNWNRLSKGRGFVLTIAE KDVPLFLKQLKVMEFSKNELPFQIVSTGNELSAESIAKISETAKETEQRVYLVDC STVLDTNFANTYISFFQNKWVATLFNTFEEYILLDADVVPFVGSDYFFDSPSYR ESGILLFKDRVMENEQTFQYCIEMLNEVEPSAQERRFIGSRLVFDSSLPFSSET SEEASVYYNFFKKLRLHHVDSGLVVVNKLEKLNGLLMSFMLNLDGKLQRCVYG DKEIFWLGQLYAGQDYSINPVDGSIIGPVNEEPENDDGHKSGMYYICSTQIAHS DSKNRLLWVNGGLKTCKISNSAEDDFGREPEYFKSRYGDISKLKRIYDASLNV EGLIVPDVSVHPWMQIKECSNYMYCAYATGDGHTNSELDEGRLITFTEKELRYI NDISRTWNAN
Research Area	Others
Source	Baculovirus
Target Names	MNT3
Expression Region	32-630aa
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
Mol. Weight	71.2 kDa

Protein Length	Partial

Image



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

Description

Recombinant Saccharomyces cerevisiae Alpha-1,3-mannosyltransferase MNT3 is produced using the baculovirus expression system, covering the amino acid region 32-630. This partial protein includes an N-terminal 10xHis-tag, which helps with purification and detection. SDS-PAGE analysis confirms the protein maintains a purity level greater than 85%, making it suitable for various research applications that require high-quality reagents.

Alpha-1,3-mannosyltransferase MNT3 appears to be an enzyme involved in glycosylation processes within Saccharomyces cerevisiae. It plays what seems to be a critical role in modifying glycoproteins by adding mannose residues—a key step in synthesizing complex carbohydrates. This protein may offer valuable insights into understanding how glycan assembly works and how it's regulated, potentially shedding light on cellular processes and pathways that glycosylation influences.

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 Mannosyltransferase Activity Assays

This recombinant MNT3 protein can help establish and optimize in vitro enzymatic assays for studying α-1,3-mannosyltransferase activity using synthetic or natural acceptor substrates. The N-terminal His-tag makes protein purification easier and helps with immobilization for enzyme kinetics studies. Researchers might investigate substrate specificity, optimal reaction conditions, and kinetic parameters of this yeast mannosyltransferase. The baculovirus expression system typically produces proteins with appropriate post-translational modifications that could be important for enzymatic function.

2. Glycosylation Pathway Reconstitution Studies

The purified MNT3 protein can be incorporated into cell-free glycosylation systems to study mannan biosynthesis pathways in yeast. This approach allows researchers to break down the sequential steps of N-linked and O-linked glycosylation by combining MNT3 with other purified glycosyltransferases and appropriate donor/acceptor molecules. A controlled in vitro environment enables detailed analysis of glycan structure formation and helps determine MNT3's specific contribution to yeast cell wall mannoprotein biosynthesis.

3. Antibody Development and Immunological Studies

The His-tagged recombinant MNT3 protein serves as an antigen for generating specific antibodies against this mannosyltransferase. These antibodies can then be used in subsequent research applications including Western blotting, immunoprecipitation, and immunofluorescence studies of native MNT3 in yeast cells. The high purity level (>85%) should minimize cross-reactivity with other proteins during antibody production and validation.

4. Protein-Protein Interaction Studies

The N-terminal His-tag makes pull-down assays and affinity chromatography experiments possible to identify potential protein partners that interact with MNT3 in the yeast secretory pathway. This recombinant protein can work as bait in biochemical interaction studies with yeast cell lysates or other purified proteins involved in glycosylation processes. Such studies may reveal regulatory mechanisms or protein complexes involved in mannosyltransferase function and localization.

5. Structural and Biophysical Characterization

The purified MNT3 protein provides material for structural biology approaches including X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy studies. Biophysical techniques such as dynamic light scattering, analytical ultracentrifugation, and thermal stability assays can be performed to characterize the protein's oligomerization state, stability, and conformational properties. The baculovirus expression system often yields protein suitable for structural studies due to proper protein folding, though success isn't guaranteed.

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.