

Dyrk1A (S-21): sc-130741

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 itself 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.
6. Ryoo, S.R., et al. 2007. DYRK1A-mediated hyperphosphorylation of Tau. A functional link between Down syndrome and Alzheimer disease. *J. Biol. Chem.* 282: 34850-34857.

CHROMOSOMAL LOCATION

Genetic locus: DYRK1A (human) mapping to 21q22.13.

SOURCE

Dyrk1A (S-21) is a purified rabbit polyclonal antibody raised against a peptide mapping within amino acids 389-418 representing an internal region of Dyrk1A of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Dyrk1A (S-21) is recommended for detection of Dyrk1A of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

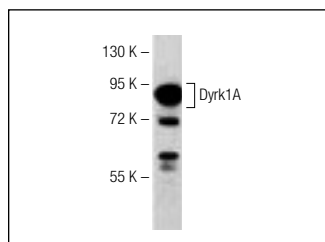
Molecular Weight of Dyrk1A: 86 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or HL-60 whole cell lysate: sc-2209.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Dyrk1A (S-21): sc-130741. Western blot analysis of Dyrk1A expression in HL-60 whole cell lysate.

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.


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Try **Dyrk1A (RR.7): sc-100376**, our highly recommended monoclonal alternative to Dyrk1A (S-21).