

# RSAD2 siRNA (m): sc-153136

## BACKGROUND

RSAD2 (Radical S-adenosyl methionine domain-containing protein 2), also known as CIG5 (cytomegalovirus-induced gene 5 protein), vlg1, viperin or CIG33, is a 361 amino acid protein that is involved in antiviral defense against pathogens such as Hep C, cytomegalovirus and HIV-1. Localized to the cytosolic side of the endoplasmic reticulum and relocated to the Golgi apparatus upon viral infection, RSAD2 is thought to prevent viral budding by disrupting lipid rafts at the plasma membrane and supporting the interferon-induced antiviral state of the cell. Additionally, RSAD2 can bind to and inactivate FDPS (an enzyme that is crucial for the synthesis of cholesterol and geranylated and farnesylated proteins), thereby playing a role in lipid synthesis. Overexpression of RSAD2 leads to abnormal lipid accumulation that is associated with atherosclerosis, a chronic inflammatory disease characterized by hardened arteries.

## REFERENCES

- Chin, K.C., et al. 2001. Viperin (CIG5), an IFN-inducible antiviral protein directly induced by human cytomegalovirus. *Proc. Natl. Acad. Sci. USA* 98: 15125-15130.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607810. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Olofsson, P.S., et al. 2005. The antiviral cytomegalovirus-inducible gene 5/viperin is expressed in atherosclerosis and regulated by proinflammatory agents. *Arterioscler. Thromb. Vasc. Biol.* 25: e113-e116.
- Helbig, K.J., et al. 2005. Analysis of ISG expression in chronic hepatitis C identifies viperin as a potential antiviral effector. *Hepatology* 42: 702-710.
- Severa, M., et al. 2006. Toll-like receptor-dependent and -independent Viperin gene expression and counter-regulation by PRDI-binding factor-1/Blimp-1. *J. Biol. Chem.* 281: 26188-26195.
- Wang, X., et al. 2007. The interferon-inducible protein viperin inhibits influenza virus release by perturbing lipid rafts. *Cell Host Microbe*. 2: 96-105.
- Suh, H.S., et al. 2007. Astrocyte indoleamine 2,3-dioxygenase is induced by the TLR3 ligand poly(I:C): mechanism of induction and role in antiviral response. *J. Virol.* 81: 9838-9850.

## CHROMOSOMAL LOCATION

Genetic locus: Rsad2 (mouse) mapping to 12 A2.

## PRODUCT

RSAD2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RSAD2 shRNA Plasmid (m): sc-153136-SH and RSAD2 shRNA (m) Lentiviral Particles: sc-153136-V as alternate gene silencing products.

For independent verification of RSAD2 (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-153136A, sc-153136B and sc-153136C.

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

## APPLICATIONS

RSAD2 siRNA (m) is recommended for the inhibition of RSAD2 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

RSAD2 (G-8): sc-390342 is recommended as a control antibody for monitoring of RSAD2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RSAD2 gene expression knockdown using RT-PCR Primer: RSAD2 (m)-PR: sc-153136-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.