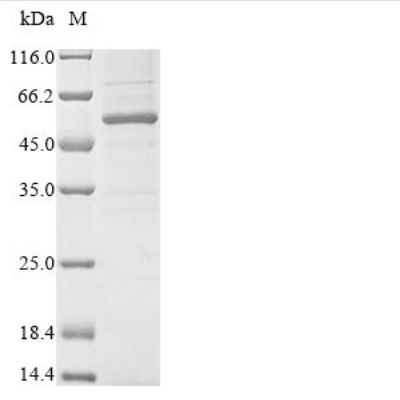
Recombinant Mouse Chordin-like protein 1 (Chrdl1)

Product Code	CSB-BP842075MO
Relevance	Seems to antagonize the function of BMP4 by binding to it and preventing its interaction with receptors. Alters the fate commitment of neural stem cells from gliogenesis to neurogenesis. Contributes to neuronal differentiation of neural stem cells in the brain by preventing the adoption of a glial fate. May play a crucial role in dorsoventral axis formation. Antagonizes the function of BMP7 and may thus play an important role in the embryonic bone formation. Shows no inhibitory effect on the inducing activity of BMP2. Plays a role during anterior segment eye development
Abbreviation	Recombinant Mouse Chrdl1 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.	Q920C1
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	EQVKHSDTYCVFQDKKYRVGEKWHPYLEPYGLVYCVNCICSENGNVLCSRVR CPSLHCLSPVHIPHLCCPRCPDSLPPVNNKVTSKSCEYNGTTYQHGELFIAEG LFQNRQPNQCSQCSCSEGNVYCGLKTCPKLTCAFPVSVPDSCCRVCRGDAE LSWEHADGDIFRQPANREARHSYLRSPYDPPPNRQAGGLPRFPGSRSHRGA VIDSQQASGTIVQIVINNKHKHGQVCVSNGKTYSHGESWHPNLRAFGIVECVL CTCNVTKQECKKIHCPNRYPCKYPQKIDGKCCKVCPEEPPSQNFDSKGSFCG EETMPVYESVFMEDGETTRKVALETERPPQVEVHVWTIQKGILQHFHIEKISKR MFGELHHFKLVTRTTLNQWKLFTEGEAQLSQMCSSQVCRTELEDLVQVLYLG RPEKDHC
Research Area	Neuroscience
Source	Baculovirus
Target Names	Chrdl1
Protein Names	Neuralin-1 Neurogenesin-1 Ventroptin Ng1, Nrln1
Expression Region	23-447aa
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	52.2 kDa

Protein Length	Full Length of Mature Protein

Image



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

Description

Recombinant Mouse Chordin-like protein 1 (Chrdl1) is produced through a baculovirus expression system, spanning the full length of the mature protein from amino acids 23 to 447. The protein includes an N-terminal 10xHis tag and a C-terminal Myc tag, which makes purification and detection more straightforward. SDS-PAGE analysis confirms the protein achieves greater than 85% purity, though this may vary slightly between batches depending on expression conditions.

Chordin-like protein 1 (Chrdl1) appears to play an important role in controlling signaling pathways during embryonic development and tissue homeostasis. Current research suggests it interacts with and regulates various growth factors, which likely influences how cells differentiate and multiply. This makes Chrdl1 particularly interesting for developmental biology studies, though our understanding of its complete regulatory network remains incomplete.

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. Antibody Development and Validation

This recombinant mouse Chrdl1 protein works well as an immunogen for creating polyclonal or monoclonal antibodies that specifically target Chrdl1. The dual-tagged design (N-terminal His and C-terminal Myc) offers several epitopes for antibody recognition and validation through Western blot, ELISA, or immunoprecipitation assays. While the >85% purity level should be adequate for most immunization protocols, some researchers might prefer additional purification steps for particularly sensitive applications. The resulting antibodies can help scientists track Chrdl1 expression and location in mouse tissues and cell lines, though cross-reactivity with related proteins may need to be assessed.

2. Protein-Protein Interaction Studies

The His and Myc tags make this protein well-suited for pull-down assays and co-immunoprecipitation experiments aimed at finding Chrdl1's binding partners. Researchers can immobilize the protein on nickel-based resins using the His-tag, then screen for binding partners with cell lysates or purified protein libraries. The Myc-tag offers an alternative route for immunoprecipitation studies with anti-Myc antibodies. However, it's worth noting that some interactions might be missed due to the artificial tags potentially interfering with native binding sites.

3. ELISA-Based Binding Assays

Scientists can develop sandwich or competitive ELISA assays using this recombinant protein to study how Chrdl1 interacts with other proteins or small molecules. The His-tag allows for oriented attachment to nickel-coated plates, while the Myc-tag can function as a detection point using anti-Myc antibodies. The >85% purity appears sufficient for establishing reliable ELISA protocols, though background signals from contaminant proteins might occasionally require troubleshooting. These assays could help researchers screen for potential binding partners or measure binding strengths under controlled laboratory conditions.

4. Biochemical Characterization Studies

This recombinant Chrdl1 protein serves as a good starting point for basic biochemical analyses, including molecular weight verification, thermal stability testing, and buffer optimization experiments. The baculovirus expression system generally produces properly folded proteins, which should make it compatible with biophysical techniques like dynamic light scattering or analytical ultracentrifugation. The dual-tag system helps with protein detection and measurement during these studies. Still, researchers should keep in mind that the tags might slightly alter the protein's natural behavior compared to the native form.

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.