



Catalog Number:	CH22130	Host:	Chicken
Product Type:	Chicken Polyclonal	Species Reactivity:	Human, Rat, Mouse
Immunogen Sequence:	N-terminal 99 amino acids of human FOX2 expressed in and purified from <i>E. coli</i>	Format:	Supplied as an aliquot of IgY preparation plus 5mM NaN3
Applications:	Immunofluorescence: 1:2,000 Immunohistochemistry: 1:2,000 Western Blot: 1:1,000		
Storage:	Dilutions listed as a recommendation. Optimal dilution should be determined by investigator. The antibody can be stored at 2° - 8° C for 12 months without detectable loss of activity. Avoid repeated freeze-thaw cycles.		

Application Notes

Description/Data

In the early 90s an unusual protocol resulted in the raising of a mouse monoclonal antibody against a component of neuronal nuclei and proximal perikarya. The component was therefore named "NeuN" and was shown to correspond to two protein bands at 46 and 48kDa in SDS-PAGE blots. The antibody became very widely used as a reliable neuronal marker, apparently binding to neurons in all vertebrates. A few neuronal cell types were not recognized by the original NeuN antibody such as cerebellar Purkinje cells, olfactory mitral cells and many type of retinal neuron. However, the vast majority of neurons are strongly NeuN positive, and NeuN immunoreactivity has therefore been widely used to identify neurons. The identity of the NeuN protein proved to be identical to FOX3, a mammalian homolog of a gene product originally identified in *Caenorhabditis elegans* and named FOX1. The *C. elegans* protein was discovered as it had a role in sex determination during early development, FOX being an acronym for "feminizing locus on the X chromosome". There are three mammalian FOX1 protein homologs, namely FOX1, FOX2 and FOX3, which are all believed to have a role in the regulation of mRNA splicing. All three contain an almost identical central RNA recognition motif or RRM domain, a region of about 90 amino acids found in numerous proteins. Like FOX3/NeuN, FOX2 is expressed in neuronal nuclei, but interestingly in many neurons, such as Purkinje cells, which are FOX3/NeuN negative. Antibodies to FOX2 can therefore be used to add to the utility of FOX3/NeuN antibodies to identify and count neurons. FOX2 is also known as RBFOX2, RBM9, RTA and HRNBP2.

This antibody was raised against a recombinant human FOX2 construct based only on the N-terminal sequence, not including the RRM domain and C-terminal regions. While the RRM region is identical between the three proteins, the N-terminal regions of FOX1, FOX2 and FOX3 are relatively poorly conserved so we were able to obtain antibodies which recognized FOX3 but not FOX2 or FOX1. As a result it is known that this antibody binds to the N-terminus of FOX2, specifically amino acids 1-100.

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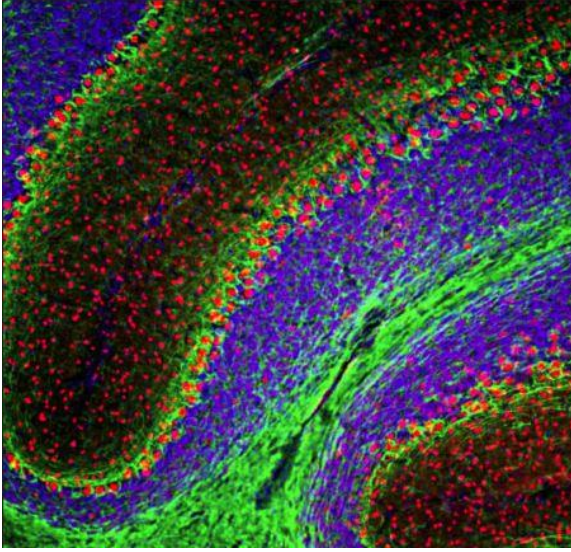


Image: Immunofluorescent analysis of mouse cerebellum section stained with chicken pAb to FOX2, CH22130, dilution 1:2,000 in red, and costained with mouse mAb to NF-L, MCA-7D1, dilution 1:5,000 in green. The blue is Hoechst staining of nuclear DNA. Following transcardial perfusion of mouse with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45 μ M, and free-floating sections were stained with above antibodies. FOX2 antibody reveals protein expressed in the nuclei of certain granule cells and all Purkinje cells, while NF-L antibody labels dendrites and axons.

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