

# Dyrk3 (M-110): sc-66869

## 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 (originally Dyrk), Dyrk1B, Dyrk1C, Dyrk2, Dyrk3, Dyrk4A and Dyrk4B, are thought to be involved in diverse cellular functions. Dyrk1A is a candidate gene that may be involved in Down syndrome, and it has been found to be somewhat overexpressed in Down syndrome. Two isoforms of human fetal brain Dyrk2 exist: a deduced 528 amino acid protein and a protein containing 73 additional amino acids at the amino-terminus. Dyrk3 is strongly expressed in testis, only after the onset of spermatogenesis, and very weakly expressed in spleen and adrenal gland. The genes which encode Dyrk2 and Dyrk3 map to human chromosomes 12 and 1q32, respectively.

## REFERENCES

1. Kentrup, H., Becker, W., Heukelbach, J., Wilmes, A., Schurmann, A., Huppertz, C., Kainulainen, H. and Joost, H.G. 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., Sternberg, L.R., Kasten-Sportes, C., Keuren, M.L., Chung, S.H., Slack, A.C., Miller, D.E., Glover, T.W., Chiang, P.W., Lou, L. and Kurnit, D.M. 1996. Isolation of human and murine homologues of the *Drosophila* mini-brain gene: human homologue maps to 21q22.2 in the Down syndrome "critical region". *Genomics* 38: 331-339.
3. Shindoh, N., Kudoh, J., Maeda, H., Yamaki, A., Minoshima, S., Shimizu, Y. and Shimizu, N. 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., Weber, Y., Wetzell, K., Eirnbter, K., Tejedor, F.J. and Joost, H.G. 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., Casas, C., Estivill, X. and Pritchard, M. 1999. Human mini-brain homologue (MNBH/DYRK1): characterization, alternative splicing, differential tissue expression, and overexpression in Down syndrome. *Genomics* 57: 407-418.

## CHROMOSOMAL LOCATION

Genetic locus: DYRK3 (human) mapping to 1q32.1; Dyrk3 (mouse) mapping to 1 E4.

## SOURCE

Dyrk3 (M-110) is a rabbit polyclonal antibody raised against amino acids 31-140 mapping near the N-terminus of Dyrk3 of mouse origin.

## PRODUCT

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

## APPLICATIONS

Dyrk3 (M-110) is recommended for detection of Dyrk3 of mouse and rat 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).

Suitable for use as control antibody for Dyrk3 siRNA (m): sc-44589, Dyrk3 shRNA Plasmid (m): sc-44589-SH and Dyrk3 shRNA (m) Lentiviral Particles: sc-44589-V.

Molecular Weight of Dyrk3: 70 kDa.

## 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). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.


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Try **Dyrk3 (H-11): sc-390532**, our highly recommended monoclonal alternative to Dyrk3 (M-110).