SANTA CRUZ BIOTECHNOLOGY, INC.

Wee 2 siRNA (h): sc-106809

BACKGROUND

The Wee kinases are major regulators of mitotic entry. Wee kinases function by phosphorylating Cdc2 and related Cdks on conserved tyrosine and threonine residues. This phosphorylation blocks the activity of the Cdc2 and prevents entry into mitosis. The abundance and activity of the Wee kinases are regulated during the cell cycle and development. Wee 2 (Wee1-like protein kinase 2), also known as WEE1B, is a 567 amino acid nuclear protein belonging to the protein kinase superfamily. Expressed in testis, Wee 2 phosphorylates and inhibits Cdc2 and may act as a negative regulator of entry into the G_2 to M transition of mitosis. The gene encoding Wee 2 is located on human chromosome 7, which houses over 1,000 genes and comprises nearly 5% of the human genome. Defects in some of the genes localized to chromosome 7 have been linked to osteogenesis imperfecta, Williams-Beuren syndrome, Pendred syndrome, lissencephaly, citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Morla, A., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
2. Krek, W., et al. 1991. Differential phosphorylation of vertebrate p34Cdc2 kinase at the G_1/S and G_2/M transitions of the cell cycle: identification of major phosphorylation sites. EMBO J. 10: 305-316.
3. Igarashi, M., et al. 1991. Wee1$^+$-like gene in human cells. Nature 353: 80-83.
4. McGowan, C.H., et al. 1995. Human Wee1 kinase inhibits cell division by phosphorylating p34Cdc2 exclusively on Tyr 15. EMBO J. 12: 75-85.
5. Nakanishi, M., et al. 2000. Identification and characterization of human WEE1B, a new member of the WEE1 family of Cdk-inhibitory kinases. Genes Cells 5: 839-847.
6. Leise, W., et al. 2002. Multiple Cdk1 inhibitory kinases regulate the cell cycle during development. Dev. Biol. 249: 156-173.
7. Petrus, M.J.,et al. 2004. Altered expression of Chk1 disrupts cell cycle remodeling at the midblastula transition in *Xenopus laevis* embryos. Cell Cycle 3: 212-217.

CHROMOSOMAL LOCATION

Genetic locus: WEE2 (human) mapping to 7q34.

PRODUCT

Wee 2 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 Wee 2 shRNA Plasmid (h): sc-106809-SH and Wee 2 shRNA (h) Lentiviral Particles: sc-106809-V as alternate gene silencing products.

For independent verification of Wee 2 (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-106809A, sc-106809B and sc-106809C.

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

Wee 2 siRNA (h) is recommended for the inhibition of Wee 2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Wee 2 gene expression knockdown using RT-PCR Primer: Wee 2 (h)-PR: sc-106809-PR (20 µl). 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 for detailed protocols and support products.