10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-CASR Antibody Picoband™ (monoclonal, 11E9)

Catalog # ABO14786

Product Information

Application	WB, IHC, ICC, FC
Primary Accession	P41180
Host	Mouse
Isotype	Mouse IgG2b
Reactivity	Human
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-CASR Antibody Picoband™ (monoclonal, 11E9) . Tested in Flow Cytometry, IHC, ICC, WB applications. This antibody reacts with Human.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	846
Other Names	Extracellular calcium-sensing receptor, CaR, CaSR, hCasR, Parathyroid cell calcium-sensing receptor 1, PCaR1, CASR (HGNC:1514)
Calculated MW	120675
Application Details	Western blot, 0.1-0.5 □g/ml Immunohistochemistry (Paraffin-embedded Section), 0.5-1 □g/ml Immunohistochemistry (Frozen Section), 0.5-1 □g/ml Immunocytochemistry, 0.5-1 □g/ml Flow Cytometry, 1-3 □g/1x106 cells
Subcellular Localization	Cell membrane
Tissue Specificity	Expressed in the temporal lobe, frontal lobe, parietal lobe, hippocampus, and cerebellum. Also found in kidney, lung, liver, heart, skeletal muscle, placenta.
Source	Eukaryota
Contents	Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.
Clone Names	Clone: 11E9
Immunogen	E. coli-derived human CASR recombinant protein (Position: Q926-S1078). Human CASR shares 80.5% and 78.6% amino acid (aa) sequence identity with mouse and rat CASR, respectively.

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

Name	CASR {ECO:0000303|PubMed:16740594, ECO:0000312|HGNC:HGNC:1514}
Function	G protein-coupled receptor that senses changes in the extracellular concentration of calcium ions and plays a key role in maintaining calcium homeostasis (PubMed:17555508, PubMed:19789209, PubMed:21566075, PubMed:22114145, PubMed:22789683, PubMed:23966241, PubMed:25104082, PubMed:25292184, PubMed:25766501, PubMed:26386835, PubMed:32817431, PubMed:33603117, PubMed:34194040, PubMed:34467854, PubMed:7759551, PubMed:8636323, PubMed:8702647, PubMed:8878438). Senses fluctuations in the circulating calcium concentration: activated by elevated circulating calcium, leading to decreased parathyroid hormone (PTH) secretion in parathyroid glands (By similarity). In kidneys, acts as a key regulator of renal tubular calcium resorption (By similarity). Ligand binding causes a conformation change that triggers signaling via guanine nucleotide-binding proteins (G proteins) and modulates the activity of downstream effectors (PubMed:38632411). CASR is coupled with different G(q)/G(11), G(i)/G(o)- or G(s)-classes of G proteins depending on the context (PubMed:38632411). In the parathyroid and kidney, CASR signals through G(q)/G(11) and G(i)/G(o) G proteins: G(q)/G(11) coupling activates phospholipase C-beta, releasing diacylglycerol (DAG) and inositol 1,4,5-trisphosphate (IP3) second messengers, while G(i)/G(o) coupling mediates inhibition of adenylate cyclase activity (PubMed:38632411, PubMed:7759551). The G protein- coupled receptor activity is activated by a co-agonist mechanism: aromatic amino acids, such as Trp or Phe, act concertedly with divalent cations, such as calcium or magnesium, to achieve full receptor activation (PubMed:27386547, PubMed:27434672, PubMed:32817431, PubMed:33603117, PubMed:34194040). Acts as an activator of the NLRP3 inflammasome via G(i)/G(o)-mediated signaling: down-regulation of cyclic AMP (cAMP) relieving NLRP3 inhibition by cAMP (PubMed:32843625). Acts as a regulator of proton-sensing receptor GPR68 in a seesaw manner: CASR-mediated signaling inhibits GPR68 signaling in response to extracellular calcium, while GPR68 inhibits CASR in presence of extracellular protons (By similarity).
Cellular Location	Cell membrane; Multi-pass membrane protein
Tissue Location	Expressed in the temporal lobe, frontal lobe, parietal lobe, hippocampus, and cerebellum. Also found in kidney, lung, liver, heart, skeletal muscle, placenta.

Background

The calcium-sensing receptor (CaSR) is a G protein-coupled receptor that is expressed in the parathyroid hormone (PTH)-producing chief cells of the parathyroid gland, and the cells lining the kidney tubule. It senses small changes in circulating calcium concentration and couples this information to intracellular signaling pathways that modify PTH secretion or renal cation handling, thus this protein plays an essential role in maintaining mineral ion homeostasis. Mutations in this gene cause familial hypocalciuric hypercalcemia, familial, isolated hypoparathyroidism, and neonatal severe primary hyperparathyroidism.

Images

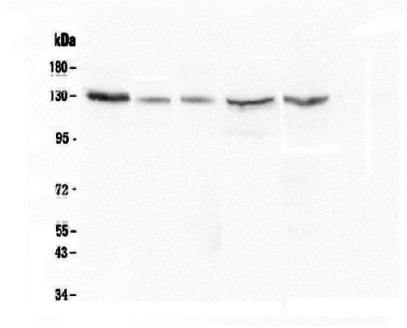


Figure 2. Western blot analysis of CASR using anti-CASR antibody (M00574).
Electrophoresis was performed on a 8% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.
Lane 1: human Hela whole cell lysate,
Lane 2: human A549 whole cell lysate,
Lane 3: human 22RV1 whole cell lysate,
Lane 4: human HepG2 whole cell lysate,
Lane 5: human Caco-2 whole cell lysate.
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-CASR antigen affinity purified monoclonal antibody (Catalog # M00574) 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.

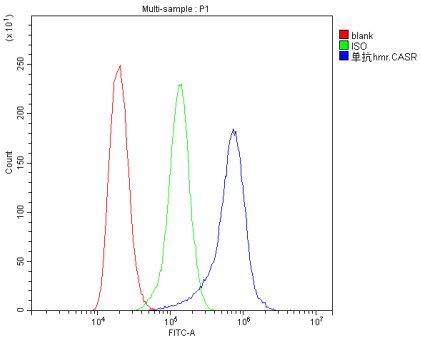


Figure 1. Flow Cytometry analysis of NEURO-2A cells using anti-CASR antibody (M00574).
Overlay histogram showing NEURO-2A cells stained with M00574 (Blue line).The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-CASR Antibody (M00574,1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x10^6 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

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