NMNAT1 Protein, Human (sf9, His)

Cat. No.:	HY-P75941
Synonyms:	Nicotinamide/nicotinic acid mononucleotide adenylyltransferase 1; NMNAT1; NMNAT
Species:	Human
Source:	Sf9 insect cells
Accession:	Q9HAN9 (M1-T279)
Gene ID:	64802
Molecular Weight:	Approximately 34 kDa

PROPERTIES

Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM Tris, 500 mM NaCl, 3 mM DTT, 10% Glycerol, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The NMNAT1 protein assumes a pivotal role in cellular processes as it catalyzes the formation of NAD(+) from nicotinamide mononucleotide (NMN) and ATP. Moreover, it exhibits comparable efficiency in utilizing the deamidated form, nicotinic acid mononucleotide (NaMN), as a substrate and can employ triazofurin monophosphate (TrMP) in the same capacity. Additionally, NMNAT1 catalyzes the reverse reaction, the pyrophosphorolytic cleavage of NAD(+), with a preference for NAD(+) and NaAD as substrates, displaying lesser efficiency in degrading NADH, nicotinic acid adenine dinucleotide phosphate (NHD), and nicotinamide guanine dinucleotide (NGD). Beyond its role in NAD(+) biosynthesis, NMNAT1 is involved in nuclear ATP generation, collaborating with PARP1, PARG, and NUDT5, a process essential for energy-demanding chromatin remodeling events. Furthermore, it serves as a cofactor for glutamate and aspartate ADP-ribosylation, directing PARP1 catalytic activity to histone residues. Notably, NMNAT1's enzymatic activity fails to cleave phosphorylated dinucleotides NADP(+), NADPH, and NaADP(+). Functionally, NMNAT1 plays a crucial role in protecting against axonal degeneration in response to mechanical or toxic insults.

Caution: Product has not been fully validated for medical applications. For research use only.

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