Datasheet for ABIN1580419

anti-NeuN antibody

1 Image

Go to Product page

Overview

Quantity:	100 µL
Target:	NeuN (RBFOX3)
Reactivity:	Human, Mouse, Rat, Cow, Pig, Mammalian
Host:	Mouse
Clonality:	Monoclonal
Application:	Western Blotting (WB), Immunohistochemistry (IHC), Immunofluorescence (IF), Immunocytochemistry (ICC)

Product Details

Clone:	1B7
Isotype:	IgG2a
Purification:	affinity purified antibody

Target Details

Target:	NeuN (RBFOX3)
Alternative Name:	Fox3/NeuN (RBFOX3 Products)
Background:	Fox3 is one of a family of mammalian homologues of Fox-1, which was originally discovered in C. elegans as a gene involved in sex determination. Fox is an acronym of Feminizing locus on X. The mammalian genome contains three genes homologous to C. elegans Fox-1, usually called Fox1, Fox2 and Fox3. All these Fox proteins are about 46 kDa in size, and each includes a central highly conserved RRM type RNA recognition motif. This motif corresponds to a small

Target Details

approx. 70 amino acid structure consisting of 4 beta strands and two alpha-helices. An alternate name for Fox3 is hexaribonucleotide binding protein 3, and the Fox proteins are believed to have a role in the regulation of mRNA splicing. Much interest has focused on Fox3 as a result of the recent finding that this protein corresponds to NeuN, a neuronal nuclear antigen. NeuN was first described in 1994 by Mullen et al., who raised a series of monoclonal antibodies to mouse antigens with the original intent of finding mouse species specific markers useful for transplantation experiments. In the event they obtained a clone, called mAb A60, which proved to bind an antigen expressed only in neuronal nuclei and to a lesser extent the cytoplasm of neuronal cells, and which appeared to work on all vertebrates. A few neuronal cell types were not recognized by the the NeuN antibody, such as cerebellar Purkinje cells, olfactory Mitral cells and retinal photoreceptors. However the vast majority of neurons are strongly NeuN positive, and NeuN immunoreactivity has been widely used to measure the neuron/glial ratio in brain regions. The protein bound by this antibody was not characterized, though the molecular weight of this protein was shown to be closely spaced bands running at 46-48 kDa on SDS-PAGE gels. The exact identity of the NeuN protein was not elucidated in this paper or, despite several attempts, for may years later. Despite this the mAb A66 antibody has become very widely used as a robust marker of neurons and neuronal stem cells, and a recent medline search using the keyword neun produced over 1,100 hits. Recently Kim et al. used proteomic methods to show that NeuN corresponds to Fox3. NeuN/Fox-3 is therefore a protein which has a function in RNA splicing and is expressed heavily and specifically in neuronal nuclei and cytoplasm. Our antibody was raised against the N-terminal 100 amino acids of human Fox3 as expressed in and purified from E. coli. We did not use full length Fox3 as immunogen since the three mammalian Fox homologues, namely Fox1, Fox2 and Fox3, include virtually identical RRM motifs. The N-terminal region of the three molecules are much more variable in the three molecules so antibodies specific for each of the three molecules can therefore be generated. The HGNC name for this protein is RBFOX3.

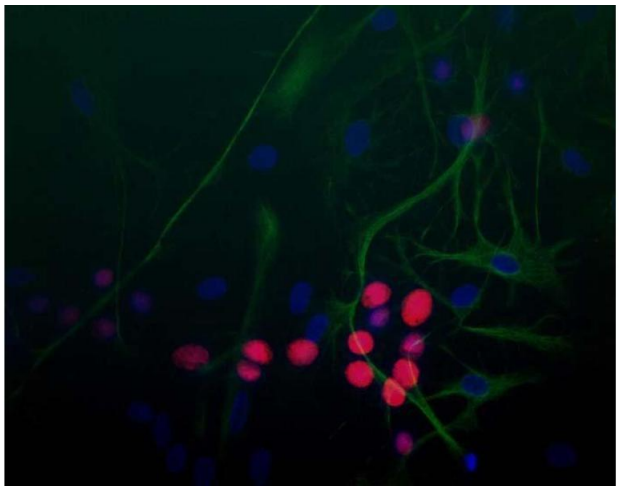
Application Details

Application Notes:	The antibody solution can be used at dilutions of 1:1,000 or higher in immunofluorescence experiments. In western blotting using chemiluminescence it can be used at dilutions of 1:1,000-2,000.
Restrictions:	For Research Use only

Handling

Format:	Liquid
Concentration:	1 mg/mL
Preservative:	Sodium azide
Precaution of Use:	This product contains sodium azide: a POISONOUS AND HAZARDOUS SUBSTANCE which should be handled by trained staff only.
Handling Advice:	Avoid repeated freezing and thawing.
Storage:	4 °C/-20 °C
Storage Comment:	Store at 4°C short term or -20°C long term.

Images



Immunofluorescence

Image 1. Rat brain neural cultures stained with ABIN1580419 (red), rabbit antibody to GFAP CPCA-GFAP (green) and DNA (blue). The ABIN1580419 antibody reveals strong nuclear and distal cytoplasmic staining for Fox3/NeuN and the complete absence of staining of astrocytes, which are staining with the GFAP antibody, and other kinds of non-neuronal cells. This Fox3/NeuN antibody is therefore an excellent marker of neuronal cells. Omim Link: Currently no OMIM entry. References: 1. Hodgkin J, Zellan JD, Albertson DG. Identification of a candidate primary sex determination locus, fox-1, on the X chromosome of Caenorhabditis elegans. Development 120:3681-3689 (1994). 2. Mullen RJ, Buck CR, Smith AM. NeuN, a neuronal specific nuclear protein in vertebrates. Development 116:201-211 (1994). 3. Herculano-Houzel S, Lent R. Isotropic fractionator: a simple, rapid method for the quantification of total cell and neuron numbers in the brain. J Neurosci. 25:2518-21 (2005). 4. Kim KK, Adelstein RS, Kawamoto S. Identification of neuronal nuclei (NeuN) as Fox-3, a new member of the Fox-1 gene family of splicing factors. J. Biol. Chem. 284:31052-31061 (2009). 5.

Underwood,J.G., Boutz,P.L., Dougherty,J.D., Stoilov,P. and Black,D.L. Homologues of the Caenorhabditis elegans Fox-1 protein are neuronal splicing regulators in mammals. Mol. Cell. Biol. 25:10005-10016 (2005). Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.