Neuron Specific Enolase Rabbit Polyclonal Antibody

RPCA-NSE

Ordering Information
Web *www.encorbio.com*
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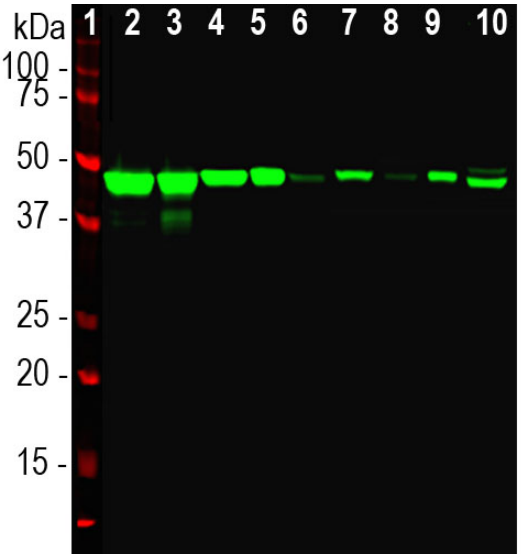
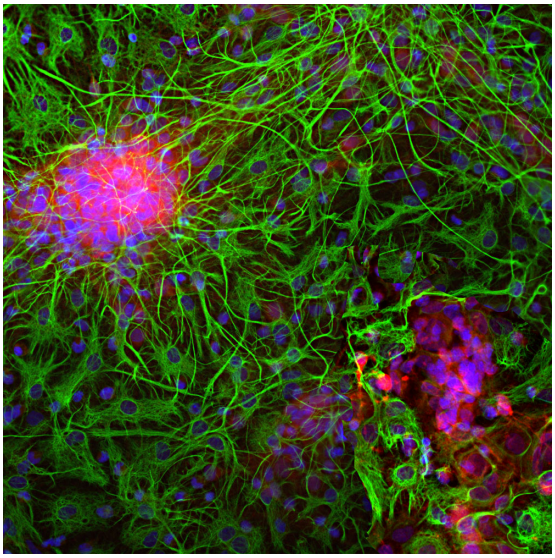
Phone *352-372-7022*
Fax *352-372-7066*

HGNC Name: *ENO2*
UniProt: *P09104*
RRID: *AB_2277965*
Immunogen: *Recombinant full length human NSE expressed in and purified from E. coli*
Format: *Antibody is supplied as an aliquot of serum plus 5mM NaN_3*
Storage: *Store at 4°C. For longer term storage, leave freeze at -20°C. Minimize freeze/thaw cycles.*
Recommended dilutions:
WB: 1:2,000. IF/ICC: 1:500.

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



Western blot analysis of different tissue and cell lysates using rabbit pAb to neuron specific enolase (NSE), RPCA-NSE, dilution 1:5,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord, [6] NIH-3T3, [7] HEK293, [8] HeLa, [9] SH-SY5Y, and [10] C6 cells. A single band at about 47kDa corresponds to the NSE protein, seen only in extracts containing neurons ro neuronal lineage cells.



Immunofluorescent analysis of mixed cortical neuron-glial cell culture from E20 rat stained with rabbit pAb to neuron specific enolase (NSE), RPCA-NSE, dilution 1:500 in red, and costained with chicken pAb to GFAP, CPCA-GFAP, dilution 1:5,000 in green. The blue is Hoechst staining of nuclear DNA. the NSE antibody labels protein expressed in neuronal cells, while the GFAP antibody stains intermediate filaments in astrocytic and certain other glial 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 enolas 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 a 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 RPCA-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. We also supply an alternate polyclonal antibody to NSE made in chicken, CPCA-NSE.

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).

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.