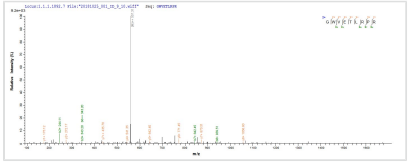
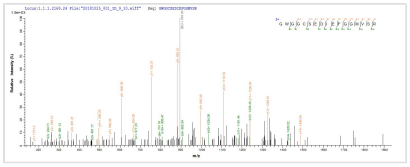
Recombinant Human Protein Wnt-3a (WNT3A)

Product Code	CSB-EP026136HU
Abbreviation	Recombinant Human WNT3A 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.	P56704
Storage Buffer	Tris-based buffer,50% glycerol
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SYPIWWSLAVGPQYSSLGSQPILCASIPGLVPKQLRFCRNYVEIMPSVAEGIKI GIQECQHQFRGRRWNCTTVHDSLAIFGPVLDKATRESAFVHAIASAGVAFAVT RSCAEGTAAICGCSSRHQGSPGKGWKWGGCSEDIEFGGMVSREFADAREN RPDARSAMNRHNNEAGRQAIASHMHLKCKCHGLSGSCEVKTCWWSQPDFR AIGDFLKDKYDSASEMVVEKHRESRGWVETLRPRYTYFKVPTERDLVYYEASP NFCEPNPETGSFGTRDRTCNVSSHGIDGCDLLCCGRGHNARAERRREKCRC VFHWCCYVSCQECTRVYDVHTCK
Research Area	Developmental Biology
Source	E.coli
Target Names	WNT3A
Protein Names	Recommended name: Protein Wnt-3a
Expression Region	19-352aa
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
Mol. Weight	43.5 kDa
Protein Length	Full Length of Mature Protein
Image	 Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP026136HU could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) WNT3A.



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Description

The production of recombinant human WNT3A begins with the isolation and cloning of the gene encoding the WNT3A protein (19-352aa). This gene is inserted into an expression vector along with the N-terminal 10xHis-tag gene and transfected into E.coli cells. These cells are cultured in bioreactors to express the WNT3A protein. After cell growth, the WNT3A protein is extracted and purified using the affinity chromatography technique. The purified WNT3A protein is subjected to an SDS-PAGE test, with purity of over 85%.

WNT3A is an endogenous pro-regenerative protein found in the central nervous system (CNS) [1]. WNT3A regulates RhoA-GTP levels by engaging Fzd receptors to modulate the interaction between the cytoplasmic WNT signaling protein Dishevelled (Dvl) and the formin protein Daam?1 [2]. WNT3A stimulates the Wnt/β-catenin pathway and functions as a positive regulator of autophagy, enhancing radioresistance in squamous cell carcinoma of the head and neck [3]. It has been demonstrated that WNT3A can activate pertussis toxin (PTX)-sensitive G proteins through specific FZD receptors [4].

WNT3A is associated with dorsal-ventral patterning in the inner ear and has been shown to induce BMP-4 to specify slow myofibrogenesis of fetal myoblasts [5][6]. Research showed that WNT3A inhibited follicle-stimulating hormone-mediated steroidogenesis in primary cultures of rat granulosa cells [7]. The WNT3A signal is predominantly transduced through β?catenin but also through the Yap/Taz pathway independently of β?catenin, regulating various biological processes such as osteogenic differentiation, gene expression, and cell migration [8].

References:
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[3] Q. Jing, G. Li, X. Chen, C. Liu, S. Lu, H. Zhenget al., Wnt3a promotes radioresistance via autophagy in squamous cell carcinoma of the head and neck, Journal of Cellular and Molecular Medicine, vol. 23, no. 7, p. 4711-4722, 2019. https://doi.org/10.1111/jcmm.14394
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[5] C. Forristall, F. Stellabotte, A. Castillo, & A. Collazo, Embryological manipulations in the developing xenopus inner ear reveal an intrinsic role for wnt signaling in dorsal–ventral patterning, Developmental Dynamics, vol. 243, no. 10, p. 1262-1274, 2014. https://doi.org/10.1002/dvdy.24116
[6] K. Kuroda, S. Kuang, M. Taketo, & M. Rudnicki, Canonical wnt signaling induces bmp-4 to specify slow myofibrogenesis of fetal myoblasts, Skeletal Muscle, vol. 3, no. 1, 2013. https://doi.org/10.1186/2044-5040-3-5
[7] A. Stapp, B. Gómez, C. Gifford, D. Hallford, & J. Gifford, Canonical wnt signaling inhibits follicle stimulating hormone mediated steroidogenesis in primary cultures of rat granulosa cells, Plos One, vol. 9, no. 1, p. e86432, 2014. https://doi.org/10.1371/journal.pone.0086432
[8] R. Chalamalasetty, R. Ajima, R. Garriock, M. Kennedy, L. Tessarollo, & T. Yamaguchi, A new gain?of?function mouse line to study the role of wnt3a in development and disease, Genesis, vol. 54, no. 9, p. 497-502, 2016. https://doi.org/10.1002/dvg.22959

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.