# Rat DLL1 / Delta-like Protein 1 Protein (His Tag)

**Catalog Number:** **80013-R08H**

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## General Information

**Gene Name Synonym:**

Delta; DELTA1; DL1; Delta1

**Protein Construction:**

A DNA sequence encoding the rat DLL1 (EDL99825.1) extracellular domain (Met 1-Ser 534) was expressed, fused with a polyhistidine tag at the C-terminus.

**Source:** Rat

**Expression Host:** Human Cells

## QC Testing

**Purity:** > 65 % as determined by SDS-PAGE

**Bio Activity:**

**Measured by its ability to bind human NOTCH1 in a functional ELISA.**

**Endotoxin:**

< 1.0 EU per μg of the protein as determined by the LAL method

**Stability:**

Samples are stable for up to twelve months from date of receipt at -70 ℃

**Predicted N terminal:** Gln 18

**Molecular Mass:**

The recombinant rat DLL1 comprises 746 amino acids and has a predicted molecular mass of 81.7 kDa.

**Formulation:**

Lyophilized from sterile PBS, 20% glycerol, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

## Usage Guide

**Storage:**

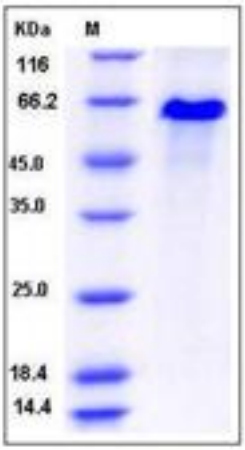
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

**Avoid repeated freeze-thaw cycles.**

**Reconstitution:**

Detailed reconstitution instructions are sent along with the products.

**SDS-PAGE:**




## Protein Description

Delta-like protein 1(DLL1), also known as Delta1, a single-pass type I membrane protein which contains one DSL domain and eight EGF-like domains, acts as a ligand for Notch receptors, and positively regulates T-cell development. DLL1 is proteolytically processed in a similar manner to the Notch receptor, and it has been speculated to participate in bidirectional signaling. The proteolytic processing of DLL1 helps achieve an asymmetry in Notch signaling in initially equivalent myogenic cells and helps sustain the balance between differentiation and self-renewal. Interactions between DLL1 and Notch in trans activate the Notch pathway, whereas DLL1 binding to Notch in cis inhibits Notch signaling. DLL1 undergoes proteolytic processing in its extracellular domain by ADAM10. It had been demonstrated that DLL1 represents a substrate for several other members of the ADAM family. In co-transfected cells, DLL1 is constitutively cleaved by ADAM12, and the N-terminal fragment of DLL1 is released to medium. ADAM12-mediated cleavage of DLL1 is cell density-dependent, takes place in cis orientation, and does not require the presence of the cytoplasmic domain of ADAM12. Full-length DLL1, but not its N- or C-terminal proteolytic fragment, co-immunoprecipitates with ADAM12. By using a Notch reporter construct, we show that DLL1 processing by ADAM12 increases Notch signaling in a cell-autonomous manner. Furthermore, ADAM9 and ADAM17 have the ability to process DLL1. In contrast, ADAM15 does not cleave DLL1, although the two proteins still co-immunoprecipitate with each other. During fetal development, DLL1 is an essential Notch ligand in the vascular endothelium of large arteries to activate Notch1 and maintain arterial identity. DLL1-Notch signaling was required for VEGF receptor expression in fetal arteries.

**References**

1.Dyczynska E, *et al.* (2007) Proteolytic processing of delta-like 1 by ADAM proteases. J Biol Chem. 282(1): 436-44.
2.Sun D, *et al.* (2008) The role of Delta-like 1 shedding in muscle cell self-renewal and differentiation. J Cell Sci. 121(Pt 22): 3815-23.
3.Srensen I, *et al.* (2009) DLL1-mediated Notch activation regulates endothelial identity in mouse fetal arteries. Blood. 113(22): 5680-8.