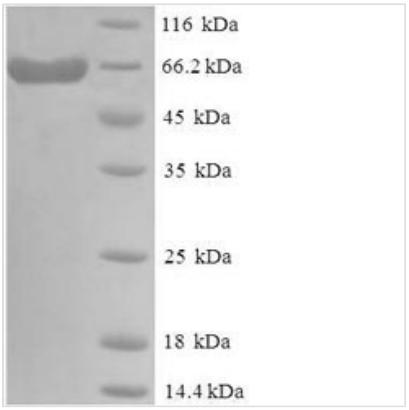
Recombinant Human Delta-like protein 3 (DLL3), partial

Product Code	CSB-EP882142HU
Relevance	Inhibits primary neurogenesis. May be required to divert neurons along a specific differentiation pathway. Plays a role in the formation of somite boundaries during segmentation of the paraxial mesoderm .
Abbreviation	Recombinant Human DLL3 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.	Q9NYJ7
Alias	Drosophila Delta homolog 3 ;Delta3
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	AGVFELQIHSFGPGPGPGAPRSPCSARLPCRLFFRVCLKPGLSEEAAESPCAL GAALSARGPVYTEQPGAPAPDLPLPDGLLQVPFRDAWPGTFSFIIETWREELG DQIGGPAWSLLARVAGRRRLAAGGPWARDIQRAGAWELRFSYRARCEPPAV GTACTRLCRPRSAPSRCGPGLRPCAPLEDECEAPLVCRAGCSPEHGFCEQP GECRCLEGWTGPLCTVPVSTSSCLSPRGPSSATTGCLVPGPGPCDGNPCAN GGSCSETPRSFECTCPRGFYGLRCEVSGVTCADGPCFNGGLCVGGADPDSA YICHCPPGFQGSNCEKRVDRCSLQPCRNGGLCLDLGHALRCRCRAGFAGPR CEHDLDDCAGRACANGGTCVEGGGAHRCSCALGFGGRDCRERADPCAARP CAHGGRCYAHFSGLVCACAPGYMGARCEFPVHPDGASALPAAPPGLRPGDP QRYL
Research Area	Developmental Biology
Source	E.coli
Target Names	DLL3
Expression Region	27-492aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	64.5kDa
Protein Length	Extracellular Domain
Image	



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

Description

This is a recombinant fragment of human Delta?like protein 3 (DLL3) expressed in E.coli with an N?terminal 6xHis-SUMO tag and purified to >90% by SDS?PAGE. It has a molecular weight of ~64.5kDa and is supplied as liquid or lyophilized powder for cell?biology applications.

DLL3 (Delta-like protein 3) is an important regulator of the Notch signaling pathway and belongs to the DSL (Delta/Serrate/LAG-2) family. This product contains amino acids 27-492, covering the major extracellular functional domains of DLL3.

Potential Applications

Note: The following applications are based on the known biological functions of DLL3 protein and scientific literature predictions. Our company has not validated all listed applications, and specific effects need to be verified by customers according to their experimental requirements. We recommend conducting small-scale preliminary experiments before formal studies.

1. Cancer Biology Research

Application:
Used to study how DLL3 functions in small cell lung cancer (SCLC) and neuroendocrine tumors. DLL3 expression in cancer cell lines can be measured using Western blot or ELISA. A standard curve can be used to analyze DLL3 levels in tumor tissues. It can also serve as a positive control in immunofluorescence staining to test antibody specificity.

Scientific Basis:
DLL3 is highly expressed in about 85% of SCLC cases. It is a key target of the ADC drug Rovalpituzumab tesirine.

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2. Notch Signaling Pathway Studies

Application:
DLL3 can be used to study how it blocks the Notch pathway, as it is an atypical Notch ligand. Co-culture experiments can test how DLL3 affects Notch

activation in nearby cells. Luciferase reporter assays can measure the activity of downstream transcription factors (HES1, HEY1). Co-immunoprecipitation can confirm specific binding between DLL3 and Notch receptors.

Scientific Basis:
DLL3 works through a "cis-inhibition" mechanism that blocks Notch signaling, which is opposite to how DLL1 and DLL4 function.

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3. Antibody Development and Testing

Application:
Used as a standard antigen to support the development and testing of anti-DLL3 antibodies. It can be used for monoclonal antibody screening and affinity optimization. SPR can measure antibody binding kinetics. ELISA methods can be developed and validated for linear range, detection limit, and precision. Competitive binding assays can help identify antibody binding sites.

Scientific Basis:
The extracellular domain of the recombinant DLL3 protein (amino acids 27–492) contains key antibody epitopes, making it suitable for antibody development and analysis.

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4. Studying Cell Surface Receptor Interactions

Application:
Used to study how DLL3 binds to cell surface receptors and interacts with other surface molecules. Since DLL3 is mostly found inside normal cells, these studies should use tumor cells or engineered cells that express DLL3 on the surface. Flow cytometry can test binding ability. Fluorescent labeling can help analyze binding kinetics. Cross-linking mass spectrometry can identify possible binding partners. DLL3-based cell sorting methods can also be developed.

Scientific Basis:
DLL3's extracellular domain contains multiple functional regions that can bind specifically to other surface proteins.

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5. Drug Screening and Development

Application:
Acts as a target protein for screening drugs that affect DLL3 activity. A high-throughput screening system based on DLL3–Notch interaction can be built. Small molecule inhibitors can be tested for IC50 values and structure–activity relationships. Protein–protein interaction platforms can be developed using AlphaLISA. DLL3 can also be used to test the activity of ADC drugs in vitro.

Scientific Basis:
DLL3 is an important target for cancer therapy. Several related drugs are in clinical trials.

6. Protein Structure and Function Studies

Application:
Used to study the molecular structure and function of DLL3. The 3D structure of the extracellular domain can be analyzed using X-ray crystallography. NMR can reveal structural dynamics. Cryo-electron microscopy (cryo-EM) can show how DLL3 binds to receptors. Molecular docking and dynamics simulations can help explore binding mechanisms.

Scientific Basis:
This recombinant protein includes the full extracellular domain and keeps the key structural features of the natural protein.

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.