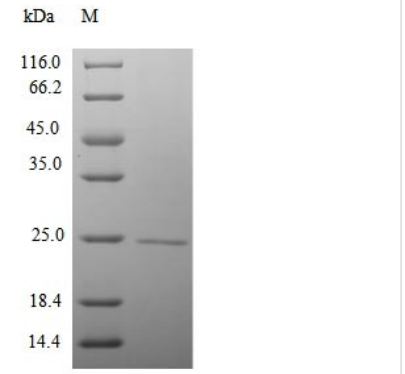
Recombinant Mouse RNA polymerase II subunit A C-terminal domain phosphatase (Ctdp1), partial

Product Code	CSB-EP745884MO
Relevance	Processively dephosphorylates 'Ser-2' and 'Ser-5' of the heptad repeats YSPTSPS in the C-terminal domain of the largest RNA polymerase II subunit. This promotes the activity of RNA polymerase II. Plays a role in the exit from mitosis by dephosphorylating crucial mitotic substrates (USP44, CDC20 and WEE1) that are required for M-phase-promoting factor (MPF)/CDK1 inactivation
Abbreviation	Recombinant Mouse Ctdp1 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.	Q7TSG2
Alias	TFIIF-associating CTD phosphatase
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	HRNRKLVLMVDLDQTLIHTTEQHCPQMSNKGIFHFQLGRGEPMLHTRLRPHC KDFLEKIAKLYELHVFTFGSRLYAHTIAGFLDPEKKLFSHRILSRDECIDPFSKTG NLRNLFPCGDSMVCIIDDREDVWKFAPNLITVKKYVYFPGTGDVNAPPAARET QAR
Research Area	Signal Transduction
Source	E.coli
Target Names	Ctdp1
Protein Names	Recommended name: RNA polymerase II subunit A C-terminal domain phosphatase EC= 3.1.3.16 Alternative name(s): TFIIF-associating CTD phosphatase
Expression Region	178-341aa
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	24.0kDa
Protein Length	Partial
Image	



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

Description

Recombinant Mouse RNA polymerase II subunit A C-terminal domain phosphatase (Ctdp1) is expressed in E. coli and covers the amino acid region 178-341. This partial protein comes engineered with an N-terminal 10xHis tag and a C-terminal Myc tag, which makes purification and detection more straightforward. SDS-PAGE analysis confirms the product shows purity greater than 90%, suggesting high-quality performance for research applications.

Ctdp1 appears to be a crucial phosphatase involved in regulating RNA polymerase II. It plays what seems to be a significant role in transcriptional processes. The protein is known for dephosphorylating the C-terminal domain of RNA polymerase II, which likely influences transcription elongation and termination. Understanding this protein may be essential for transcriptional regulation studies and their broader implications in gene expression research.

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 Phosphatase Activity Assays

This recombinant Ctdp1 fragment (178-341aa) can help investigate phosphatase activity against RNA polymerase II C-terminal domain (CTD) substrates under controlled in vitro conditions. The dual His and Myc tags make purification and detection easier, which should streamline enzyme kinetics studies with various phosphorylated CTD peptides or proteins. Researchers might examine substrate specificity, optimal reaction conditions, and screen for inhibitors using this purified enzyme preparation. The high purity (>90%) appears to support reliable and reproducible biochemical assays for understanding Ctdp1 enzymatic properties.

2. Protein-Protein Interaction Studies

The dual-tagged Ctdp1 fragment works well as bait or prey in pull-down assays to identify novel protein interactions within the RNA polymerase II transcriptional

machinery. The N-terminal His tag allows for immobilization on nickel-based resins. Meanwhile, the C-terminal Myc tag enables detection and validation of binding partners through immunoblotting. This approach may help map the protein interaction network of Ctdp1 and identify co-factors or regulatory proteins that modulate its function in transcriptional regulation.

3. Antibody Development and Validation

This purified recombinant protein fragment works as an immunogen for generating specific antibodies against mouse Ctdp1. It can also serve as a standard for validating existing antibodies. The defined amino acid region (178-341aa) provides a specific epitope source for antibody production targeting this domain of Ctdp1. High purity and dual tags support quality control assays, including ELISA-based antibody characterization and specificity testing through immunoblotting applications.

4. Structural and Biophysical Characterization

The purified Ctdp1 fragment can be used in structural biology approaches such as X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy to understand the molecular architecture of this phosphatase domain. Biophysical techniques including dynamic light scattering, analytical ultracentrifugation, and thermal stability assays may provide insights into protein folding, oligomerization state, and stability. The dual tags help with protein tracking during purification and concentration steps required for structural studies.

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.