SANTA CRUZ BIOTECHNOLOGY, INC.

GABARAPL1 siRNA (h): sc-105386

BACKGROUND

GABARAPL1 (γ-aminobutyric acid receptor-associated protein-like 1), also known as ATG8, GEC1 (glandular epithelial cell protein 1), APG8L, ATG8L or APG8-LIKE, is a 117 amino acid protein belonging to the MAP1 LC3 family. Localized to the endoplasmic reticulum and Golgi apparatus, GABARAPL1 is ubiquitously expressed. Very high levels of GABARAPL1 are found in brain, heart, peripheral blood leukocytes, liver, kidney, placenta and skeletal muscle. GABARAPL1 increases cell-surface expression of κ-type opioid receptor (KOR) through facilitating anterograde intracellular trafficking of the receptor. GABARAPL1 may have chaperone-like effects for many cell surface proteins along the biosynthesis pathway and may regulate the trafficking of receptor GABA. GABARAPL1 interacts with $GABA_A$ Rγ2, β Tubulin and KOR-1.

REFERENCES

1. Nemos, C., et al. 2003. Expression of gec1/GABARAPL1 versus GABARAP mRNAs in human: predominance of gec1/GABARAPL1 in the central nervous system. Brain Res. Mol. Brain Res. 119: 216-219.
2. Vernier-Magnin, S., et al. 2005. Analysis of the guinea-pig estrogen-regulated gec1/GABARAPL1 gene promoter and identification of a functional ERE in the first exon. Biochim. Biophys. Acta 1731: 23-31.
3. Mansuy-Schlick, V., et al. 2006. Specific distribution of GABARAP, gec1/GABARAP like 1, gate16/GABARAP like 2, lc3 messenger RNAs in rat brain areas by quantitative real-time PCR. Brain Res. 1073-1074: 83-87.
4. Chen, C., et al. 2006. GEC1 interacts with the κ opioid receptor and enhances expression of the receptor. J. Biol. Chem. 281: 7983-7993.

CHROMOSOMAL LOCATION

Genetic locus: GABARAPL1 (human) mapping to 12p13.2.

PRODUCT

GABARAPL1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GABARAPL1 shRNA Plasmid (h): sc-105386-SH and GABARAPL1 shRNA (h) Lentiviral Particles: sc-105386-V as alternate gene silencing products.

For independent verification of GABARAPL1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-105386A, sc-105386B and sc-105386C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GABARAPL1 siRNA (h) is recommended for the inhibition of GABARAPL1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GABARAPL1 gene expression knockdown using RT-PCR Primer: GABARAPL1 (h)-PR: sc-105386-PR (20 µl, 498 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mo, J., et al. 2016. MicroRNA-195 regulates proliferation, migration, angiogenesis and autophagy of endothelial progenitor cells by targeting GABARAPL1. Biosci. Rep. 36: e00396.
2. Lee, T.G., et al. 2020. Radiation induces autophagy via Histone H4 lysine 20 trimethylation in non-small cell lung cancer cells. Anticancer Res. 40: 2537-2548.
3. Fan, M., et al. 2020. Triggering a switch from basal- to luminal-like breast cancer subtype by the small-molecule diptoindonesin G via induction of GABARAPL1. Cell Death Dis. 11: 635.
4. Hahm, E.R., et al. 2020. Cytoprotective autophagy induction by withaferin A in prostate cancer cells involves GABARAPL1. Mol. Carcinog. 59: 1105-1115.
5. Yu, H., et al. 2021. Selenite-induced ROS/AMPK/FoxO3a/GABARAPL1 signaling pathway modulates autophagy that antagonize apoptosis in colorectal cancer cells. Discov. Oncol. 12: 35.
6. Sawaged, S., et al. 2022. TBK1 and GABARAP family members suppress coxsackievirus B infection by limiting viral production and promoting autophagic degradation of viral extracellular vesicles. PLoS Pathog. 18: e1010350.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.