

Dyrk1A (A-16): sc-12571

BACKGROUND

Dyrk (for dual specificity tyrosine phosphorylation regulated kinase) is the homolog of the *Drosophila* *mnb* (minibrain) gene which is required for neurogenesis. Dyrk is a dual-specificity tyrosine kinase and serine/threonine kinase, which is self regulated by tyrosine phosphorylation. Several mammalian Dyrk related proteins have been identified and are thought to compose a family of dual specificity protein kinases. Dyrk family members, including Dyrk1A (dual specificity tyrosine-phosphorylation-regulated kinase 1A), Dyrk1B, Dyrk1C, Dyrk2, Dyrk3, Dyrk4A and Dyrk4B, are thought to be involved in diverse cellular functions. Localized to the nucleus and highly expressed in testis, muscle and the developing nervous system, Dyrk1A, also known as MNB or MNBH, functions to phosphorylate serine, threonine and tyrosine residues on various substrates involved in signaling pathways that regulate cell proliferation. Dyrk1A is a candidate gene for learning defects that are involved in Down syndrome (DS), suggesting a possible role for Dyrk1A in the development of DS. Four isoforms of Dyrk1A exist due to alternative splicing events.

REFERENCES

1. Kentrup, H., et al. 1996. Dyrk, a dual specificity protein kinase with unique structural features whose activity is dependent on tyrosine residues between subdomains VII and VIII. *J. Biol. Chem.* 271: 3488-3495.
2. Song, W.J., et al. 1996. Isolation of human and murine homologues of the *Drosophila* minibrain gene: human homologue maps to 21q22.2 in the Down syndrome "critical region". *Genomics* 38: 331-339.
3. Shindoh, N., et al. 1996. Cloning of a human homolog of the *Drosophila* minibrain/rat Dyrk gene from "the Down syndrome critical region" of chromosome 21. *Biochem. Biophys. Res. Commun.* 225: 92-99.
4. Becker, W., et al. 1998. Sequence characteristics, subcellular localization, and substrate specificity of DYRK-related kinases, a novel family of dual specificity protein kinases. *J. Biol. Chem.* 273: 25893-25902.
5. Guimera, J., et al. 1999. Human minibrain homologue (MNBH/DYRK1): characterization, alternative splicing, differential tissue expression, and overexpression in Down syndrome. *Genomics* 57: 407-418.

CHROMOSOMAL LOCATION

Genetic locus: DYRK1A (human) mapping to 21q22.13; Dyrk1a (mouse) mapping to 16 C4.

SOURCE

Dyrk1A (A-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Dyrk1A of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12571 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Dyrk1A (A-16) is recommended for detection of Dyrk1A of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

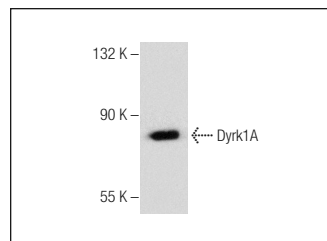
Dyrk1A (A-16) is also recommended for detection of Dyrk1A in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Dyrk1A siRNA (h): sc-39007, Dyrk1A siRNA (m): sc-39008, Dyrk1A shRNA Plasmid (h): sc-39007-SH, Dyrk1A shRNA Plasmid (m): sc-39008-SH, Dyrk1A shRNA (h) Lentiviral Particles: sc-39007-V and Dyrk1A shRNA (m) Lentiviral Particles: sc-39008-V.

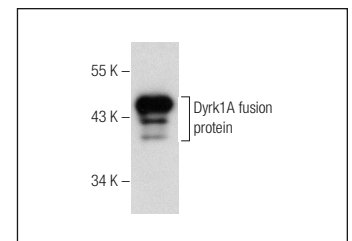
Molecular Weight of Dyrk1A: 86 kDa.

Positive Controls: PC-3 cell lysate: sc-2220 or HeLa nuclear extract: sc-2120.

DATA



Dyrk1A (A-16): sc-12571. Western blot analysis of Dyrk1A expression in PC-3 whole cell lysate.



Dyrk1A (A-16): sc-12571. Western blot analysis of human recombinant Dyrk1A fusion protein.

SELECT PRODUCT CITATIONS

1. Chang, H.S., et al. 2007. Increased expression of Dyrk1A in HPV16 immortalized keratinocytes enable evasion of apoptosis. *Int. J. Cancer* 120: 2377-2385.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **Dyrk1A (RR.7): sc-100376**, our highly recommended monoclonal alternative to Dyrk1A (A-16).