CDK5 Protein, Human (P.pastoris, His)

Cat. No.:	HY-P72298
Synonyms:	Cdk5; Cell division protein kinase 5; Protein kinase CDK5 splicing; PSSALRE
Species:	Human
Source:	P. pastoris
Accession:	Q00535 (M1-P292)
Gene ID:	1020
Molecular Weight:	Approximately 38.0 kDa

PROPERTIES

AA Sequence	M Q K Y E K L E K I G E G T Y G T V F K A K N R E T H E I V A L K R V R L D D D D E G V P S S A L R E I C L L K E L K H K N I V R L H D V L H S D K K L T L V F E F C D Q D L K K Y F D S C N G D L D P E I V K S F L F Q L L K G L G F C H S R N V L H R D L K P Q N L L I N R N G E L K L A D F G L A R A F G I P V R C Y S A E V V T L W Y R P P D V L F G A K L Y S T S I D M W S A G C I F A E L A N A G R P L F P G N D V D D Q L K R I F R L L G T P T E E Q W P S M T K L P D Y K P Y P M Y P A T T S L V N V V P K L N A T G R D L L Q N L L K C N P V Q R I S A E E A L Q H P Y F S D F C P P
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from 0.22 μm filtered solution in PBS, pH 7.4.
Endotoxin Level	<1.0 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	CDK5, a proline-directed serine/threonine-protein kinase, stands as an essential player in neuronal cell cycle regulation, differentiation, and the potential induction of apoptotic cell death in neuronal diseases by instigating abortive cell cycle re-entry. Its interactions span a spectrum, engaging with proteins like D1 and D3-type G1 cyclins, SRC, NOS3, VIM/vimentin,

p35/CDK5R1, MEF2A, SIPA1L1, SH3GLB1, PXN, PAK1, MCAM/MUC18, SEPT5, SYN1, DNM1, AMPH, SYNJ1, CDK16, RAC1, RHOA, CDC42, TONEBP/NFAT5, MAPT/TAU, MAP1B, histone H1, p53/TP53, HDAC1, APEX1, PTK2/FAK1, huntingtin/HTT, ATM, MAP2, NEFH, and NEFM. Functionally, CDK5 orchestrates critical processes in neuronal development, including survival, migration, differentiation, axonal and neurite growth, synaptogenesis, oligodendrocyte differentiation, synaptic plasticity, and neurotransmission, achieved by phosphorylating key proteins. Additionally, it negatively regulates the CACNA1B/CAV2.2-mediated Ca(2+) release probability at hippocampal neuronal soma and synaptic terminals. In the mature central nervous system, CDK5 plays a pivotal role in neurotransmitter movements and cell survival, activating anti-apoptotic proteins BCL2 and STAT3 while negatively regulating JNK3/MAPK10 activity. Its multifaceted functions encompass the intricate regulation of various cellular processes, including DNA damage response, Wnt/beta-catenin signaling, and the GAIT pathway. Moreover, CDK5 impacts dendritic spine morphogenesis and participates in circadian clock regulation by modulating CLOCK protein function.

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