10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

DYRK2 Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7534a

Product Information

Application	WB, IHC-P, E
Primary Accession	Q92630
Reactivity	Human, Rat, Mouse
Predicted	Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	66652
Antigen Region	105-135

Additional Information

Gene ID	8445
Other Names	Dual specificity tyrosine-phosphorylation-regulated kinase 2, DYRK2
Target/Specificity	This DYRK2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 105-135 amino acids from the N-terminal region of human DYRK2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	DYRK2 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DYRK2 {ECO:0000303|PubMed:9748265, ECO:0000312|HGNC:HGNC:3093}
Function	Serine/threonine-protein kinase involved in the regulation of the mitotic cell cycle, cell proliferation, apoptosis, organization of the cytoskeleton and neurite outgrowth (PubMed:11311121, PubMed:12588975, PubMed:16511445, PubMed:16611631, PubMed:17349958, PubMed:18599021, PubMed:22307329, PubMed:9748265). Phosphorylates

	CRMP2/DPYSL2, CRMP4/DPYSL3, DCX, EIF2B5, EIF4EBP1, GLI2, GLI3, GYS1, JUN, MDM2, MYC, NFATC1, p53/TP53, TAU/MAPT and KATNA1 (PubMed:11311121, PubMed:12588975, PubMed:16511445, PubMed:16611631, PubMed:17349958, PubMed:18599021, PubMed:22307329, PubMed:38968120). Can phosphorylate histone H1, histone H3 and histone H2B (in vitro) (PubMed:9748265). Can phosphorylate CARHSP1 (in vitro) (PubMed:15910284). Functions in part via its role in ubiquitin-dependent proteasomal protein degradation (PubMed:9748265). Functions downstream of ATM and phosphorylates p53/TP53 at 'Ser-46', and thereby contributes to the induction of apoptosis in response to DNA damage (PubMed:17349958, PubMed:18599021). Phosphorylates NFATC1, and thereby inhibits its accumulation in the nucleus and its transcription factor activity (PubMed:16511445). May play a general role in the priming of GSK3 substrates (PubMed:11311121, PubMed:16611631). Phosphorylates EIF2B5 at 'Ser-544', enabling its subsequent phosphorylation and inhibition by GSK3B (PubMed:11311121). Likewise, phosphorylation of NFATC1, CRMP2/DPYSL2 and CRMP4/DPYSL3 promotes their subsequent phosphorylation by GSK3B (PubMed:16611631). Inactivates GYS1 by phosphorylation at 'Ser-641', and potentially also a second phosphorylation site, thus regulating glycogen synthesis (PubMed:14593110). Mediates EDVP E3 ligase complex formation and is required for the phosphorylation and subsequent degradation of KATNA1 (PubMed:19287380). Phosphorylates TERT at 'Ser-457', promoting TERT ubiquitination by the EDVP complex (PubMed:23362280). Phosphorylates SIAH2, and thereby increases its ubiquitin ligase activity (PubMed:22878263). Promotes the proteasomal degradation of MYC and JUN, and thereby regulates progress through the mitotic cell cycle and cell proliferation (PubMed:22307329). Acts as a positive regulator of smoothened signaling by mediating phosphorylation of GLI2 and GLI3 in response to smoothened activation, promoting their dissociation from SUFU inhibitor and translocation to the nucleus (PubMed:38968120). Can also acts as a negative regulator of smoothened by catalyzing phosphorylation of GLI2 and GLI3 and promote their proteasomal degradation (PubMed:18455992). Plays a role in cytoskeleton organization and neurite outgrowth via its phosphorylation of DCX and DPYSL2 (By similarity).
Cellular Location	Cytoplasm. Nucleus. Note=Translocates into the nucleus following DNA damage.
Tissue Location	Testis, after the onset of spermatogenesis.

Background

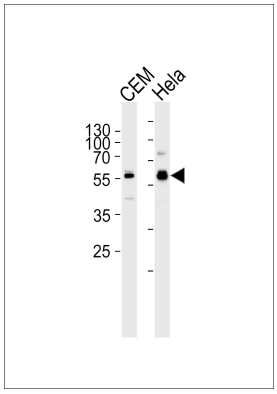
DYRK2 belongs to a family of protein kinases whose members are presumed to be involved in cellular growth and/or development. The family is defined by structural similarity of their kinase domains and their capability to autophosphorylate on tyrosine residues. DYRK2 has demonstrated tyrosine autophosphorylation and catalyzed phosphorylation of histones H3 and H2B in vitro.

References

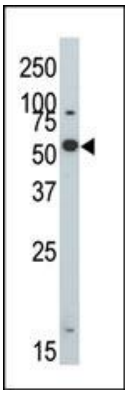
Becker, W., et al., J. Biol. Chem. 273(40):25893-25902 (1998).

Images

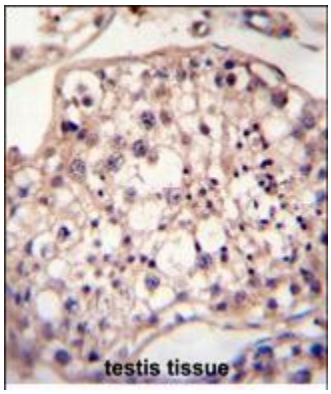
Western blot analysis of lysates from CEM, Hela cell line (from left to right), using DYRK2 Antibody (P46) (Cat. #AP7534a). AP7534a was diluted at 1:1000 at each lane. A



goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody. Lysates at 35ug per lane.



The anti-DYRK2 Pab (Cat. #AP7534a) is used in Western blot to detect DYRK2 in 293 cell lysate.



DYRK2 Antibody (N-term) (Cat. #AP7534A)immunohistochemistry analysis in formalin fixed and paraffin embedded human testis tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of DYRK2 Antibody (N-term) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- The stress-responsive kinase DYRK2 activates heat shock factor 1 promoting resistance to proteotoxic stress
- Frequent DYRK2 gene amplification in micropapillary element of lung adenocarcinoma - an implication in progression in EGFR-mutated lung adenocarcinoma
- DYRK2 priming phosphorylation of c-Jun and c-Myc modulates cell cycle progression in human cancer cells.
- Expression of dual-specificity tyrosine-(Y)-phosphorylation-regulated kinase 2 (DYRK2) can be a favorable prognostic marker in pulmonary adenocarcinoma.
- DYRK2 expression may be a predictive marker for chemotherapy in non-small cell lung cancer.
- Mutual regulation between SIAH2 and DYRK2 controls hypoxic and genotoxic signaling pathways.
- Downregulation of DYRK2 can be a predictor of recurrence in early stage breast cancer.
- Dual-specificity tyrosine phosphorylation-regulated kinase 2 (DYRK2) as a novel marker in T1 high-grade and T2 bladder cancer patients receiving neoadjuvant chemotherapy : DYRK2 is associated with survival in bladder cancer.
- The Expression of the Ubiquitin Ligase SIAH2 (Seven In Absentia Homolog 2) Is Increased in Human Lung Cancer.
- Downregulation of dual-specificity tyrosine-regulated kinase 2 promotes tumor cell proliferation and invasion by enhancing cyclin-dependent kinase 14 expression in breast cancer.
- Impairment of DYRK2 augments stem-like traits by promoting KLF4 expression in breast cancer.
- Targeting dual-specificity tyrosine phosphorylation-regulated kinase 2 with a highly selective inhibitor for the treatment of prostate cancer

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.