SANTA CRUZ BIOTECHNOLOGY, INC.

# IF3 siRNA (h): sc-75319

## BACKGROUND

IF3 is also known as MTIF3 (mitochondrial translational initiation factor 3), DC38, IF3(mt) or IF-3mt, and is a 278 amino acid protein that is localized to mitochondria. IF3 aids in the initiation of protein synthesis by binding the 28S ribosomal subunit, which is a protein synthesis initiation site. The 28S and 39S ribosomal structures are subunits of the 55S ribosome, whose formation is favored in the absence of IF3, because IF3 allows the subunits to remain in their free form. Altered forms of IF3 may affect IF3's function, which could alter the availability of mitochondrial encoded proteins, leading to oxidative stress and possibly causing an increased susceptibility to Parkinson's disease. Polymorphism of the gene encoding IF3 is thought to be associated with Parkinson's disease.

## REFERENCES


1. Koc, E.C. and Spremulli, L.L. 2002. Identification of mammalian mitochondrial translational initiation factor 3 and examination of its role in initiation complex formation with natural mRNAs. J. Biol. Chem. 277: 35541-35549.
2. Bhargava, K. and Spremulli, L.L. 2005. Role of the N- and C-terminal extensions on the activity of mammalian mitochondrial translational initiation factor 3. Nucleic Acids Res. 33: 7011-7018.
3. Grasso, D.G., et al. 2007. Overexpression and purification of mammalian mitochondrial translational initiation factor 2 and initiation factor 3. Meth. Enzymol. 430: 59-78.
4. Abahuni, N., et al. 2007. Mitochondrial translation initiation factor 3 gene polymorphism associated with Parkinson's disease. Neurosci. Lett. 414: 126-129.
5. Haque, M.E. and Spremulli, L.L. 2008. Roles of the N- and C-terminal domains of mammalian mitochondrial initiation factor 3 in protein biosynthesis. J. Mol. Biol. 384: 929-940.
6. Gaur, R., et al. 2008. A single mammalian mitochondrial translation initiation factor functionally replaces two bacterial factors. Mol. Cell 29: 180-190.
7. Haque, M.E., et al. 2008. The interaction of mammalian mitochondrial translational initiation factor 3 with ribosomes: evolution of terminal extensions in IF3mt. Nucleic Acids Res. 36: 589-597.


## CHROMOSOMAL LOCATION

Genetic locus: MTIF3 (human) mapping to 13q12.2.

## PRODUCT

IF3 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 IF3 shRNA Plasmid (h): sc-75319-SH and IF3 shRNA (h) Lentiviral Particles: sc-75319-V as alternate gene silencing products.

For independent verification of IF3 (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-75319A, sc-75319B and sc-75319C.

## 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

IF3 siRNA (h) is recommended for the inhibition of IF3 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 IF3 gene expression knockdown using RT-PCR Primer: IF3 (h)-PR: sc-75319-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## 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.