

GADD 34 siRNA (h): sc-37414

BACKGROUND

It is well established that cell cycle progression is subject to arrest at G₁ and G₂ checkpoints in response to DNA damage, presumably to allow time for DNA repair prior to entry into S and M phase, respectively. The p53 tumor suppressor is required for one such G₁ checkpoint and functions to upregulate expression of GADD 45 and the mitotic inhibitory protein p21. GADD 45 has been shown to stimulate DNA excision repair *in vitro* and to inhibit entry of cells into S phase, and it apparently acts in concert with GADD 153 in inducing growth arrest. A related DNA-damage inducible gene, GADD 34 (also designated MyD116) has been shown to synergize with GADD 45 or GADD 153 in suppressing cell growth. PEG-3 (progression elevated gene-3) shares significant homology with GADD 34 and is inducible by DNA damage. PEG-3 expression has been shown to be elevated in cells displaying a progressed-transformed phenotype.

REFERENCES

1. Sherr, C.J. 1994. G₁ phase progression: cycling on cue. *Cell* 79: 551-555.
2. Hunter, T., et al. 1994. Cyclins and cancer II: cyclin D and CDK inhibitors come of age. *Cell* 79: 573-582.
3. Ron, D. 1994. Inducible growth arrest: new mechanistic insights. *Proc. Natl. Acad. Sci. USA* 91: 1985-1986.

CHROMOSOMAL LOCATION

Genetic locus: PPP1R15A (human) mapping to 19q13.33.

PRODUCT

GADD 34 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 GADD 34 shRNA Plasmid (h): sc-37414-SH and GADD 34 shRNA (h) Lentiviral Particles: sc-37414-V as alternate gene silencing products.

For independent verification of GADD 34 (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-37414A, sc-37414B and sc-37414C.

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

GADD 34 siRNA (h) is recommended for the inhibition of GADD 34 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

GADD 34 (B-10): sc-373815 is recommended as a control antibody for monitoring of GADD 34 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 GADD 34 gene expression knockdown using RT-PCR Primer: GADD 34 (h)-PR: sc-37414-PR (20 μ l, 543 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bastola, P., et al. 2016. VCP inhibitors induce endoplasmic reticulum stress, cause cell cycle arrest, trigger caspase-mediated cell death and synergistically kill ovarian cancer cells in combination with salubrinal. *Mol. Oncol.* 10: 1559-1574.
2. Dilshara, M.G., et al. 2016. Caffeic acid phenethyl ester enhances TRAIL-mediated apoptosis via CHOP-induced death receptor 5 upregulation in hepatocarcinoma Hep3B cells. *Mol. Cell. Biochem.* 418: 13-20.
3. Li, G., et al. 2016. Gartanin, an isoprenylated xanthone from the mangosteen fruit (*Garcinia mangostana*), is an androgen receptor degradation enhancer. *Mol. Nutr. Food Res.* 60: 1458-1469.
4. Seo, S.U., et al. 2018. HSP70 acetylation prevents combined mTORC1/2 inhibitor and curcumin treatment-induced apoptosis. *Molecules* 23: 2755.
5. Yahiro, K., et al. 2021. A novel endoplasmic stress mediator, Kelch domain containing 7B (KLHDC7B), increased Harakiri (HRK) in the SubAB-induced apoptosis signaling pathway. *Cell Death Discov.* 7: 360.
6. Zhang, Y.Y., et al. 2022. Licochalcone B induces DNA damage, cell cycle arrest, apoptosis, and enhances TRAIL sensitivity in hepatocellular carcinoma cells. *Chem. Biol. Interact.* E-published.

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.