abcam

ab204996

Anti-GNAS antibody [2A2B7]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human GNAS aa 1 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P63092
Clone number	2A2B7
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/200 - 1/400
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Target data

See full target information GNAS

Function

Guanine nucleotide-binding proteins (G proteins) function as transducers in numerous signaling pathways controlled by G protein-coupled receptors (GPCRs) (PubMed:12391161, PubMed:17110384, PubMed:21488135, PubMed:26206488, PubMed:8702665, PubMed:10200251). The alpha chain contains the guanine nucleotide binding site and alternates between an active, GTP-bound state and an inactive, GDP-bound state (PubMed:12391161, PubMed:17110384, PubMed:10200251). Signaling by an activated GPCR promotes GDP release and GTP binding (PubMed:12391161, PubMed:17110384, PubMed:10200251). The alpha subunit has a low GTPase activity that converts bound GTP to GDP, thereby terminating the signal (PubMed:12391161, PubMed:17110384, PubMed:10200251). Both GDP release and GTP hydrolysis are modulated by numerous regulatory proteins (PubMed:12391161, PubMed:17110384, PubMed:10200251). Signaling involves the activation of adenylyl cyclases, resulting in increased levels of the signaling molecule cAMP (PubMed:17110384, PubMed:26206488, PubMed:26206488, PubMed:8702665). Functions downstream of beta-adrenergic receptors (PubMed:21488135). Stimulates the Ras signaling pathway via RAPGEF2 (PubMed:12391161).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks

Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The GNAS protein also known as GNAS complex locus or guanine nucleotide-binding protein G(s) subunit alpha (Gαs) is a highly versatile target in cellular signaling. It has a molecular mass of approximately 45 kDa. Widely expressed across various tissues including those in the brain kidneys and endocrine glands GNAS protein plays an important role in transmitting signals from receptors on cell surfaces to effector systems inside cells.
Biological function summary	GNAS protein mediates the action of hormones and neurotransmitters by activating the cyclic AMP (cAMP) signaling pathway. It forms part of the G protein complex specifically the G protein-coupled receptors (GPCRs) where it acts as the alpha subunit interacting with beta and gamma subunits. This interaction facilitates the conversion of GDP to GTP leading to downstream activation of adenylate cyclase which increases intracellular cAMP levels and triggers various cellular responses.
Pathways	GNAS protein is pivotal in the cAMP signaling pathway and the MAPK/ERK pathway. Within these pathways it works closely with adenylate cyclase enzymes which further influence numerous physiological processes such as metabolism and cell growth. The protein's activity also interlinks with other G proteins contributing to a wide range of cellular reactions and feedback mechanisms.
Associated diseases and disorders	Mutations or dysregulation of the GNAS gene are associated with McCune-Albright syndrome and pseudohypoparathyroidism type 1a. McCune-Albright syndrome arises from somatic mutations in the GNAS gene that result in constitutively active Gαs protein leading to abnormal cellular proliferation. In pseudohypoparathyroidism the loss of GNAS protein function disrupts normal hormonal signaling causing resistance to parathyroid hormone (PTH) which impacts calcium and phosphate regulation in the body. The involvement of GNAS protein in these conditions highlights its key role in signal transduction and endocrine regulation.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

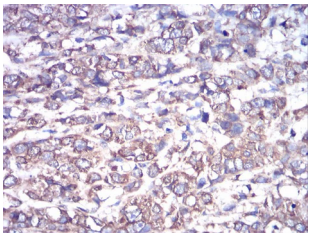
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

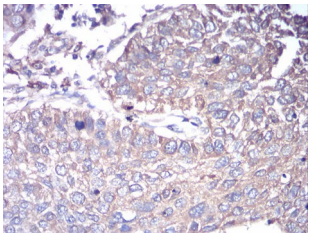
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GNAS antibody [2A2B7] (ab204996)

GNAS Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-GNAS antibody

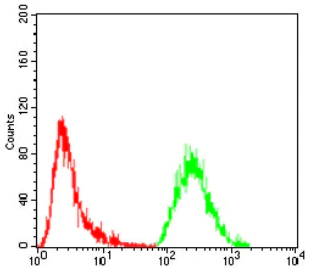
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded section) analysis of Human breast cancer tissue labeling G protein alpha with ab204996 at a 1/200 dilution. DAB staining used.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GNAS antibody [2A2B7] (ab204996)

GNAS Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-GNAS antibody

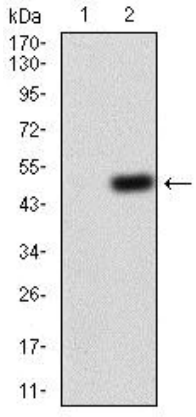
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded section) analysis of Human lung cancer tissue labeling G protein alpha with ab204996 at a 1/200 dilution. DAB staining used.



Flow Cytometry - Anti-GNAS antibody [2A2B7] (ab204996)

GNAS Flow Cytometry staining using mouse Anti-GNAS antibody

Flow cytometric analysis of A549 cells labelling Human G protein alpha with ab204996 (green) at a 1/200 dilution and negative control (red).



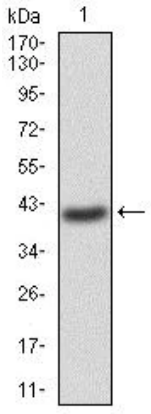
Western blot - Anti-GNAS antibody [2A2B7] (ab204996)

All lanes:
Western blot - Anti-GNAS antibody [2A2B7] (ab204996) at 1/500 dilution

Lane 1:
HEK293 whole cell lysate

Lane 2:
G protein alpha (aa42-188)-hIgGFc transfected HEK293 whole cell lysate

Predicted band size: 46 kDa



Western blot - Anti-GNAS antibody [2A2B7] (ab204996)

All lanes:
Western blot - Anti-GNAS antibody [2A2B7] (ab204996) at 1/500 dilution

All lanes:
Human G protein alpha (aa42-188) recombinant protein

Predicted band size: 46 kDa

Observed band size: 42.8 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.