

**Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody**  
**NAG-1 Antibody**  
**Catalog # ASR4183**

**Specification**

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**Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Product Information**

Host	Mouse
Conjugate	Unconjugated
Target Species	Human
Reactivity	Human
Clonality	Monoclonal
Application	WB, E, I, LCI
Application Note	This Protein A purified Anti-NAG1 antibody has been tested by ELISA and western blotting for human NAG-1 protein. For detection of NAG-1 in human serum, a sandwich ELISA is suggested using this antibody in combination with anti-NAG-1/GDF15 (N-terminal), H variant or D variant specific antibodies. Specific conditions for reactivity should be optimized by the end user. Expect bands in Western blots of native protein of approximately 13 and 26 kDa in size corresponding to NAG-1 monomer and dimer, respectively, using the appropriate cell lysate or extract.
Physical State	Liquid (sterile filtered)
Buffer	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Immunogen	This Protein A purified antibody was prepared by repeated immunizations with a synthetic peptide corresponding to a region near the carboxy terminal end of human NAG-1 protein. A residue of cysteine was added to facilitate coupling to KLH.
Preservative	0.01% (w/v) Sodium Azide

**Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Additional Information**

**Gene ID** 9518

**Other Names**  
9518

**Purity**

This product was purified from concentrated tissue culture supernatant Protein A chromatography. This antibody reacts with the C-terminus of endogenous NAG-1 protein from human tissues. A BLAST analysis suggests reactivity with NAG-1 from chimpanzee and macaque

based on a 100% homology. Partial reactivity is expected against rat based on an 86% homology with the immunizing sequence. Cross-reactivity with NAG-1 from other sources has not been determined.

### Storage Condition

Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

### Precautions Note

This product is for research use only and is not intended for therapeutic or diagnostic applications.

## Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Protein Information

**Name** GDF15 {ECO:0000303|PubMed:23468844, ECO:0000312|HGNC:HGNC:30142}

### Function

Hormone produced in response to various stresses to confer information about those stresses to the brain, and trigger an aversive response, characterized by nausea, vomiting, and/or loss of appetite (PubMed: <a href="http://www.uniprot.org/citations/23468844" target="\_blank">23468844</a>, PubMed: <a href="http://www.uniprot.org/citations/24971956" target="\_blank">24971956</a>, PubMed: <a href="http://www.uniprot.org/citations/28846097" target="\_blank">28846097</a>, PubMed: <a href="http://www.uniprot.org/citations/28846098" target="\_blank">28846098</a>, PubMed: <a href="http://www.uniprot.org/citations/28846099" target="\_blank">28846099</a>, PubMed: <a href="http://www.uniprot.org/citations/28953886" target="\_blank">28953886</a>, PubMed: <a href="http://www.uniprot.org/citations/29046435" target="\_blank">29046435</a>, PubMed: <a href="http://www.uniprot.org/citations/30639358" target="\_blank">30639358</a>, PubMed: <a href="http://www.uniprot.org/citations/31875646" target="\_blank">31875646</a>, PubMed: <a href="http://www.uniprot.org/citations/33589633" target="\_blank">33589633</a>, PubMed: <a href="http://www.uniprot.org/citations/38092039" target="\_blank">38092039</a>). The aversive response is both required to reduce continuing exposure to those stresses at the time of exposure and to promote avoidance behavior in the future (PubMed: <a href="http://www.uniprot.org/citations/30639358" target="\_blank">30639358</a>, PubMed: <a href="http://www.uniprot.org/citations/33589633" target="\_blank">33589633</a>, PubMed: <a href="http://www.uniprot.org/citations/38092039" target="\_blank">38092039</a>). Acts by binding to its receptor, GFRAL, activating GFRAL-expressing neurons localized in the area postrema and nucleus tractus solitarius of the brainstem (PubMed: <a href="http://www.uniprot.org/citations/28846097" target="\_blank">28846097</a>, PubMed: <a href="http://www.uniprot.org/citations/28846098" target="\_blank">28846098</a>, PubMed: <a href="http://www.uniprot.org/citations/28846099" target="\_blank">28846099</a>, PubMed: <a href="http://www.uniprot.org/citations/28953886" target="\_blank">28953886</a>, PubMed: <a href="http://www.uniprot.org/citations/31535977" target="\_blank">31535977</a>). It then triggers the activation of neurons localized within the parabrachial nucleus and central amygdala, which constitutes part of the 'emergency circuit' that shapes responses to stressful conditions (PubMed: <a href="http://www.uniprot.org/citations/28953886" target="\_blank">28953886</a>). The GDF15-GFRAL signal induces expression of genes involved in metabolism, such as lipid metabolism in adipose tissues (PubMed: <a href="http://www.uniprot.org/citations/31402172" target="\_blank">31402172</a>). Required for avoidance behavior in response to food allergens: induced downstream of mast cell activation to promote aversion and minimize harmful effects of exposure to noxious substances (By similarity). In addition to suppress appetite, also promotes weight loss by enhancing energy expenditure in muscle: acts by increasing calcium futile cycling in muscle (By similarity). Contributes to the effect of metformin, an anti-diabetic drug, on appetite reduction and weight loss: produced in the kidney in response to metformin treatment, thereby

activating the GDF15-GFRAL response, leading to reduced appetite and weight (PubMed:<a href="http://www.uniprot.org/citations/31875646" target="\_blank">31875646</a>, PubMed:<a href="http://www.uniprot.org/citations/37060902" target="\_blank">37060902</a>). The contribution of GDF15 to weight loss following metformin treatment is however limited and subject to discussion (PubMed:<a href="http://www.uniprot.org/citations/36001956" target="\_blank">36001956</a>). Produced in response to anticancer drugs, such as camptothecin or cisplatin, promoting nausea, vomiting and contributing to malnutrition (By similarity). Overproduced in many cancers, promoting anorexia in cancer (cachexia) (PubMed:<a href="http://www.uniprot.org/citations/32661391" target="\_blank">32661391</a>). Responsible for the risk of nausea and vomiting during pregnancy: high levels of GDF15 during pregnancy, mostly originating from the fetus, are associated with increased nausea and vomiting (PubMed:<a href="http://www.uniprot.org/citations/38092039" target="\_blank">38092039</a>). Maternal sensitivity to nausea is probably determined by pre-pregnancy exposure to GDF15, women with naturally high level of GDF15 being less susceptible to nausea than women with low levels of GDF15 before pregnancy (PubMed:<a href="http://www.uniprot.org/citations/38092039" target="\_blank">38092039</a>). Promotes metabolic adaptation in response to systemic inflammation caused by bacterial and viral infections in order to promote tissue tolerance and prevent tissue damage (PubMed:<a href="http://www.uniprot.org/citations/31402172" target="\_blank">31402172</a>). Required for tissue tolerance in response to myocardial infarction by acting as an inhibitor of leukocyte integrin activation, thereby protecting against cardiac rupture (By similarity). Inhibits growth hormone signaling on hepatocytes (By similarity).

#### Cellular Location

Secreted Note=Secreted in the plasma.

#### Tissue Location

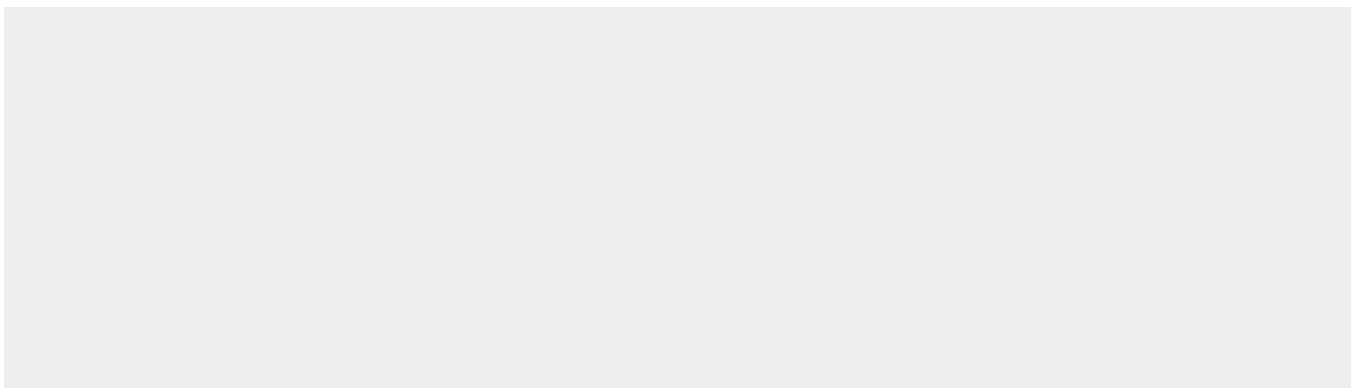
Detected in plasma (at protein level) (PubMed:28572090, PubMed:29046435). Highly expressed in placenta, with lower levels in prostate and colon and some expression in kidney (PubMed:37060902, PubMed:9348093).

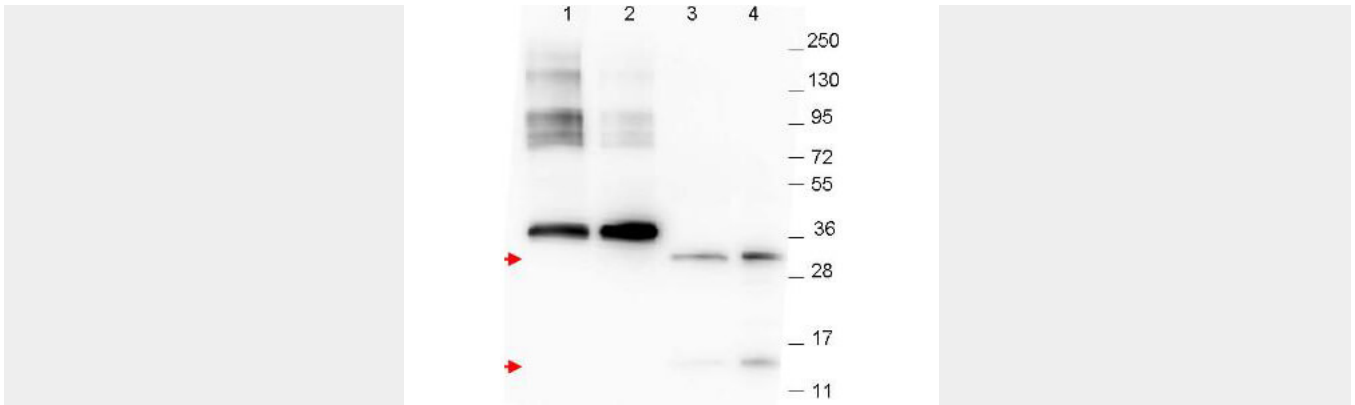
### Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Images





Western blot using Rockland's anti-NAG-1 monoclonal antibody. The blot shows detection of recombinant NAG-1 protein present in *Pichia pastoris* whole cell lysates: lane 1 - yeast cell lysate expressing NAG-1 H variant with SUMO expression tag at 36 kDa; lane 2 - yeast cell lysate expressing NAG-1 D variant with SUMO expression tag at 36 kDa; lane 3 - yeast cell lysate expressing NAG-1 H variant; and lane 4 - yeast cell lysate expressing NAG-1 D variant. Recombinant NAG-1 proteins without SUMO correspond to monomer (15 kDa) and dimer (30 kDa) bands as indicated by the arrowheads. All lysates were run under reducing conditions. Primary antibody was used at a 1:1,000 dilution in TBS contains 1% BSA and 0.2% Tween, and reacted overnight at 4°C. For detection, a 1:40,000 dilution of peroxidase conjugated Gt-a-Mouse IgG secondary antibody (610-103-121) was used in Blocking Buffer for Fluorescent Western Blotting (MB-070) for 30 min at room temperature. Molecular weight estimation was made by comparison to prestained MW markers. Image was captured using the BioRad Versadoc™ 4000MP Imaging System.

#### **Anti-NAG-1 (C-terminal specific) (MOUSE) Monoclonal Antibody - Background**

Non-steroidal anti-inflammatory drug (NSAID) activated gene (NAG-1) is a member of the transforming growth factor-beta (TGF-beta) superfamily. NAG-1 is also known as Macrophage Inhibitory Cytokine-1 (MIC-1), Growth Differentiation Factor 15 (GDF15), Placental Bone Morphogenetic Protein (PLAB), or Prostate Derived Factor (PDF). NAG-1 is expressed in human placenta, prostate and colon. It possesses antitumorigenic and proapoptotic activities. NAG-1 expression is dramatically increased in inflammation, injury and malignancy. Increase of NAG-1 expression is a feature of many cancers including breast, colon, pancreas and prostate. In a number of studies, NAG-1 expression was increased by a number of NSAIDs. This increase in expression may correlate with the chemopreventive effect NSAIDs seem to have with certain cancers. NAG-1 expression is also induced by PPAR gamma ligands and by several dietary compounds such as conjugated linoleic acids (CLAs), naturally occurring fatty acids in ruminant food products, indoles, epicatechin gallate, and genistein. Induced expression of NAG-1 results in stimulation of apoptosis and inhibition of cell growth. Inhibition of NAG-1 induced expression by small interference RNA (siRNA) results in repression of induced apoptosis. NAG-1 expression is regulated by a numbers of transcription factors such as ERG-1 and Sp1. EGR-1 may be necessary for NSAID-induced NAG-1 expression. The study of expression of NAG-1 proteins, including variants, is important to define their potential role as serum biomarkers for cancer diagnosis, treatment monitoring, epidemiology study, and nutrition surveys.