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# Anti-GNAQ Antibody Picoband™ (monoclonal, 13H4)

Catalog # ABO14829

## Product Information

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| **Application** | WB, IHC, FC |
| **Primary Accession** | P50148 |
| **Host** | Mouse |
| **Isotype** | Mouse IgG2b |
| **Reactivity** | Rat, Human, Mouse, Monkey |
| **Clonality** | Monoclonal |
| **Format** | Lyophilized |
| **Description** | Anti-GNAQ Antibody Picoband™ (monoclonal, 13H4) . Tested in Flow Cytometry, IHC, WB applications. This antibody reacts with Human, Monkey, Mouse, Rat. |
| **Reconstitution** | Add 0.2ml of distilled water will yield a concentration of 500 □g/ml. |

## Additional Information

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| **Gene ID** | 2776 |
| **Other Names** | Guanine nucleotide-binding protein G(q) subunit alpha, Guanine nucleotide-binding protein alpha-q, GNAQ, GAQ |
| **Calculated MW** | 42142 |
| **Application Details** | Western blot, 0.1-0.5 □g/ml<br>Immunohistochemistry (Paraffin-embedded Section), 0.5-1 □g/ml<br>Flow Cytometry, 1-3 □g/1x10^6 cells |
| **Subcellular Localization** | Nucleus. Nucleus membrane. Membrane. |
| **Tissue Specificity** | Predominantly expressed in ovary, prostate, testis and colon. Down-regulated in the peripheral blood lymphocytes (PBLs) of rheumatoid arthritis patients. |
| **Source** | Eukaryota |
| **Contents** | Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3. |
| **Clone Names** | Clone: 13H4 |
| **Immunogen** | A synthetic peptide corresponding to a sequence at the N-terminus of human GNAQ, identical to the related mouse and rat sequences. |
| **Cross Reactivity** | No cross-reactivity with other proteins. |
| **Storage** | Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C |

for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.

## Protein Information

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| **Name** | GNAQ ( HGNC:4390) |
| **Synonyms** | GAQ |
| **Function** | Guanine nucleotide-binding proteins (G proteins) function as transducers downstream of G protein-coupled receptors (GPCRs) in numerous signaling cascades (PubMed:34556863, PubMed:35672283, PubMed:37991948). The alpha chain contains the guanine nucleotide binding site and alternates between an active, GTP-bound state and an inactive, GDP-bound state (PubMed:37991948). Signaling by an activated GPCR promotes GDP release and GTP binding (PubMed:37991948). The alpha subunit has a low GTPase activity that converts bound GTP to GDP, thereby terminating the signal (PubMed:37991948). Both GDP release and GTP hydrolysis are modulated by numerous regulatory proteins (PubMed:37991948). Signaling is mediated via phospholipase C-beta- dependent inositol lipid hydrolysis for signal propagation: activates phospholipase C-beta: following GPCR activation, GNAQ activates PLC- beta (PLCB1, PLCB2, PLCB3 or PLCB4), leading to production of diacylglycerol (DAG) and inositol 1,4,5-trisphosphate (IP3) (PubMed:37991948). Required for platelet activation (By similarity). Regulates B-cell selection and survival and is required to prevent B- cell-dependent autoimmunity (By similarity). Regulates chemotaxis of BM-derived neutrophils and dendritic cells (in vitro) (By similarity). Transduces FFAR4 signaling in response to long-chain fatty acids (LCFAs) (PubMed:27852822). Together with GNA11, required for heart development (By similarity). |
| **Cellular Location** | Cell membrane; Peripheral membrane protein; Cytoplasmic side. Golgi apparatus. Nucleus {ECO:0000250\|UniProtKB:P21279} Nucleus membrane {ECO:0000250\|UniProtKB:P21279}. Note=Associated to the plasma membrane via lipid-anchor (PubMed:19001095). Colocalizes with the adrenergic receptors ADRA1A and ADRA1B at the nuclear membrane of cardiac myocytes (By similarity). {ECO:0000250\|UniProtKB:P21279, ECO:0000269\|PubMed:19001095} |
| **Tissue Location** | Predominantly expressed in ovary, prostate, testis and colon. Down-regulated in the peripheral blood lymphocytes (PBLs) of rheumatoid arthritis patients (at protein level) |

## Background

Guanine nucleotide-binding protein G (q) subunit alpha is a protein that in humans is encoded by the GNAQ gene. Guanine nucleotide-binding proteins are a family of heterotrimeric proteins that couple cell surface, 7-transmembrane domain receptors to intracellular signaling pathways. Receptor activation catalyzes the exchange of GDP for GTP bound to the inactive G protein alpha subunit resulting in a conformational change and dissociation of the complex. The G protein alpha and beta-gamma subunits are capable of regulating various cellular effectors. Activation is terminated by a GTPase intrinsic to the G-alpha subunit. G-alpha-q is the alpha subunit of one of the heterotrimeric GTP-binding proteins that mediates stimulation of phospholipase C-beta. Mutations in this gene have been found associated to cases of Sturge-Weber syndrome and port-wine stains.

## Images

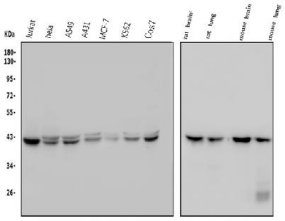


Figure 1. Western blot analysis of GNAQ using anti-GNAQ antibody (M00898).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.
Lane 1: human Jurkat whole cell lysates,
Lane 2: human Hela whole cell lysates,
Lane 3: human A549 whole cell lysates.
Lane 4: human A431 whole cell lysates,
Lane 5: human MCF-7 whole cell lysates,
Lane 6: human K562 whole cell lysates,
Lane 7: monkey COS-7 whole cell lysates,
Lane 8: rat brain tissue lysates,
Lane 9: rat lung tissue lysates,
Lane 10: mouse brain tissue lysates,
Lane 11: mouse lung tissue lysates,
After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with mouse anti-GNAQ antigen affinity purified monoclonal antibody (Catalog # M00898) at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1001) with Tanon 5200 system. A specific band was detected for GNAQ at approximately 42KD. The expected band size for GNAQ is at 42KD.

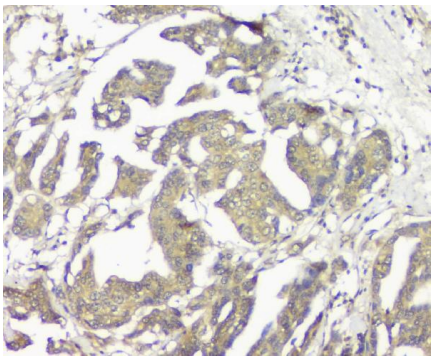


Figure 2. IHC analysis of GNAQ using anti GNAQ antibody (M00898).
GNAQ was detected in paraffin-embedded section of human ovarian cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-GNAQ Antibody (M00898) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

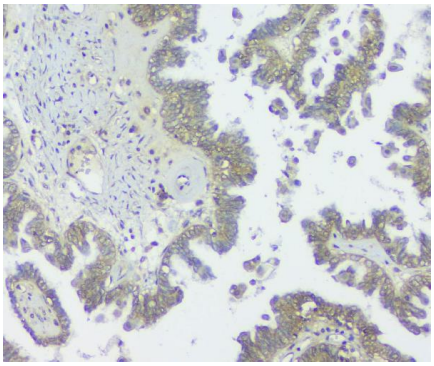


Figure 3. IHC analysis of GNAQ using anti GNAQ antibody (M00898).
GNAQ was detected in paraffin-embedded section of human ovarian cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-GNAQ Antibody (M00898) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

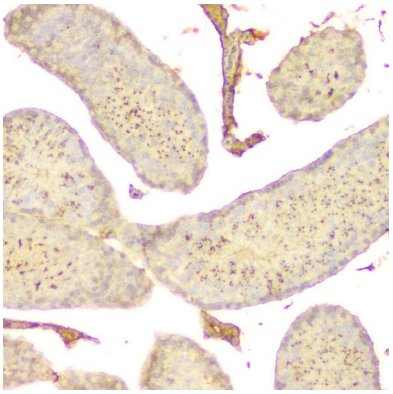


Figure 4. IHC analysis of GNAQ using anti GNAQ antibody (M00898).
GNAQ was detected in paraffin-embedded section of mouse testis tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml mouse anti-GNAQ Antibody (M00898) overnight at 4°C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1021) with DAB as the chromogen.

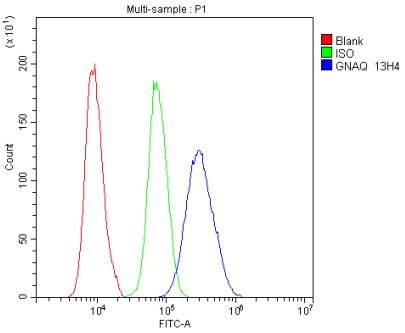



Figure 5. Flow Cytometry analysis of U20S cells using anti-GNAQ antibody (M00898).
Overlay histogram showing U20S cells stained with M00898 (Blue line).The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-GNAQ Antibody (M00898, 1 µg/1x$10^6$ cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x$10^6$ cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x$10^6$) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

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