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Datasheet for 200-301-163

Cdk5 Antibody

Overview

Description:	Anti-CDK5 (MOUSE) Antibody - 200-301-163
Item No.:	200-301-163
Size:	100 µL
Applications:	IHC, WB, IF
Reactivity:	Human, Mouse, Rat
Host Species:	Mouse

Product Details

Background:	CDK5 antibody recognizes the neuronal protein kinase Cdk5 which is implicated in a vast array of normal neuronal functions including regulation of neurotransmitter synthesis, the presynaptic vesicle cycle, neurotransmitter receptor trafficking and dopamine neurotransmission. At the same time Cdk5 has been implicated in a plethora of neurological and neuropsychiatric disorders including Alzheimer's, Parkinson's, Huntington's, epilepsy, schizophrenia, and drug addiction. Detection of Cdk5 in normal samples as well as tissue undergoing neurodegeneration may advance studies in these areas. Moreover, this antibody may allow more accurate postmortem evaluations of Cdk5 protein expression, and thus serve as a valuable new reagent for neuropathology. Anti-CDK5 antibody is ideal for investigators involved in Cell Signaling, Neuroscience, Signal Transduction research.
Synonyms:	mouse anti-cdk5 antibody, cdk, mouse anti-Cyclin-dependent kinase 5, Cell division protein kinase 5, Serine/threonine-protein kinase PSSALRE, Tau protein kinase II catalytic subunit
Host Species:	Mouse
Clonality:	Monoclonal
Clone ID:	1H3
Format:	IgG

Target Details

Gene Name:	Cdk5
Reactivity:	Human, Mouse, Rat

Immunogen Type:	Native Protein
Immunogen:	Anti-CDK5 Antibody was produced by repeated immunizations with purified rat Cdk5
Purity/Specificity:	Anti-CDK5 Antibody is directed against rat CDK5 protein. The antibody was Protein G purified from cell culture supernatant by chromatography. The antibody shows no cross reactivity with the Cdk5 cofactor p35 or its degradation product p25. Reactivity is reported to occur from human and mouse. Cross-reactivity with CDK5 from other species has not been determined.
Relevant Links:	• UniProtKB - Q03114 • GeneID - 140908 • UniProtKB - Q03114.1

Application Details

Tested Applications:	IHC, WB
Suggested Applications:	IF (Based on references)
Application Note:	Anti-CDK5 (Mouse) has been tested for use in Western Blotting and is excellent for use in IHC-P. Specific conditions for reactivity should be optimized by the end user. Expect a band of ~28kDa in size in rat striatal lysates by Western Blotting. Anti-CDK5 antibodies also work well for immunocytochemistry using primary cultured rat neurons and for immunohistochemistry on mouse brain tissue.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
IHC:	1:500
WB:	1:1000

Formulation

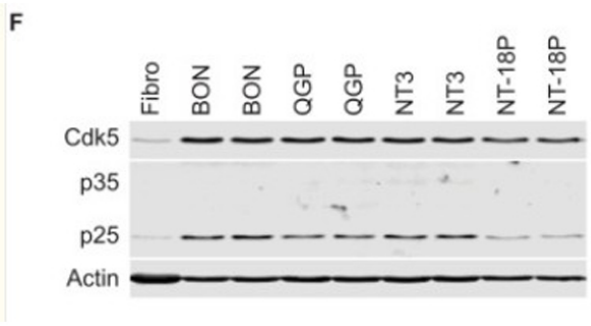
Physical State:	Liquid
Concentration:	10 mini blots Sufficient to run approximately 10 miniblots
Buffer:	0.01 M HEPES, 0.15 M Sodium Chloride, pH 7.5
Stabilizer:	0.1 mg/ml Bovine Serum Albumin (BSA) - IgG and Protease free, 50% (v/v) Glycerol

Shipping & Handling

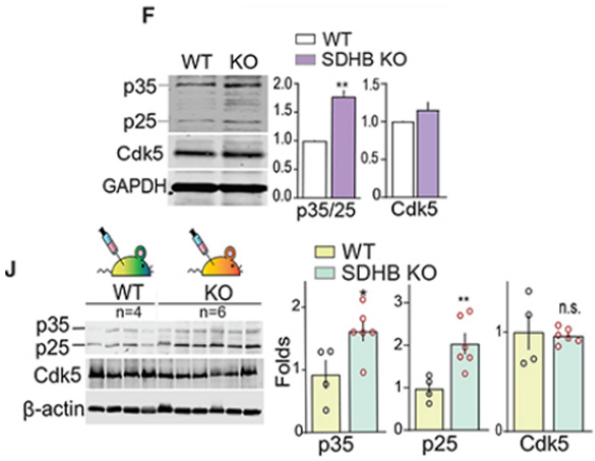
Shipping Condition:	Dry Ice

Storage Condition:	Store vial at -20° C prior to opening. This product is stable at 4° C as an undiluted liquid. For extended storage, aliquot contents and freeze at -20° C or below. Avoid cycles of freezing and thawing. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

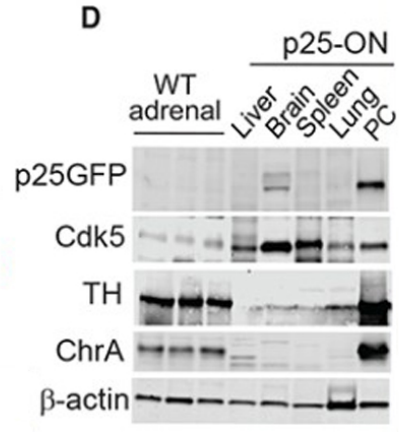
Images



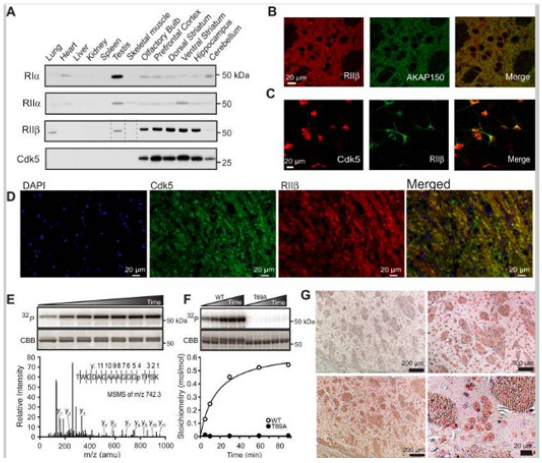
Western Blot
F) Immunoblot of Cdk5 pathway components in fibroblasts and PanNET cells.
Fig 1. PMID: 34862365



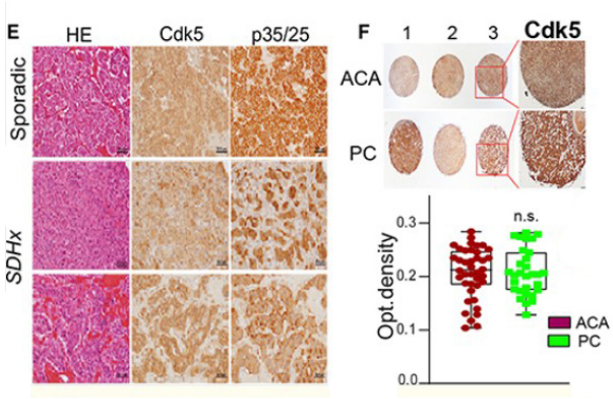
Western Blot
(F) Immunoblots of Cdk5, p25/p35 in WT and SDHB KO cells with quantitation.
(J) Quantitative immunoblotting of Cdk5/p35/p25 levels in tumor lysates derived from WT (n = 4) and KO (n = 6) xenografts. Values are means ± SEM, *p < 0.05, **p < 0.01, ***p < 0.001; n.s., non-significant compared by t test and/or one-way ANOVA.
Fig 2. PMID: 35977518



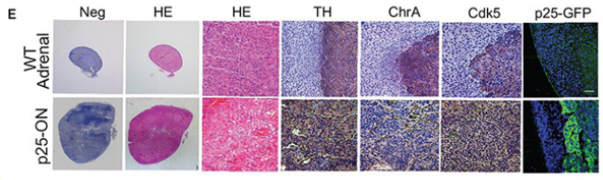
Western Blot
(D) Immunoblots showing expression of p25-GFP, Cdk5, TH, and ChrA in tissue lysates derived from p25-ON or WT adrenal glands. Fig 4. PMID: 35977518



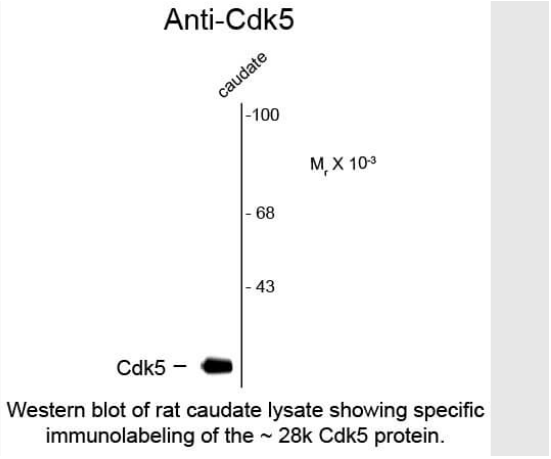
PKA regulatory subunit RIIβ phosphorylation at Thr69 by Cdk5. A), tissue distribution of R subunits and Cdk5 in rat peripheral and central nervous system tissues. For RIIβ blot, dotted lines denote the lane loaded for skeletal muscle was moved to correspond to the loading order for other blots. B), co-immunostain of RIIβ and AKAP150 in rat ventral striatum. C), colocalization of Cdk5 and RIIβ in dissociated rat striatal neurons. D), immunofluorescent colocalization of Cdk5 and RIIβ in rat striatum with nuclear DAPI counterstain. E), time-course in vitro phosphorylation of RIIβ by Cdk5 (autoradiogram, 32P, top; Coomassie stain CBB, middle) with accompanying ESI-Qq TOF MS/MS spectrum (bottom) of the tryptic peptide shown encompassing phospho-Thr69 (pT, ion peak y4) positively identifying the site of RIIβ phosphorylation by Cdk5. F), in vitro phosphorylation of WT versus T69A RIIβ by Cdk5 with stoichiometry. G), immunostain of phospho-Thr69 RIIβ (brown, top right, and bottom two images) with nuclear counterstain (purple) in rat striatum. Top left image shows background with secondary antibody alone. AKAP, A-kinase anchoring protein; Cdk5, cyclin-dependent kinase 5; PKA, cAMP-dependent protein kinase. Fig 1. PMID: 35835216



Immunohistochemistry
(E) Hematoxylin eosin (HE) and immunostains of Cdk5 and p35/p25 in human PC, scale bar, 50 µm.
(F) Histological assessment of Cdk5 and p35/25 in tissue microarray sections of adrenocortical adenoma (ACA, n = 40) and PC (n = 30); quantification presented as optical density; *p < 0.05, **p < 0.01, ***p < 0.001 compared using t test with Welch's correction; n.s., non-significant.
Fig 3. PMID: 35977518



Immunohistochemistry
(E) Histological assessment of NE markers in WT adrenals or PC tissue sections, scale bar 100 µM. Fig 4. PMID: 35977518



Western Blot
Western Blot of Anti-CDK5 (Mouse) Antibody. Lane 1: rat caudate lysate. Lane 2: none. Load: 10 µg per lane. Primary antibody: CDK5 antibody at 1:400 for overnight at 4°C. Secondary antibody: IRDye800™ mouse secondary antibody at 1:10,000 for 45 min at RT. Block: 5% BLOTTO overnight at 4°C. Predicted/Observed size: ~ 28kDa/~28kDa for Cdk5 protein. Other band(s): none.

References

- Gupta P et al. Faulty Metabolism: A Potential Instigator of an Aggressive Phenotype in Cdk5-dependent Medullary Thyroid Carcinoma. *bioRxiv [Preprint].* (2023)
- Gupta P et al. Genetic impairment of succinate metabolism disrupts bioenergetic sensing in adrenal neuroendocrine cancer. *Cell Rep.* (2022)
- Thomas R et al. Integrated regulation of PKA by fast and slow neurotransmission in the nucleus accumbens controls plasticity and stress responses. *J Biol Chem.* (2022)
- Carter AM et al. Cdk5 drives formation of heterogeneous pancreatic neuroendocrine tumors. *Oncogenesis.* (2021)

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