Datasheet for ABIN1944859

anti-CDK5 antibody (AA 160-286)

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Overview

Quantity:	400 µL
Target:	CDK5
Binding Specificity:	AA 160-286
Reactivity:	Human, Mouse
Host:	Mouse
Clonality:	Monoclonal
Conjugate:	This CDK5 antibody is un-conjugated
Application:	Western Blotting (WB)

Product Details

Immunogen:	This antibody is generated from a mouse immunized with a KLH conjugated synthetic peptide between 160-286 amino acids from human.
Clone:	1321CT281-130-129
Isotype:	IgG1 kappa
Purification:	This antibody is purified through a protein G column, followed by dialysis against PBS.

Target Details

Target:	CDK5
Alternative Name:	CDK5 (CDK5 Products)
Background:	Proline-directed serine/threonine-protein kinase essential for neuronal cell cycle arrest and

differentiation and may be involved in apoptotic cell death in neuronal diseases by triggering abortive cell cycle re-entry. Interacts with D1 and D3- type G1 cyclins. Phosphorylates 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. Regulates several neuronal development and physiological processes including neuronal survival, migration and differentiation, axonal and neurite growth, synaptogenesis, oligodendrocyte differentiation, synaptic plasticity and neurotransmission, by phosphorylating key proteins. Activated by interaction with CDK5R1 (p35) and CDK5R2 (p39), especially in post-mitotic neurons, and promotes CDK5R1 (p35) expression in an autostimulation loop. Phosphorylates many downstream substrates such as Rho and Ras family small GTPases (e.g. PAK1, RAC1, RHOA, CDC42) or microtubule-binding proteins (e.g. MAPT/TAU, MAP2, MAP1B), and modulates actin dynamics to regulate neurite growth and/or spine morphogenesis. Phosphorylates also exocytosis associated proteins such as MCAM/MUC18, SEPT5, SYN1, and CDK16/PCTAIRE1 as well as endocytosis associated proteins such as DNM1, AMPH and SYNJ1 at synaptic terminals. In the mature central nervous system (CNS), regulates neurotransmitter movements by phosphorylating substrates associated with neurotransmitter release and synapse plasticity, synaptic vesicle exocytosis, vesicles fusion with the presynaptic membrane, and endocytosis. Promotes cell survival by activating anti-apoptotic proteins BCL2 and STAT3, and negatively regulating of JNK3/MAPK10 activity. Phosphorylation of p53/TP53 in response to genotoxic and oxidative stresses enhances its stabilization by preventing ubiquitin ligase-mediated proteasomal degradation, and induces transactivation of p53/TP53 target genes, thus regulating apoptosis. Phosphorylation of p35/CDK5R1 enhances its stabilization by preventing calpain-mediated proteolysis producing p25/CDK5R1 and avoiding ubiquitin ligase-mediated proteasomal degradation. During aberrant cell-cycle activity and DNA damage, p25/CDK5 activity elicits cell-cycle activity and double-strand DNA breaks that precedes neuronal death by deregulating HDAC1. DNA damage triggered phosphorylation of huntingtin/HTT in nuclei of neurons protects neurons against polyglutamine expansion as well as DNA damage mediated toxicity. Phosphorylation of PXN reduces its interaction with PTK2/FAK1 in matrix-cell focal adhesions (MCFA) during oligodendrocytes (OLs) differentiation. Negative regulator of Wnt/beta-catenin signaling pathway. Activator of the GAIT (IFN-gamma-activated inhibitor of translation) pathway, which suppresses expression of a post-transcriptional regulon of proinflammatory genes in myeloid cells, phosphorylates the linker domain of glutamyl-prolyl tRNA synthetase (EPRS) in a IFN-gamma- dependent manner, the initial event in assembly of the GAIT complex. Phosphorylation of SH3GLB1 is required for autophagy induction in starved neurons.

Target Details

	Phosphorylation of TONEBP/NFAT5 in response to osmotic stress mediates its rapid nuclear localization. MEF2 is inactivated by phosphorylation in nucleus in response to neurotoxin, thus leading to neuronal apoptosis. APEX1 AP-endodeoxyribonuclease is repressed by phosphorylation, resulting in accumulation of DNA damage and contributing to neuronal death. NOS3 phosphorylation down regulates NOS3-derived nitrite (NO) levels. SRC phosphorylation mediates its ubiquitin- dependent degradation and thus leads to cytoskeletal reorganization. May regulate endothelial cell migration and angiogenesis via the modulation of lamellipodia formation. Involved in dendritic spine morphogenesis by mediating the EFNA1- EPHA4 signaling.
Molecular Weight:	33304
Gene ID:	1020
UniProt:	Q00535
Pathways:	Cell Division Cycle, Regulation of Muscle Cell Differentiation, Synaptic Membrane, Regulation of Cell Size, Skeletal Muscle Fiber Development, Synaptic Vesicle Exocytosis

Application Details

Application Notes:	IHC: 1:250. WB: 1:1000
Restrictions:	For Research Use only

Handling

Format:	Liquid
Buffer:	Purified monoclonal antibody supplied in PBS with 0.09 % (W/V) sodium azide.
Preservative:	Sodium azide
Precaution of Use:	This product contains Sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Storage:	4 °C,-20 °C
Expiry Date:	6 months

Publications

Product cited in:	Li, Liu, Zhang, Ye, Qiao, Ling, Wu, Zhang, Yu: "Characterization of a novel human CDK5 splicing variant that inhibits Wnt/beta-catenin signaling." in: **Molecular biology reports**, Vol. 37, Issue 5,

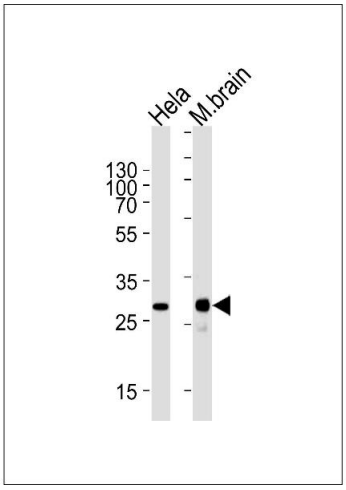
pp. 2415-21, (2010) (PubMed).

Meyerson, Enders, Wu, Su, Gorka, Nelson, Harlow, Tsai: "A family of human cdc2-related protein kinases." in: **The EMBO journal**, Vol. 11, Issue 8, pp. 2909-17, (1992) (PubMed).

Images

Immunohistochemistry

Image 1. Immunohistochemical analysis of paraffin-embedded Human Colorectal section using Pink1 am2261b. am2261b was diluted at 1:250 dilution. A undiluted biotinylated goat polyvalent antibody was used as the secondary, followed by DAB staining.



Western Blotting

Image 2. Western blot analysis of lysates from Hela cell line and mouse brain tissue lysate (from left to right) using CDK5 Antibody (ABIN1944859 and ABIN2843645). (ABIN1944859 and ABIN2843645) was diluted at 1:1000 at each lane. A goat anti-mouse IgG H&L(HRP) at 1:3000 dilution was used as the secondary antibody. Lysates at 35 µg per lane.