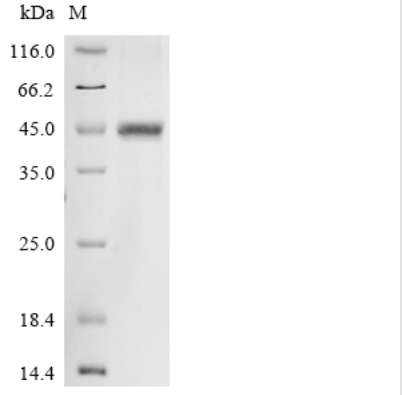
Recombinant Human Norrin (Ndp)

Product Code	CSB-EP015609HU
Abbreviation	Recombinant Human Ndp 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.	Q00604
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 Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	KTDSSFIMDSDPRRCMRHHYVDSISHPLYKCSSKMVLLARCEGHCSQASRSE PLVSFSTVLKQPFRSSCHCCRPQTSKLKALRLRCSGGMRLTATYRYILSCHCE ECNS
Research Area	Neuroscience
Source	E.coli
Target Names	Ndp
Expression Region	25-133aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-GST-tagged and C-terminal Myc-tagged
Mol. Weight	47.6 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

The formation of the recombinant plasmid by co-incorporating the gene encoding the human Norrin (NDP) (25-133aa) with the N-terminal 10xHis-GST-tag gene and C-terminal Myc-tag gene into a plasmid vector initiates the generation of the recombinant human NDP protein. Transforming the recombinant plasmid into E.coli cells and then selecting the positive E.coli cells based on their ability to survive in the presence of a specific antibiotic. The positive E.coli cells are cultured under conditions that stimulate the expression of the gene of interest. After expression, affinity purification is employed to isolate and purify the recombinant human NDP protein from the cell lysate. Denaturing SDS-PAGE is utilized to resolve the resulting recombinant human NDP protein, revealing a purity level exceeding 85%.

NDP is a multifunctional protein involved in various cellular processes. Initially considered a housekeeping enzyme essential for DNA and RNA synthesis, recent studies have revealed its involvement in cellular regulatory functions such as growth control, developmental control, and tumor metastasis suppression [1]. NDP kinase is known for its catalytic activity of nucleotide phosphotransfer, but it also carries out other functions beyond its catalytic activity, indicating its multifunctionality [2]. Furthermore, it has been reported that NDP kinase may have multiple regulatory functions besides the phosphotransferase activity and behaves as a tumor metastasis suppressor [3]. Additionally, NDP kinase has been found to interact with vimentin intermediate filaments and energy metabolism enzymes in a tissue-specific manner, suggesting its tissue-specific roles [4]. Moreover, NDP kinase has been implicated in transmembrane signaling, indicating its involvement in diverse cellular processes [5]. Studies have also suggested that NDP kinases are multifunctional proteins and some of their functions operate via the interaction with G-proteins [6]. Furthermore, NDP kinase has been identified as a tumor metastasis suppressor, a morphological regulator, a transcription factor, and a differentiation inhibitor, indicating its involvement in different levels of cellular regulation [7]. Additionally, it has been reported that NDP kinases can participate in phosphorelay networks that regulate gene expression and metabolism [8]. These findings collectively demonstrate the multifunctional nature of NDP kinase and its involvement in various cellular processes beyond its traditional role in nucleotide metabolism.

References:

[1] Q. Lü, H. Park, L. Egger, & M. Inouye, Nucleoside-diphosphate kinase-mediated signal transduction via histidyl-aspartyl phosphorelay systems in escherichia coli, Journal of Biological Chemistry, vol. 271, no. 51, p. 32886-32893, 1996. https://doi.org/10.1074/jbc.271.51.32886

[2] S. Mesnildrey, F. Agou, A. Karlsson, D. Bonne, & M. Véron, Coupling between catalysis and oligomeric structure in nucleoside diphosphate kinase, Journal of Biological Chemistry, vol. 273, no. 8, p. 4436-4442, 1998. https://doi.org/10.1074/jbc.273.8.4436

[3] N. Ishikawa, H. Taniguchi-Seto, Y. Munakata, Y. Takagi, N. Shimada, & N. Kimura, Multiple transcripts for rat nucleoside diphosphate kinase α isoform are structurally categorized into two groups that exhibit cell-specific expression and distinct translation potential, Journal of Biological Chemistry, vol. 272, no. 6, p. 3289-3295, 1997. https://doi.org/10.1074/jbc.272.6.3289

[4] A. Otero, Copurification of vimentin, energy metabolism enzymes, and a mer5 homolog with nucleoside diphosphate kinase, Journal of Biological Chemistry, vol. 272, no. 23, p. 14690-14694, 1997. https://doi.org/10.1074/jbc.272.23.14690
[5] L. Xu, J. Murphy, & A. Otero, Participation of nucleoside-diphosphate kinase in muscarinic k+ channel activation does not involve gtp formation, Journal of Biological Chemistry, vol. 271, no. 35, p. 21120-21125, 1996. https://doi.org/10.1074/jbc.271.35.21120
[6] N. Orlov, T. Orlova, Y. Reshetnyak, E. Burstein, & N. Kimura, Interaction of recombinant rat nucleoside diphosphate kinase α with bleached bovine retinal rod outer segment membranes: a possible mode of ph and salt effects, Iubmb Life, vol. 41, no. 1, p. 189-198, 1997. https://doi.org/10.1080/15216549700201191
[7] N. Orlov, T. Orlova, K. Nomura, N. Hanai, & N. Kimura, Transducin?mediated, isoform?specific interaction of recombinant rat nucleoside diphosphate kinases with bleached bovine retinal rod outer segment membranes, Febs Letters, vol. 389, no. 2, p. 186-190, 1996. https://doi.org/10.1016/0014-5793(96)00575-3
[8] M. Levit, B. Abramczyk, J. Stock, & E. Postel, Interactions between escherichia colinucleoside-diphosphate kinase and dna, Journal of Biological Chemistry, vol. 277, no. 7, p. 5163-5167, 2002. https://doi.org/10.1074/jbc.m111170200"

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.