

# GABARAPL2 siRNA (h): sc-41958

## BACKGROUND

In the central nervous system, GABA functions as the main inhibitory transmitter by increasing a  $\text{Cl}^-$  conductance that inhibits neuronal firing. GABA activates both ionotropic ( $\text{GABA}_\text{A}$ ) and metabotropic ( $\text{GABA}_\text{B}$ ) receptors as well as a third class of receptors called  $\text{GABA}_\text{C}$ . Several proteins regulate GABA function, including GAD65, GAD67, GABA transporters and GABARAP ( $\text{GABA}_\text{A}$  receptor-associated protein). GABARAPL2 ( $\text{GABA}_\text{A}$  receptor-associated protein-like 2), also known as ATG8, GEF2, ATG8C or GATE16, is a 117 amino acid Golgi apparatus protein belonging to the MAP1 LC3 family. GABARAPL2 is ubiquitously expressed with high levels present in the brain, heart, prostate, ovary, spleen and skeletal muscle, and with low levels found in lung, thymus and small intestine. GABARAPL2 couples NSF activity and SNAREs activation, thereby affecting intra-Golgi traffic.

## REFERENCES

1. Cherubini, E., et al. 1991. GABA: an excitatory transmitter in early postnatal life. *Trends Neurosci.* 14: 515-519.
2. Dirx, 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  $\text{NH}_2$ -terminal region of the 65-kDa isoform of glutamic acid decarboxylase. *Biol. Chem.* 270: 2241-2246.
3. Borden, L.A. 1996. GABA transporter heterogeneity: pharmacology and cellular localization. *Neurochem. Int.* 29: 335-356.
4. Sagiv, Y., et al. 2000. GATE-16, a membrane transport modulator, interacts with NSF and the Golgi v-SNARE GOS-28. *EMBO J.* 19: 1494-1504.
5. Xin, Y., et al. 2001. Cloning, expression patterns, and chromosome localization of three human and two mouse homologues of  $\text{GABA}_\text{A}$  receptor-associated protein. *Genomics* 74: 408-413.
6. Hemelaar, J., et al. 2003. A single protease, Apg4B, is specific for the autophagy-related ubiquitin-like proteins GATE-16, MAP1-LC3, GABARAP, and Apg8L. *J. Biol. Chem.* 278: 51841-51850.
7. Kabeya, Y., et al. 2004. LC3, GABARAP and GATE16 localize to autophagosomal membrane depending on form-II formation. *J. Cell Sci.* 117: 2805-2812.

## CHROMOSOMAL LOCATION

Genetic locus: GABARAPL2 (human) mapping to 16q23.1.

## PRODUCT

GABARAPL2 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  $\mu\text{M}$  solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GABARAPL2 shRNA Plasmid (h): sc-41958-SH and GABARAPL2 shRNA (h) Lentiviral Particles: sc-41958-V as alternate gene silencing products.

For independent verification of GABARAPL2 (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-41958A, sc-41958B and sc-41958C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^\circ\text{C}$  with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^\circ\text{C}$ , avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu\text{l}$  of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu\text{l}$  of RNase-free water makes a 10  $\mu\text{M}$  solution in a 10  $\mu\text{M}$  Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

GABARAPL2 siRNA (h) is recommended for the inhibition of GABARAPL2 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  $\mu\text{M}$  in 66  $\mu\text{l}$ . 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 GABARAPL2 gene expression knockdown using RT-PCR Primer: GABARAPL2 (h)-PR: sc-41958-PR (20  $\mu\text{l}$ , 422 bp). Annealing temperature for the primers should be  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## SELECT PRODUCT CITATIONS

1. 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](http://www.scbt.com) for detailed protocols and support products.