

Product Information

Anti-DYRK1A (C-terminal)

produced in rabbit, affinity isolated antibody

Product Number **D1819**

Product Description

Anti-DYRK1A (C-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to a sequence at the C-terminal of human DYRK1A (Gene ID: 1859), conjugated to KLH. This sequence is identical in human DYRK1A isoforms 1 and 2. The sequence is identical in rat DYRK1A and is highly conserved (single amino acid change) in mouse DYRK1A. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-DYRK1A (C-terminal) specifically recognizes DYRK1A. The antibody may be used in 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 haplo-insufficiency 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: ~1.0 mg/mL

Precautions and Disclaimer

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, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 2-4 µg/mL is recommended using rat brain postnatal extract and 1-2 µg/mL using embryonic extract.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Guimera, J. et al., *Genomics*, **57**, 407-418 (1999).
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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).
7. Arron, J.R. et al., *Nature*, **441**, 595-600 (2006).

VS,ER,KAA,PHC,MAM 02/19-1