

#2771

DYRK1A Antibody



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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IP	H M	Endogenous	90	Rabbit	#Q13627	1859

Product Usage Information

Application

Western Blotting
Immunoprecipitation

Dilution

1:1000
1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

DYRK1A Antibody detects endogenous levels of total DYRK1A protein.

Species predicted to react based on 100% sequence homology:

Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to human DYRK1A. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The DYRK family includes several dual-specificity tyrosine-phosphorylated and regulated kinases capable of phosphorylating proteins at both Tyr and Ser/Thr residues (1). The DYRK family was identified based on homology to the yeast Yak1 (2) and the *Drosophila* minibrain (mnb) kinases (3). Seven mammalian isoforms have been discovered, including DYRK1A, DYRK1B, DYRK1C, DYRK2, DYRK3, DYRK4, and DYRK4B. Differences in substrate specificity, expression, and subcellular localization are seen across the DYRK family (4,5). All DYRK proteins have a Tyr-X-Tyr motif in the catalytic domain activation loop; phosphorylation of the second Tyr residue (e.g. Tyr312 of DYRK1A) is necessary for kinase activity. DYRKs typically autophosphorylate the Tyr residue within their activation loop, but phosphorylate substrates at Ser and Thr residues (1,6). DYRK1A phosphorylates serine and threonine residues within a RPX(S/T)P consensus sequence. Substrates include transcription factors such as FoxO1 and cAMP response element-binding proteins such as NFAT (7,8). DYRK1A is ubiquitously expressed in fetal and adult tissues. Transgenic mice with multiple copies of DYRK1A exhibit learning and motor defects suggesting that it is a dosage-sensitive gene (9). The DYRK1A gene localizes to chromosome 21q22.2, a region implicated in Down syndrome, and may contribute to pathological traits observed in chromosome 21 trisomy (10).

Background References

1. Becker, W. and Joost, H.G. (1999) *Prog. Nucleic Acid Res. Mol. Biol.* 62, 1-17.
2. Garrett, S. and Broach, J. (1989) *Genes Dev.* 3, 1336-1348.
3. Tejedor, F. et al. (1995) *Neuron* 14, 287-301.
4. Kentrup, H. et al. (1996) *J. Biol. Chem.* 271, 3488-3495.
5. Becker, W. et al. (1998) *J. Biol. Chem.* 273, 25893-25902.
6. Lochhead, P.A. et al. (2005) *Cell* 121, 925-936.
7. von Groote-Bidlingmaier, F. et al. (2003) *Biochem. Biophys. Res. Commun.* 300, 764-769.
8. Gwack, Y. et al. (2006) *Nature* 441, 646-650.
9. Altafaj, X. et al. (2001) *Hum. Mol. Genet.* 10, 1915-1923.
10. Guimera, J. et al. (1999) *Genomics* 57, 407-418.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key**WB:** Western Blotting **IP:** Immunoprecipitation**Cross-Reactivity Key**

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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