SANTA CRUZ BIOTECHNOLOGY, INC.

FNIP1 siRNA (m): sc-145217

BACKGROUND

Folliculin is a cytoplasmic protein that is suggested to be involved in the pathogenesis of a uncommon form of kidney cancer through its association with Birt-Hogg-Dubé syndrome, an inherited disorder of the hair follicle. FNIP1 (folliculin interacting protein 1) is a 1,166 amino acid protein and is member of the FNIP family. Localized to the cytoplasm, FNIP1 is strongly expressed in heart, liver placenta, muscle, nasal mucosa, salivary gland and uvula, and moderately expressed in kidney and lung. FNIP1 exists as three alternatively isoforms, and forms homomultimers and heteromultimers with FNIP2. FNIP1 interacts with folliculin via its C-terminus and also binds with HSPCA, AMPKα1, AMPKβ1 and AMPKγ1 subunits of 5'-AMP-activated protein kinase. FNIP1 may participate in energy and/or nutrient sensing through the AMPK and FRAP signaling pathways.

REFERENCES

1. Painter, J.N., et al. 2005. A 4-bp deletion in the Birt-Hogg-Dubé gene (FLCN) causes dominantly inherited spontaneous pneumothorax. Am. J. Hum. Genet. 76: 522-527.
2. Baba, M., et al. 2006. Folliculin encoded by the BHD gene interacts with a binding protein, FNIP1, and AMPK, and is involved in AMPK and mTOR signaling. Proc. Natl. Acad. Sci. USA 103: 15552-15557.
3. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 610594. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Hasumi, H., et al. 2008. Identification and characterization of a novel folliculin-interacting protein FNIP2. Gene 415: 60-67.
5. Takagi, Y., et al. 2008. Interaction of folliculin (Birt-Hogg-Dubé gene product) with a novel Fnip1-like (FnipL/Fnip2) protein. Oncogene 27: 5339-5347.
6. Koga, S., et al. 2009. Lung cysts in Birt-Hogg-Dubé syndrome: histopathological characteristics and aberrant sequence repeats. Pathol. Int. 59: 720-728.
7. Menko, F.H., et al. 2009. Birt-Hogg-Dubé syndrome: diagnosis and management. Lancet Oncol. 10: 1199-1206.

CHROMOSOMAL LOCATION

Genetic locus: Fnip1 (mouse) mapping to 11 B1.3.

PRODUCT

FNIP1 siRNA (m) 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 FNIP1 shRNA Plasmid (m): sc-145217-SH and FNIP1 shRNA (m) Lentiviral Particles: sc-145217-V as alternate gene silencing products.

For independent verification of FNIP1 (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-145217A, sc-145217B and sc-145217C.

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

FNIP1 siRNA (m) is recommended for the inhibition of FNIP1 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 FNIP1 gene expression knockdown using RT-PCR Primer: FNIP1 (m)-PR: sc-145217-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhou, Q., et al. 2017. Dihydromyricetin prevents obesity-induced slow-twitch-fiber reduction partially via FLCN/FNIP1/AMPK pathway. Biochim. Biophys. Acta. Mol. Basis. Dis. 1863: 1282-1291.

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.