



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human NAMPT Protein
Catalog Number: HRP-2345
Manufacturer: LD Biopharma, Inc. USA

Introduction

Human Nicotinamide phosphoribosyltransferase (NAMPT) gene encodes a protein which catalyzes the condensation of nicotinamide with 5-phosphoribosyl-1-pyrophosphate to yield nicotinamide mononucleotide, an intermediate in the biosynthesis of NAD. It is the rate limiting component in the mammalian NAD biosynthesis pathway. The secreted form of NAMPT (eNAMPT) behaves both as a cytokine with immunomodulating properties and an adipokine with anti-diabetic properties, it has no enzymatic activity, partly because of lack of activation by ATP, which has a low level in extracellular space and plasma. NAMPT also plays a role in the modulation of circadian clock function. NAMPT-dependent oscillatory production of NAD regulates oscillation of clock target gene expression by releasing the core clock component: CLOCK-ARNTL/BMAL1 heterodimer from NAD-dependent SIRT1-mediated suppression. Recent data indicated that circulating levels of eNAMPT decline with age in both mice and humans, and increasing eNAMPT promotes NAD⁺, counteracts aging, and extends health-span in mice. In hepatocytes carcinoma (HCC) cells, which secreted NAMPT can modulate CD10+ALPL+NEUs and influence the outcome of Anti-PD-1 antibody derived immune-therapy.

Full-length human NAMPT cDNA (490aa, derived from BC072439) was constructed with codon optimization gene synthesis and expressed with a human N-terminalT7-His-TEV cleavage site Tag (29aa) fusion. This protein was expressed in E. coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: NAMPT (Visfatin; PBEF; PBEF1)
Accession Number: NP_005737
Species: Human
Size: 50 µg / Vial
Composition: 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT and other.



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Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least two weeks.

Key References

Mitsukuni Yoshida et al. *Extracellular Vesicle-Contained eNAMPT Delays Aging and Extends Lifespan in Mice. Cell Metabolism.* DOI: <https://doi.org/10.1016/j.cmet.2019.05.015>

Yan Meng. et al., *Immunosuppressive CD10+ALPL+ neutrophils promote resistance to anti-PD-1 therapy in HCC by mediating irreversible exhaustion of T cells.* J of Hepatol. Sep 7;S0168-8278(23)05078-X.doi: 10.1016/j.jhep.2023.08.024.

Applications

1. May be used for in vitro NAMPT mediated NAD biosynthesis signaling pathway regulation for various cell study using intracellular delivery of recombinant human NAMPT protein with protein delivery reagent such as ProFectin.
2. May be used for NAMPT protein-protein interaction assay.
3. May be used as specific substrate protein for NAMPT specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential therapeutic protein, which modulates NAMPT activity may be used for cancer immunotherapy or anti-aging application.
5. As native human NAMPT immunogen for specific antibody production.

Quality Control

Purity: > 93 % by SDS-PAGE.

Recombinant Human NAMPT Protein Sequence (58.6 kD)

MASMTGGQQMGRGHHHHHENLYFQGGEFNPAAEAEFNILLATDSYKVVTHYKQYPPNTSKVYSYFECREK
KTENSKLRKVKYEETVFYGLQYILNKYLKGVVTKKEIQEAKDVYKEHFQDDVFNEKGWNYILEKYDGH
PIEIKAVPEGFVI PRGNVLFVTVENTDPECYWLTNWIETILVQSWYPITVATNSREQKILAKYLLETSGN
LDGLEKYLHDFGYRGVSSQETAGIGASAHLVNFKGTDTVAGLALIKKYYGTDKDPVPGYSVPAAEHSTITA
WGKDHEKDAFEHIVTQFSSVPVSVVSDSYDIYNACEKIWGEDLRHLIVSRSTQAPLIIRPDSGNPLD
TVLKVLEILGKKFPVTENSKGYKLLPPYLRVIQGDGVDINTLQEIIVEGMKQKMWSIENIAFGSGGGLLQKLTR
DLLNCSFKCSYVVTNGLGINVFKDPVADPNKRSKKGRLSLHRTFAGNFVTTLEEGKGDLEEYGGQDLLHTVF
KNGKVTKSYSFDEIRKNAQLNIELEAAHH