

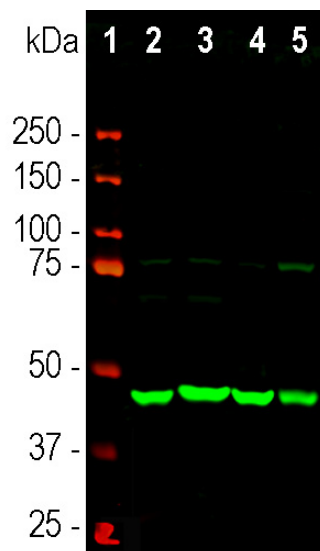
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HGNC Name: ENO2
UniProt: P09104
RRID: AB_2861180
Immunogen: Recombinant full length human NSE expressed in and purified from *E. coli*.
Format: Concentrated IgY preparation in PBS plus 0.02% Na₂S₂O₃
Storage: Store at 4°C. For longer term storage freeze at -20°C
Recommended dilutions:
 WB: 1:5,000-1:10,000. IF/ICC 1:500-1:1,000. IHC: 1:10,000

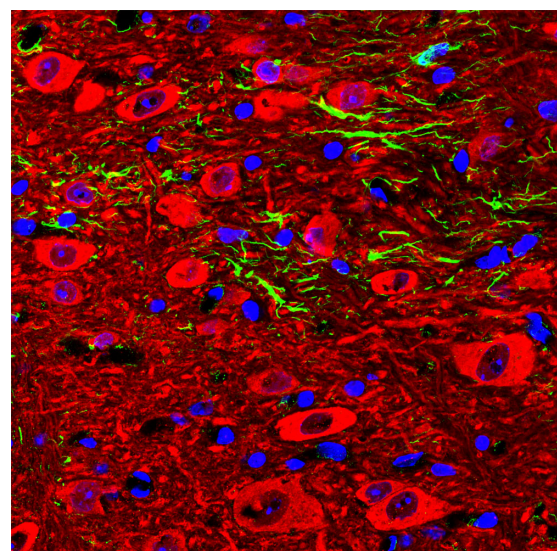
References:

1. Begaz T, Kyriacou DN, Segal J, Bazarian JJ. Serum biochemical markers for post-concussion syndrome in patients with mild traumatic brain injury. *J. Neurotrauma* 23:1201-10 (2006). 2. Isgrò MA, Bottoni P, Scatena R. Neuron-Specific Enolase as a Biomarker: Biochemical and Clinical Aspects. *Adv. Exp. Med. Biol.* 867:125-43 (2015). 3. Shaw G, et al. Preferential transformation of human neuronal cells by human adenoviruses and the origin of HEK 293 cells. *FASEB J.* 16:869-71 (2002).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Chicken		47kDa	Hu, Rt, Ms



Western blot analysis of different tissue and cell lysates using chicken pAb to neuron specific enolase (NSE), CPCA-NSE, dilution 1:5,000 in green: [1] protein standard (red), [2] rat brain, [3] mouse brain, [4] cow brain and [5] SH-SY5Y cells. The strong band at about 47kDa corresponds to the NSE protein.



Immunofluorescent analysis of a section of adult mouse cerebellar dentate nucleus stained with chicken pAb to neuron specific enolase (NSE), CPCA-NSE, dilution 1:3,000 in red. The section was costained with rabbit pAb to GFAP, RPCA-GFAP, 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 45µm, and free-floating sections were stained with above antibodies. CPCA-NSE antibody detects NSE protein heavily expressed in the cytoplasm and dendrites of dentate neurons while the GFAP antibody stains the network of astroglial cells.

Background:

Neuron specific enolase (NSE) is an enzyme which catalyzes the conversion of 2-phosphoglycerate to phosphoenolpyruvate in the glycolytic pathway, and also the reverse reaction in gluconeogenesis. It is one of three mammalian enolases, which are also known as ENO1, ENO2, and ENO3 or alternately as α , β and γ -enolase. The three enolases are related in protein sequence (see [here](#)), and have different cell type specific expression patterns, so that antibodies to them are useful cell type specific markers. NSE is also known as enolase 2 or γ -enolase and is heavily expressed in neuronal cells. Enolase 1 is also known as α -enolase and as non-neuronal enolase. The third enolase, enolase 3 or β -enolase, is expressed in muscle cells. Perhaps not surprisingly, since neurons require a great deal of energy, they are very rich in glycolytic enzymes such as GAPDH and NSE. Antibodies to this protein are therefore useful to identify neuronal cell bodies, and also developing neuronal lineage and neuroendocrine cells. Release of NSE from damaged neurons into CSF and blood has also been used as a biomarker of neuronal injury, and elevated NSE levels in blood and tissues are seen associated with various kinds of neuroendocrine derived tumors (1,2). The CPCA-NSE antibody was made against full length recombinant human NSE expressed in and purified from *E. coli*. It can be used to trace NSE and to identify neuronal cells in cell culture and sectioned material, and it also works for IHC. As shown under our "Additional data" tag this antibody is an excellent marker of neuroendocrine cells in the pancreas. We also supply an alternate polyclonal antibody to NSE made in rabbit, [RPCA-NSE](#).

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Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.