

DYRK1A Antibody

✓ 100 µl
(10 western blots)

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com
Support ■ 877-678-TECH (8324)
info@cellsignal.com
Web ■ www.cellsignal.com

rev. 03/15/11

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

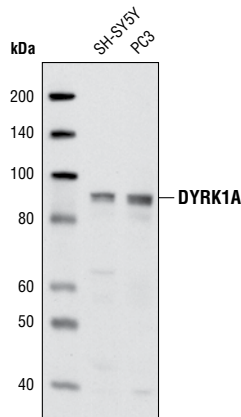
Applications W, IP Endogenous	Species Cross-Reactivity* H, M, (R)	Molecular Wt. 90 kDa	Source Rabbit**
-------------------------------------	--	-------------------------	--------------------

Background: The DYRK family includes several dual-specificity tyrosine-phosphorylated and regulated kinases capable of phosphorylating proteins at both tyrosine and serine/threonine 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, with phosphorylation of the second Tyr residue (e.g. Tyr312 of DYRK1A) necessary for kinase activity. DYRKs typically autophosphorylate the tyrosine residue within their activation loop, but phosphorylate substrates at serine and threonine 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).

Specificity/Sensitivity: DYRK1A Antibody detects endogenous levels of total DYRK1A protein.

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.



Western blot analysis of extracts from SY-SY5Y and PC3 cells using DYRK1A Antibody.

Entrez-Gene ID #1859
Swiss-Prot Acc. #Q13627

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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting 1:1000
Immunoprecipitation 1:50

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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.

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

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey 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 All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.