Mouse monoclonal to Doublecortin [DCX]: IgG

Catalogue No.:	M-1648-100
Description:	Doublecortin (DCX, also known as Doublin, Lissencephalin-X, DBCN and Lis-X) was originally discovered since defects in the gene encoding it are causative of X-linked lissencephaly, a rare group of brain malformations resulting in a smooth cerebral cortex caused by aberrant neuronal migration during development (1,2). The name Doublecortin comes from the unusual layering of the cortex in this form of lissencephaly, which appears to have a second deep cortical layer of neurons. This layer consists of neurons which did not migrate from the subventricular zone to the normal cortical layer. Patients with this defect suffer from seizures and mental retardation. Four proteins encoded by the DCX produce bands of about 35kDa and 45kDa on Western blots. The 45kDa form is known as Lis-XA while the smaller forms are generated by alternate transcription, are all missing the first 81 amino acids of Lis-XA, and are referred to as Lis-XB, Lis-XC, Lis-XD. There are minor amino acid sequence differences between these three smaller isoforms. All of these proteins contain two so-called Doublecortin domains, each about 90 amino acids long, which are believed to function in binding to microtubules, a C-terminal serine and proline rich region which may become phosphorylated in vivo. DCX is expressed very early in neuronal development, as neuroblasts become post-mitotic, but is lost as neurons mature. Developing neurons start to lose DCX expression about the time that they begin to express NeuN. Antibodies to DCX can be used to see if neurogenesis is taking place.
Batch No.:	See product label
Unit size:	100 ug
Antigen:	Full length recombinant human Lis-A isoform of Doublecortin purified from E. coli.
Antibody Type:	Monoclonal
Isotype:	IgG2a
Clone:	3E1
Other Names:	Doublin, Lissencephalin-X, DBCN and Lis-X
Produced in:	Mouse
Applications:	Immunohistochemistry (IHC) and Western Blotting (WB). A dilution of 1:5,000-1:10,000 is recommended for WB. A dilution of 1:500-1:1,000 is recommended for IHC and ICC. The optimal dilution should be determined by the end user.
Specificity:	The antibody reacts with two bands at ~45kDa and ~35kDa which shows that the mouse anti-DCX antibody binds to an epitope in the region of DCX shared by Lis-A, and Lis-B, Lis-C and Lis-D, the C terminal 360 amino acids of Lis-A. It has also been used successfully for immunocytochemistry and is an excellent marker for developing neurons.
Species Against:	Human, rat, mouse, bovine.
Antibody Against:	Doublecortin
Form:	Lyophilized from PBS, pH 7.2-7.6. Contains 5% trehalose.
Reconstitution:	Reconstitute in 100 uL sterile distilled water. Centrifuge to remove any insoluble material.
Storage:	Store lyophilised antibody at 2-8C. After reconstitution divide into aliquots and store at -20C for

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long-term storage. Store at 2-8C short-term (up to 4 weeks) with an appropriate antibacterial agent. Avoid repetitive freeze/thaw cycles.

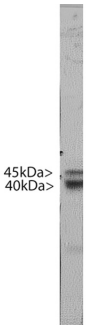
Expiry Date: 12 months after purchase if unopened.

General References:

1. des Portes V, Pinard JM, Billuart P, Vinet MC, Koulakoff A, CarriÃƒÂ© A, Gelot A, Dupuis E, Motte J, Berwald-Netter Y, Catala M, Kahn A, Beldjord C and Chelly J. A novel CNS gene required for neuronal migration and involved in X-linked subcortical laminar heterotopia and lissencephaly syndrome. Cell 92:51-61 (1998).

2. Gleeson JG, Allen KM, Fox JW, Lamperti ED, Berkovic S, Scheffer I, Cooper EC, Dobyns WB, Minnerath SR, Ross ME and Walsh CA. Doublecortin, a brain-specific gene mutated in human X-linked lissencephaly and double cortex syndrome, encodes a putative signaling protein. Cell 92:63-72 1998.

3. Jin J, Suzuki H, Hirai S, Mikoshiba K and Ohshima T. JNK phosphorylates Ser332 of doublecortin and regulates its function in neurite extension and neuronal migration. Dev Neurobiol. 70:929-42 2010.



Rat brain extract from a postnatal 3 day animal. Two bands at ~45kDa and ~35kDa show that the mouse anti-DCX antibody binds to an epitope in the region of DCX shared by Lis-A, and Lis-B, Lis-C and Lis-D, the C terminal 360 amino acids of Lis-A.

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