



p27 Kip1 (1-197): sc-4091

BACKGROUND

Cell cycle progression is regulated by a series of cyclin-dependent kinases consisting of catalytic subunits, designated Cdk, as well as 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 recently been described that function as "mitotic inhibitors". These include p21, the levels of which are elevated upon DNA damage in G₁ in a p53-dependent manner; p16; and a more recently described p16-related inhibitor designated p15. A p21-related protein, p27 Kip1, has been described as a negative regulator of G₁ progression and speculated to function as a possible mediator of TGFβ-induced G₁ arrest. p27 Kip1 interacts strongly with D-type cyclins and Cdk4 *in vitro* and, to a lesser extent, with cyclin E and Cdk2.

REFERENCES

1. Sherr, C.J. 1993. Mammalian G₁ 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.
5. Hannon, G.J., et al. 1994. p15^{INK4B} is a potential effector of TGFβ-induced cell cycle arrest. *Nature* 371: 257-260.
6. Polyak, K., et al. 1994. p27 Kip1, a cyclin-Cdk inhibitor, links transforming growth factor β and contact inhibition to cell cycle arrest. *Genes Dev.* 8: 9-22.
7. Hengst, L., et al. 1994. A cell cycle-regulated inhibitor of cyclin-dependent kinases. *Proc. Natl. Acad. Sci. USA* 91: 5291-5295.
8. Polyak, K., et al. 1994. Cloning of p27 Kip1, a cyclin-dependent kinase inhibitor and a potential mediator of extracellular antimitogenic signals. *Cell* 78: 59-66.
9. Toyoshima, H., et al. 1994. p27, a novel inhibitor of G₁ cyclin-Cdk protein kinase activity, is related to p21. *Cell* 78: 67-74.

CHROMOSOMAL LOCATION

Genetic locus: CDKN1B (human) mapping to 12p13.1; Cdkn1b (mouse) mapping to 6 G1.

SOURCE

p27 Kip1 (1-197) is expressed in *E. coli* as a 28 kDa polyhistidine tagged fusion protein corresponding to amino acids 1-197 representing full length p27 Kip1 (also designated Kip1 p27) mitotic inhibitory protein of mouse origin.

PROTOCOLS

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

PRODUCT

p27 Kip1 (1-197) is purified from bacterial lysates (> 98%) by Ni²⁺ affinity chromatography; supplied as 50 μg in 1 x PBS, 50% glycerol and 5 mM DTT.

Available as a Western blotting control; 10 μg in 0.1 ml SDS-PAGE loading buffer, p27 Kip1 (1-197): sc-4091 WB.

APPLICATIONS

p27 Kip1 (1-197) is suitable as a Western blotting control for sc-527, sc-528, sc-776 and sc-1641.

Molecular Weight of p27 Kip1: 27 kDa.

SELECT PRODUCT CITATIONS

1. Acevedo-Duncan, M., et al. 2002. Human glioma PKC-α and PKC-βII phosphorylate cyclin-dependent kinase activating kinase during the cell cycle. *Cell Prolif.* 35: 23-36.
2. Gil-Perotin, S., et al. 2011. Roles of p53 and p27 Kip1 in the regulation of neurogenesis in the murine adult subventricular zone. *Eur. J. Neurosci.* 34: 1040-1052.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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