SANTA CRUZ BIOTECHNOLOGY, INC.

p57 Kip2 siRNA (h): sc-35751

BACKGROUND

Cell cycle progression is regulated by a series of cyclin-dependent kinases that consist of catalytic subunits designated Cdks and activating subunits designated cyclins. Orderly progression through the cell cycle requires the activation and inactivation of different cyclin-Cdks at appropriate times. A series of proteins has been described that function as mitotic inhibitors. These include p21 Waf1/Cip1, the levels of which are elevated upon DNA damage in G_1 in a p53-dependent manner; p16 INK4A; and p16 INK4A-related inhibitors, designated p15 INK4B, p18 INK4C and p19 INK4D. A p21 Waf1/Cip1-related protein, p27, has been described as a negative regulator of G_1 progression and has been speculated to function as a possible mediator of TGFβ-induced G_1 arrest. A member of the p21 Waf1/Cip1/p27 family of mitotic inhibitory proteins, p57 Kip2 (also designated p57 and Kip2), is a potent, tight-binding cyclin-dependent inhibitor of several G_1 cyclin/Cdk complexes. Overexpression of p57 Kip2 arrests cells in G_1. Unlike p21 Waf1/Cip1, p57 Kip2 is not regulated by p53.

REFERENCES

1. Sherr, C.J. 1993. Mammalian G_1 cyclins. Cell 73: 1059-1065.
2. El-Deiry, W.S., et al. 1993. WAF1, a potential mediator of p53 tumor suppression. Cell 75: 817-825.
3. Xiong, Y., et al. 1993. p21 is a universal inhibitor of cyclin kinases. Nature 366: 701-704.
4. Serrano, M., et al. 1993. A new regulatory motif in cell-cycle control causing specific inhibition of cyclin D/CDK4. Nature 366: 704-707.

CHROMOSOMAL LOCATION

Genetic locus: CDKN1C (human) mapping to 11p15.4.

PRODUCT

p57 Kip2 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 p57 Kip2 shRNA Plasmid (h): sc-35751-SH and p57 Kip2 shRNA (h) Lentiviral Particles: sc-35751-V as alternate gene silencing products.

For independent verification of p57 Kip2 (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-35751A, sc-35751B and sc-35751C.

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

p57 Kip2 siRNA (h) is recommended for the inhibition of p57 Kip2 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.

GENE EXPRESSION MONITORING

p57 Kip2 (KP39): sc-56341 is recommended as a control antibody for monitoring of p57 Kip2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor p57 Kip2 gene expression knockdown using RT-PCR Primer: p57 Kip2 (h)-PR: sc-35751-PR (20 µl, 467 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ding, Q., et al. 2005. p57 Kip1 and cyclin D1 are necessary for focal adhesion kinase regulation of cell cycle progression in glioblastoma cells propagated *in vitro* and *in vivo* in the scid mouse brain. J. Biol. Chem. 280: 6802-6815.
2. Chow, S.E., et al. 2011. Downregulation of p57 Kip2 promotes cell invasion via LIMK/cofilin pathway in human nasopharyngeal carcinoma cells. J. Cell. Biochem. 112: 3459-3468.
3. Zhang, E., et al. 2016. Increased expression of long noncoding RNA TUG1 predicts a poor prognosis of gastric cancer and regulates cell proliferation by epigenetically silencing of p57. Cell Death Dis. 7: e2109.

RESEARCH USE

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