SANTA CRUZ BIOTECHNOLOGY, INC.

$GABA_A$ Rε (E-12): sc-271668

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GAD-65 and GAD-67, glutamate decarboxylases function to catalyze the production of GABA (γ-aminobutyric acid). In the central nervous system GABA functions as the main inhibitory transmitter by increasing a Cl-conductance that inhibits neuronal firing. GABA has been shown to activate both ionotropic ($GABA_A$) and metabotropic ($GABA_B$) receptors as well as a third class of receptors called $GABA_C$. Both $GABA_A$ and $GABA_C$ are ligand-gated ion channels, however, they are structurally and functionally distinct. Members of the $GABA_A$ receptor family include $GABA_A$ Rα1-6, $GABA_A$ Rβ1-3, $GABA_A$ Rγ1-3, $GABA_A$ Rδ, $GABA_A$ Rε, $GABA_A$ Rρ1 and $GABA_A$ Rρ2. The $GABA_B$ family is composed of $GABA_B$ R1α and $GABA_B$ R1β. GABA transporters have also been identified and include GABA T-1, GABA T-2 and GABA T-3 (also designated GAT-1, -2, and -3). The GABA transporters function to terminate GABA action.

REFERENCES

1. Nelson, H., et al. 1990. Cloning of the human brain GABA transporter. FEBS Lett. 269: 181-184.
2. Cherubini, E., et al. 1991. GABA: an excitatory transmitter in early postnatal life. Trends Neurosci. 14: 515-519.
3. Borden, L.A., et al. 1992. Molecular heterogeneity of the γ-aminobutyric acid (GABA) transport system. Cloning of two novel high affinity GABA transporters from rat brain. J. Biol. Chem. 267: 21098-21104.
4. Dirkx, R., Jr., et al. 1995. Targeting of the 67-kDa isoform of glutamic acid decarboxylase to intracellular organelles is mediated by its interaction with the NH_2-terminal region of the 65-kDa isoform of glutamic acid decarboxylase. J. Biol. Chem. 270: 2241-2246.

CHROMOSOMAL LOCATION

Genetic locus: GABRE (human) mapping to Xq28; Gabre (mouse) mapping to X A7.3.

SOURCE

$GABA_A$ Rε (E-12) is a mouse monoclonal antibody raised against amino acids 1-110 mapping at the N-terminus of $GABA_A$ Rε of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

$GABA_A$ Rε (E-12) is available conjugated to agarose (sc-271668 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271668 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271668 PE), fluorescein (sc-271668 FITC), Alexa Fluor® 488 (sc-271668 AF488), Alexa Fluor® 546 (sc-271668 AF546), Alexa Fluor® 594 (sc-271668 AF594) or Alexa Fluor® 647 (sc-271668 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271668 AF680) or Alexa Fluor® 790 (sc-271668 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

$GABA_A$ Rε (E-12) is recommended for detection of $GABA_A$ Rε of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for $GABA_A$ Rε siRNA (h): sc-42445, $GABA_A$ Rε siRNA (m): sc-42446, $GABA_A$ Rε shRNA Plasmid (h): sc-42445-SH, $GABA_A$ Rε shRNA Plasmid (m): sc-42446-SH, $GABA_A$ Rε shRNA (h) Lentiviral Particles: sc-42445-V and $GABA_A$ Rε shRNA (m) Lentiviral Particles: sc-42446-V.

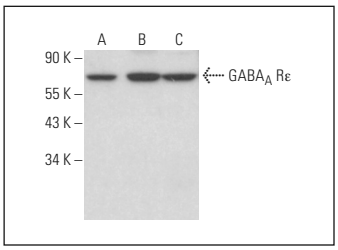
Molecular Weight of $GABA_A$ Rε: 63 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, C6 whole cell lysate: sc-364373 or BC_3H1 cell lysate: sc-2299.

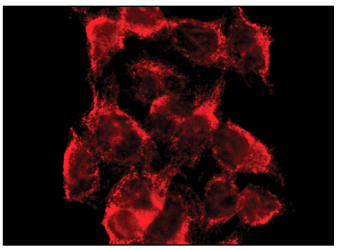
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



$GABA_A$ Rε (E-12): sc-271668. Western blot analysis of $GABA_A$ Rε expression in BC_3H1 (**A**), C6 (**B**) and KNRK (**C**) whole cell lysates.



$GABA_A$ Rε (E-12): sc-271668. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Fang, H., et al. 2018. Repeated inhalation of sevoflurane inhibits the information transmission of Purkinje cells and delays motor development via the $GABA_A$ receptor ε subunit in neonatal mice. Mol. Med. Rep. 17: 1083-1092.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.