SANTA CRUZ BIOTECHNOLOGY, INC.

IMPACT siRNA (m): sc-146230

BACKGROUND

IMPACT (imprinted and ancient gene protein homolog) is a 320 amino acid protein belonging to the IMPACT family. IMPACT is a translational regulator which ensures constant high levels of translation during amino acid starvation. IMPACT interacts with GCN1L1, which prevents activation of GCN2 and the subsequent downregulation of protein synthesis. Widely expressed, IMPACT is found at highest levels in the brain and exists as two isoforms produced by alternative splicing. IMPACT contains one RWD domain which may be involved in protein to protein interactions. The gene that encodes mouse IMPACT is an imprinted gene where the paternally inherited gene is expressed while the maternally inherited gene is silenced.

REFERENCES

1. Okamura, K., Hagiwara-Takeuchi, Y., Li, T., Vu, T.H., Hirai, M., Hattori, M., Sakaki, Y., Hoffman, A.R. and Ito, T. 2000. Comparative genome analysis of the mouse imprinted gene impact and its nonimprinted human homolog IMPACT: toward the structural basis for species-specific imprinting. Genome Res. 10: 1878-1889.
2. Kosaki, K., Suzuki, T., Kosaki, R., Yoshihashi, H., Itoh, M., Goto, Y. and Matsuo, N. 2001. Human homolog of the mouse imprinted gene Impact resides at the pericentric region of chromosome 18 within the critical region for bipolar affective disorder. Mol. Psychiatry 6: 87-91.
3. Okamura, K., Yamada, Y., Sakaki, Y. and Ito, T. 2004. An evolutionary scenario for genomic imprinting of Impact lying between nonimprinted neighbors. DNA Res. 11: 381-390.
4. Okamura, K., Sakaki, Y. and Ito, T. 2005. Comparative genomics approach toward critical determinants for the imprinting of an evolutionarily conserved gene Impact. Biochem. Biophys. Res. Commun. 329: 824-830.
5. Pereira, C.M., Sattlegger, E., Jiang, H.Y., Longo, B.M., Jaqueta, C.B., Hinnebusch, A.G., Wek, R.C., Mello, L.E. and Castilho, B.A. 2005. IMPACT, a protein preferentially expressed in the mouse brain, binds GCN1 and inhibits GCN2 activation. J. Biol. Chem. 280: 28316-28323.

CHROMOSOMAL LOCATION

Genetic locus: Impact (mouse) mapping to 18 A1.

PRODUCT

IMPACT siRNA (m) is a target-specific 19-25 nt siRNA 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 IMPACT shRNA Plasmid (m): sc-146230-SH and IMPACT shRNA (m) Lentiviral Particles: sc-146230-V as alternate gene silencing products.

For independent verification of IMPACT (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-146230A, sc-146230B and sc-146230C.

RESEARCH USE

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

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

IMPACT siRNA (m) is recommended for the inhibition of IMPACT expression in mouse 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 IMPACT gene expression knockdown using RT-PCR Primer: IMPACT (m)-PR: sc-146230-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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