Anti-Dlx2 antibody, guinea pig serum

74-116　　50 µl

Shipping and Storage: Ship at 4℃ or -20℃ and store at -20℃.

Immunogen: Recombinant MBP-Dlx2 (amino acids 1-154) protein.

Form: Whole guinea pig antiserum added with 0.09 % sodium azide.

Reactivity: Reacts with mouse, marmoset, human

Applications:

1. Western blot (1/1,000)
2. Immunofluorescent/Immunocytochemical staining
3. Immunohistochemistry (1/2,000-1/3,000)
4. Chromatin-ImmunoPrecipitaiton (assay dependent)

Background: Acts as a transcriptional activator (PubMed:21875655). Plays a role in terminal differentiation of interneurons, such as amacrine and bipolar cells in the developing retina (PubMed:21875655). Likely to play a regulatory role in the development of the ventral forebrain (PubMed:1678612). May play a role in craniofacial patterning and morphogenesis (PubMed:1678612). Length:332 amino acids. Mass (Da): 34746

Subcellular localization: Nucleus.

Data Link: UniProtKB (DLX2_MOUSE)

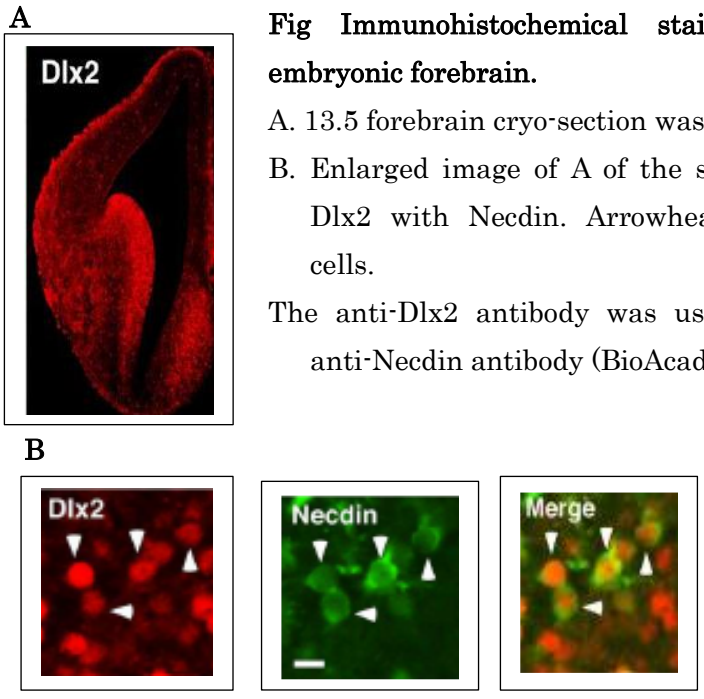

Fig Immunohistochemical staining of Dlx2 in mouse embryonic forebrain.

A. 13.5 forebrain cryo-section was immunostained for Dlx2.

B. Enlarged image of A of the septum. Double staining of Dlx2 with Necdin. Arrowheads indicate double-stained cells.

The anti-Dlx2 antibody was used at 1/3,000 dilution and anti-Necdin antibody (BioAcademia 74-100) was at 1/1,000.

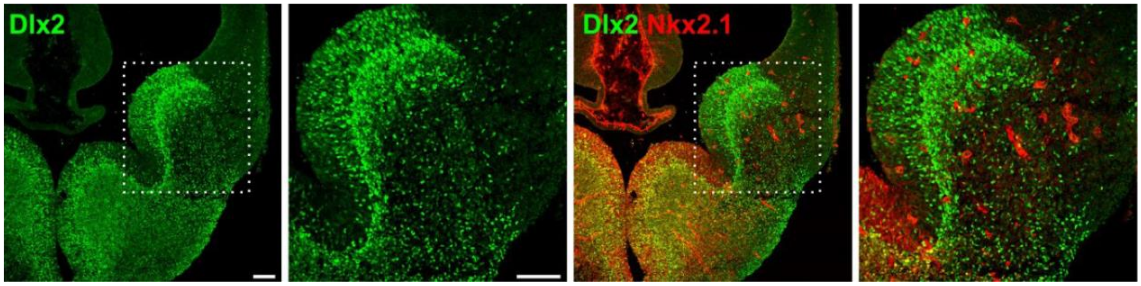

Fig 2. Immunohistochemical stainjing of Dlx2 in mouse embryonic forebrain: Comparison with Nkx2.1, expressed in the similar region.

Sample is E13.5 Sections. The Dlx2 antiserum was used at 1/3,000 (Green) and anti-Nkx2.1 mouse antibody (Red,Novocastra) at 1/500.

Reference: This sntibody has been used in the following publications.

1. Kuwajima T et al. Necdin promotes GABAergic neuron differentiation in cooperation with Dlx homeodomain proteins. J Neurosci. 2006 May 17;26(20):5383-92. PMID: 16707790 **WB, IHC-F (mouse)**
2. Long JE et al. Dlx-dependent and -independent regulation of olfactory bulb interneuron differentiation. J Neurosci. 2007 Mar 21;27(12):3230-43.PMID: 17376983 **IHC (mouse). KO-Validated**
3. Colasnte G et al. Arx is a direct target of Dlx2 and thereby contributes to the tangential migration of GABAergic interneurons. J Neurosci. 2008 Oct 15;28(42):10674-86. PMID: 18923043, **ChIP (mouse)**
4. Hansen DV et al. Non-epithelial stem cells and cortical interneuron production in the human ganglionic eminences. Nat Neurosci. 2013 Nov;16(11):1576-87.**IHC-F (human)**
5. Wu H et al. Dnmt3a-Dependent Nonpromoter DNA Methylation Facilitates Transcription of Neurogenic Genes. Science. 2010 Jul 23; 329(5990): 444–448. PMID: 20651149 **IHC-F (mouse)**
9. de Chevigny A et al. Dynamic expression of the pro-dopaminergic transcription factors Pax6 and Dlx2 during postnatal olfactory bulb neurogenesis. Front Cell Neurosci. 2012 Feb 27;6:6. PMID: 22371698. **IHC (mouse)**
10. Kuwajima T. et al. Necdin Promotes Tangential Migration of Neocortical Interneurons from Basal Forebrain. J Neurosci. 2010 Mar 10;30(10):3709-14. PMID: 20220004. IHC-F (mouse)
11. López-Juárez A. et al. Thyroid hormone signaling acts as a neurogenic switch by repressing Sox2 in the adult neural stem cell niche. Cell Stem Cell. 2012 May

4;10(5):531-43. PMID: 22560077. **IHC-F (mouse)**

12. Wang Y et al. ERK inhibition rescues fate-specification defects of Nf1-deficient neural progenitors and brain abnormalities. Cell. 2012 Aug 17;150(4):816-30. PMID: 22901811. **IHC-P (mouse)**
13. Ghanem N. et al. The Rb/E2F pathway modulates neurogenesis through direct regulation of the Dlx1/Dlx2 bigene cluster. J Neurosci. 2012 Jun 13;32(24):8219-30. PMID: 22699903.**IHC-F (mouse)**
14. Gajera CR etal. LRP2 in ependymal cells regulates BMP signaling in the adult neurogenic niche. J Cell Sci. 2010 Jun 1;123(Pt 11):1922-30. PMID: 20460439. **IHC (mouse)**
15. Potter GB et al. Generation of Cre-transgenic mice using *Dlx1/Dlx2* enhancers and their characterization in GABAergic interneurons. Mol Cell Neurosci. 2009 Feb;40(2):167-86. PMID: 19026749. **IHC-F (mouse)**
16. Bluske KK et al. β-Catenin signaling specifies progenitor cell identity in parallel with Shh signaling in the developing mammalian thalamus. Development. 2012 Aug;139(15):2692-702. PMID: 22745311 **IHC-F (mouse)**
17. Walzlein JH et al. The antitumorigenic response of neural precursors depends on subventricular proliferation and age. Stem Cells. 2008 Nov;26(11):2945-54. PMID: 18757298 **IHC (mouse)**
18. Rolando C et al. Extracerebellar progenitors grafted to the neurogenic milieu of the postnatal rat cerebellum adapt to the host environment but fail to acquire cerebellar identities. Eur J Neurosci. 2010 Apr;31(8):1340-51. PMID: 20384777. **IHC-F (rat)**
19. Zhong J et al. The Wnt receptor Ryk controls specification of GABAergic neurons versus oligodendrocytes during telencephalon development. Development. 2011 Feb;138(3):409-19. PMID: 21205786.**IHC-F (mouse)**
20. Tepavčević V et al. Inflammation-induced subventricular zone dysfunction leads to olfactory deficits in a targeted mouse model of multiple sclerosis. J Clin Invest. 2011 Dec;121(12):4722-34. PMID: 22056384. **IHC-F (mouse)**
21. Azim K et al. 3-dimensional examination of the adult mouse subventricular zone reveals lineage-specific microdomains. PLoS One. 2012;7(11):e49087. PMID: 23166605. **IHC-F (mouse)**
22. Mukhopadhyay A et al. BMP receptor 1A regulates development of hypothalamic circuits critical for feeding behavior. J Neurosci. 2012 Nov 28;32(48):17211-24. PMID:23197713. **IHC-F (mouse)**
23. Liu J et al. Prospective separation and transcriptome analyses of cortical projection neurons and interneurons based on lineage tracing by Tbr2 (Eomes)-GFP/Dcx-mRFP

reporters. Dev Neurobiol. 2016 Jun;76(6):587-99. PMID: 26248544. **IHC (mouse)**

24.Azim K et al. Early Decline in Progenitor Diversity in the Marmoset LateralVentricle,*Cerebral Cortex*, Volume 23, Issue 4, 1 April 2013, Pages 922–931. https://doi.org/10.1093/cercor/bhs085. **IHC (marmoset)**

25. Huang Z et al. Necdin Controls Proliferation and Apoptosis of Embryonic Neural Stem Cells in an Oxygen Tension-Dependent Manner. J Neurosci. 2013 Jun 19;33(25):10362-73. PMID: 23785149. **IHC-F (mouse)**

26.Danjo T et al. Subregional specification of embryonic stem cell-derived ventral telencephalic tissues by timed and combinatory treatment with extrinsic signals. J Neurosci. 2011 Feb 2;31(5):1919-33.**IHC (mouse)**

27.Okado H et al. The transcriptional repressor RP58 is crucial for cell-division patterning and neuronal survival in the developing cortex. PMID: 19409883. **IHC-F (mouse)**

28.Arshad A et al. Extended Production of Cortical Interneurons into the Third Trimester of Human Gestation. *Cerebral Cortex*, Volume 26, Issue 5, 1 May 2016, Pages 2242–2256. https://doi.org/10.1093/cercor/bhv074. **IHC-F (human)**.

29.Komitova M et al. Hypoxia-induced developmental delays of inhibitory interneurons are reversed by environmental enrichment in the postnatal mouse forebrain. J Neurosci. 2013 Aug 14;33(33):13375-87. PMID: 23946395 **IHC-F (mouse)**

30.Cocas LA et al.Emx1-lineage progenitors differentially contribute to neural diversity in the striatum and amygdala. J Neurosci. 2009 Dec 16;29(50):15933-46. PMID: 20016109.**IHC-F (mouse)**

31.Esumi S et al. Method for single-cell microarray analysis and application to gene-expression profiling of GABAergic neuron progenitors. Neurosci Res. 2008 Apr;60(4):439-51. 18280602. **IF/IC (mouse)**

32.Maira M et al. Role for TGF-ß superfamily signaling in telencephalic GABAergic neuron development. J Neurodev Disord. 2010 Mar;2(1):48-60. PMID: 20339443. **IHC-F (mouse)**

Related products

74-117 anti-Dlx5 antibody