

# NMNAT-2 (C-20): sc-55861

## BACKGROUND

NMNAT proteins are essential cofactors involved in the fundamental processes of cell metabolism. They belong to the eukaryotic NMN adenylyltransferase family. NMNATs participate in the synthesis of NAD<sup>+</sup> by catalyzing the condensation of nicotinamide mononucleotide and ATP. The presence of magnesium and other divalent cations increases their enzymatic activity. The interaction of NMNATs with nuclear proteins is likely to be modulated by phosphorylation. NMNAT proteins contain at least three potential phosphorylation sites and may act as substrates for nuclear kinases. NMNAT-2 (nicotinamide mononucleotide adenylyltransferase 2) is a 307 amino acid protein that is highly expressed in the brain, especially in the cerebrum, cerebellum, occipital lobe, frontal lobe, temporal lobe and putamen. It is also detected at lower levels in the heart and skeletal muscle. Two isoforms exist due to alternate splicing.

## REFERENCES

- Gillingwater, T.H., Thomson, D., Mack, T.G., Soffin, E.M., Mattison, R.J., Coleman, M.P. and Ribchester, R.R. 2002. Age-dependent synapse withdrawal at axotomized neuromuscular junctions in Wld(s) mutant and Ube4b/NMNAT transgenic mice. *J. Physiol.* 543: 739-755.
- Raffaelli, N., Sorci, L., Amici, A., Emanuelli, M., Mazzola, F. and Magni, G. 2002. Identification of a novel human nicotinamide mononucleotide adenylyltransferase. *Biochem. Biophys. Res. Commun.* 297: 835-840.
- Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608701. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Berger, F., Lau, C., Dahlmann, M. and Ziegler, M. 2005. Subcellular compartmentation and differential catalytic properties of the three human nicotinamide mononucleotide adenylyltransferase isoforms. *J. Biol. Chem.* 280: 36334-36341.
- Berger, F., Lau, C. and Ziegler, M. 2007. Regulation of poly(ADP-ribose) polymerase 1 activity by the phosphorylation state of the nuclear NAD biosynthetic enzyme NMN adenylyltransferase-1. *Proc. Natl. Acad. Sci. USA* 104: 3765-3770.
- Sorci, L., Cimadamore, F., Scotti, S., Petrelli, R., Cappellacci, L., Franchetti, P., Orsomando, G. and Magni, G. 2007. Initial-rate kinetics of human NMN adenylyltransferases: substrate and metal ion specificity, inhibition by products and multisubstrate analogues, and isozyme contributions to NAD<sup>+</sup> biosynthesis. *Biochemistry* 46: 4912-4922.

## CHROMOSOMAL LOCATION

Genetic locus: NMNAT2 (human) mapping to 1q25.3; Nmnat2 (mouse) mapping to 1 G3.

## SOURCE

NMNAT-2 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of NMNAT-2 of human origin.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-55861 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NMNAT-2 (C-20) is recommended for detection of NMNAT-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

NMNAT-2 (C-20) is also recommended for detection of NMNAT-2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for NMNAT-2 siRNA (h): sc-62693, NMNAT-2 siRNA (m): sc-62694, NMNAT-2 shRNA Plasmid (h): sc-62693-SH, NMNAT-2 shRNA Plasmid (m): sc-62694-SH, NMNAT-2 shRNA (h) Lentiviral Particles: sc-62693-V and NMNAT-2 shRNA (m) Lentiviral Particles: sc-62694-V.

Molecular Weight of NMNAT-2: 34 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.


 MONOS  
Satisfaction  
Guaranteed

Try **NMNAT-2 (B-10): sc-515206**, our highly recommended monoclonal alternative to NMNAT-2 (C-20).