3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-DYRK1A (N-terminal)
produced in rabbit, affinity isolated antibody

Product Number **D1694**

Product Description

Anti-DYRK1A (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to a sequence at N-terminal of human DYRK1A (GeneID: 1859) conjugated to KLH. This sequence is identical in human DYRK1A isoforms 1-5 and highly conserved (single amino acid change) in rat DYRK1A and mouse DYRK1A (90% identity). The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-DYRK1A (N-terminal) specifically recognizes human, mouse, and rat DYRK1A by immunoblotting (~86 kDa). Staining of the DYRK1A band by immunoblotting is specifically inhibited by the DYRK1A immunizing peptide.

DYRK1A (dual-specificity tyrosine-phosphorylated regulated kinase 1A, also known as minibrain/Mnb) is a member of a growing family of Ser/Thr protein kinases termed DYRKs.[1, 2] In drosophila, Mnb seems to play an essential role during post-embryonic neurogenesis. DYRK1A is encoded by a gene located within the Down syndrome (DS) critical region 21q22.2 of human chromosome 21.[2] DYRK1A expression is apparently elevated in individuals with DS.[1] In mice, DYRK1A haploinsufficiency affects viability and causes developmental delay and abnormal brain morphology.[3] It has been suggested that DYRK1A might be one of the genes involved in some of the neurological abnormalities observed in DS. DYRKs also possess autophosphorylation activity on tyrosine residues, located on the YXY motif of the activation loop of the catalytic domain. This is similar to the TXY motif of MAPKs, suggesting an activation mechanism similar to MAPKs.[4] The human and rodent DYRK1A are ubiquitously expressed in adult and fetal tissue with high expression in the brain and heart during development.[5] DYRK1A phosphorylates several substrates including transcription factor FKHR, NFAT, STAT3, microtubule-associated protein Tau, glycogen synthase and c-AMP-response element-binding protein.[6, 7] In a mouse model, overexpression of DYRK1A and DSCR1 cooperatively, causes dysregulation of NFAT, leading to reduced NFATc activity and many of the features of Down's syndrome.[7]

Reagent

Supplied as a solution in 0.01 M PBS, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.5 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 1.5-3.0 μg/mL is recommended using rat brain embryonic extract (S1 fraction) and 3.0-5.0 μg/mL using a PC12 cell lysate.
Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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4. Kentrup, H., et al., *J. Biol. Chem.,* **271**, 3488-3495 (1996).
5. Okui, M., et al., *Genomics*, **62**, 165-171 (1999).
6. Murakami, N., et al., *J. Biol. Chem.,* **281**, 23712-23724 (2006).
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VS,ER,KAA,PHC,MAM 02/19-1