SANTA CRUZ BIOTECHNOLOGY, INC.

GADD 34 siRNA (m): sc-37415

BACKGROUND

It is well established that cell cycle progression is subject to arrest at G_1 and G_2 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 G_1 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

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4. Smith, M.L., et al. 1994. Interaction of the p53-regulated protein GADD 45 with proliferating cell nuclear antigen. Science 266: 1376-1380.
5. Gujuluva, C.N., et al. 1994. Effect of UV-irradiation on cell cycle, viability and the expression of p53, GADD 153 and GADD 45 genes in normal and HPV-immortalized human oral keratinocytes. Oncogene 9: 1819-1827.
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7. Zhan, Q., et al. 1994. The GADD and MyD genes define a novel set of mammalian genes encoding acidic proteins that synergistically suppress cell growth. Mol. Cell. Biol. 14: 2361-2371.
8. Su, Z.Z., et al. 1997. Subtraction hybridization identifies a transformation progression associated-gene PEG-3 with sequence homology to a growth arrest and DNA damage-inducible gene. Proc. Natl. Acad. Sci. USA 94: 9125-9130.
9. Novoa, I., et al. 2001. Feedback inhibition of the unfolded protein response by GADD 34-mediated dephosphorylation of eIF2α. J. Cell Biol. 153: 1011-1022.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r15a (mouse) mapping to 7 B4.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

GADD 34 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 GADD 34 shRNA Plasmid (m): sc-37415-SH and GADD 34 shRNA (m) Lentiviral Particles: sc-37415-V as alternate gene silencing products.

For independent verification of GADD 34 (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-37415A, sc-37415B and sc-37415C.

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

GADD 34 siRNA (m) is recommended for the inhibition of GADD 34 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 GADD 34 gene expression knockdown using RT-PCR Primer: GADD 34 (m)-PR: sc-37415-PR (20 µl, 577 bp). 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.