

A20 siRNA (h): sc-37655

BACKGROUND

A20 is a Cys2/Cys2 zinc finger protein that is induced by a variety of inflammatory stimuli and regulates gene expression. Specifically, A20 is induced by tumor necrosis factor (TNF) and interleukin 1 (IL-1), and acts as a negative regulator of nuclear factor κ B (NF κ B) gene expression. By inhibiting NF κ B activation, A20 plays a critical role in terminating NF κ B responses to various stimuli. Although the C-terminal region of A20 contains seven zinc finger domains, only four of these domains are required for *in vitro* inhibition of TNF-induced NF κ B activation. A20 also interacts with several other proteins, such as TRAF2, TRAF6, and I κ B kinase (IKK) γ protein, and thereby can inhibit cell death. In addition, the novel A20-binding protein TXBP151 may mediate the anti-apoptotic activity of A20. Involved in the negative feedback regulation of signal transduction, A20 and A20-binding proteins may be useful as novel therapeutic tools in the treatment of a variety of diseases.

REFERENCES

1. De Valck, D., et al. 1999. The zinc finger protein A20 interacts with a novel anti-apoptotic protein which is cleaved by specific caspases. *Oncogene* 29: 4182-4190.
2. Beyaert, R., et al. 2000. A20 and A20-binding proteins as cellular inhibitors of nuclear factor- κ B-dependent gene expression and apoptosis. *Biochem. Pharmacol.* 8: 1143-1151.

CHROMOSOMAL LOCATION

Genetic locus: TNFAIP3 (human) mapping to 6q23.3.

PRODUCT

A20 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see A20 shRNA Plasmid (h): sc-37655-SH and A20 shRNA (h) Lentiviral Particles: sc-37655-V as alternate gene silencing products.

For independent verification of A20 (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-37655A, sc-37655B and sc-37655C.

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

APPLICATIONS

A20 siRNA (h) is recommended for the inhibition of A20 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 μ M in 66 μ 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

A20 (A-12): sc-166692 is recommended as a control antibody for monitoring of A20 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor A20 gene expression knockdown using RT-PCR Primer: A20 (h)-PR: sc-37655-PR (20 μ l, 515 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Thippegowda, P.B., et al. 2010. Ca²⁺ influx via TRPC channels induces NF κ B-dependent A20 expression to prevent thrombin-induced apoptosis in endothelial cells. *Am. J. Physiol., Cell Physiol.* 298: C656-C664.
2. Balkhi, M.Y., et al. 2013. miR-29 acts as a decoy in sarcomas to protect the tumor suppressor A20 mRNA from degradation by HuR. *Sci. Signal.* 6: ra63.
3. Hu, J., et al. 2014. A20 is critical for the induction of Pam3CSK4-tolerance in monocytic THP-1 cells. *PLoS ONE* 9: e87528.
4. Luo, H., et al. 2015. A20 regulates IL-1-induced tolerant production of CXC chemokines in human mesangial cells via inhibition of MAPK signaling. *Sci. Rep.* 5: 18007.
5. Zhou, X., et al. 2018. TNF α induces tolerant production of CXC chemokines in colorectal cancer HCT116 cells via A20 inhibition of ERK signaling. *Int. Immunopharmacol.* 54: 296-302.
6. Li, Y., et al. 2020. A20 restricts inflammatory response and desensitizes gingival keratinocytes to apoptosis. *Front. Immunol.* 11: 365.
7. Choi, J., et al. 2021. Nuclear factor- κ B signaling in endometriotic stromal cells is not inhibited by progesterone owing to an aberrant endoplasmic reticulum stress response: a possible role for an altered inflammatory process in endometriosis. *Mol. Hum. Reprod.* 27: gaab002.

RESEARCH USE

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