Human NMNAT-1 Antibody

Monoclonal Mouse IgG_{2B} Clone # 675112

Catalog Number: MAB5865

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human NMNAT-1 in direct ELISAs.
Source	Monoclonal Mouse IgG_{2B} Clone # 675112
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	*S. frugiperda* insect ovarian cell line *Sf* 21-derived recombinant human NMNAT-1 Met1-Thr279 Accession # Q9HAN9
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

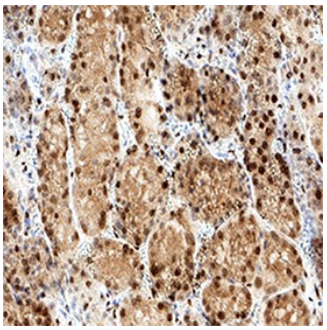
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Immunohistochemistry	5-25 µg/mL	See Below

DATA

Immunohistochemistry



Detection of NMNAT-1 in Human Kidney. NMNAT-1 was detected in immersion fixed paraffin-embedded sections of Human Kidney using Mouse Anti-Human NMNAT-1 Monoclonal Antibody (Catalog # MAB5865) at 5 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using VisUCyte Antigen Retrieval Reagent-Basic (Catalog # VCTS021). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to cell nuclei in convoluted tubules. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

NMNAT-1 is expressed in the nuclei of all human tissues, with highest expression in skeletal muscle, heart, kidney, pancreas, and brain (1). The enzyme transfers adenylate from ATP to nicotinamide ribonucleotide or nicotinate ribonucleotide to generate NAD^+ or deamido-NAD^+, and is an essential enzyme for the production of nuclear NAD^+ (2). Nuclear NAD^+ is required by poly(ADP-ribose) polymerase 1 (PARP-1), which poly-ADP-ribosylates chromatin in response to DNA strand breaks. NMNAT-1 is known to interact with PARP-1, resulting in its activation, but this interaction with PARP-1 is prevented when NMNAT-1 is phosphorylated at Ser136 (3). Nuclear NAD^+ levels are also important for the regulation of SIR2 histone deacetylases (4). A naturally occurring Ube4b/NMNAT-1 chimeric protein is directly involved in slowing the degeneration of injured neurons in mice (5). NMNAT activity is required for the activation of tiazofurin, a drug used to treat leukemia (6). Two other NMNAT enzymes are present in humans. NMNAT-2 is localized in the Golgi complex and cytoplasm, and NMNAT-3 is a mitochondrial enzyme (7).

References:

1. Emanuelli, M. *et al.* (2001) J. Biol.Chem. **276**:406.
2. Schweiger, M. *et al.* (2001) FEBS Lett. **492**:95.
3. Berger, F. *et al.* (2007) Proc. Natl. Acad. Sci. USA **104:**3765.
4. Revollo, J.R. *et al.* (2004) J. Biol. Chem. **279**:50754.
5. Mack, T.G. *et al.* (2001) Nature Neurosci. **4**:1199.
6. Boulton, S. *et al.* (1997) Br. J. Cancer **76**:845.
7. Berger, F. *et al.* (2005) J. Biol. Chem. **280**:36334.

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