

p21 Waf1/Cip1 (1-159): sc-4078

BACKGROUND

It is now well established that cyclins play a positive role in promoting cell cycle transitions via their ability to associate with and activate their cognate cyclin-dependent kinases (Cdks). Cdk2 associates with cyclins A, D and E, and has been implicated in the control of the G₁ to S phase transition in mammals. A novel Cdk-interacting protein, designated p21 Waf1/Cip1, Cip1 or WAF1, has been identified in cyclin A, cyclin D1, cyclin E and Cdk2 immunoprecipitates. p21 Waf1/Cip1 is a potent, tight-binding inhibitor of Cdks and can inhibit the phosphorylation of Rb by cyclin A-Cdk 2, cyclin E-Cdk2, cyclin D1-Cdk4 and cyclin D2-Cdk4 complexes. Expression of p21 Waf1/Cip1 is inducible by wildtype, but not mutant, p53. The mouse homolog of p21 Waf1/Cip1 is designated CAP20.

REFERENCES

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3. El-Deiry, W.S., et al. 1993. WAF1, a potential mediator of p53 tumor suppression. *Cell* 75: 817-825.
4. Hunter, T. 1993. Braking the cycle. *Cell* 75: 839-841.
5. Kato, J., et al. 1993. Direct binding of cyclin D to the retinoblastoma gene product and pRb phosphorylation by the cyclin D-dependent kinase Cdk4. *Genes Dev.* 7: 331-342.
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7. Gu, Y., et al. 1993. Inhibition of Cdk2 activity *in vivo* by an associated 20 kDa regulatory subunit. *Nature* 366: 707-710.
8. El-Deiry, W.S., et al. 1994. WAF1/Cip1 is induced in p53-mediated G₁ arrest and apoptosis. *Cancer Res.* 54: 1169-1174.

CHROMOSOMAL LOCATION

Genetic locus: CDKN1A (human) mapping to 6p21.2; Cdkn1a (mouse) mapping to 17 A3.3.

SOURCE

p21 Waf1/Cip1 (1-159) is expressed in *E. coli* as a 48 kDa tagged fusion protein corresponding to amino acids 1-159 representing full length p21 Waf1/Cip1 protein of mouse origin.

PRODUCT

p21 Waf1/Cip1 (1-159) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 50 µg purified protein in PBS containing 5 mM DTT and 50% glycerol.

Available as a Western blotting control; 10 µg in 0.1 ml SDS-PAGE loading buffer, p21 Waf1/Cip1 (1-159): sc-4078 WB.

STORAGE

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

APPLICATIONS

p21 Waf1/Cip1 (1-159): sc-4078 is suitable as a substrate for PKG: sc-4817 and PKC α: sc-4820.

p21 Waf1/Cip1 (1-159): sc-4078 WB is suitable as a Western blotting control for sc-397, sc-471, sc-756 and sc-6246.

SELECT PRODUCT CITATIONS

1. Rössner, P., Jr., et al. 2002. Acrylonitrile exposure: the effect on p53 and p21^{WAF1} protein levels in the blood plasma of occupationally exposed workers and *in vitro* in human diploid lung fibroblasts. *Mutat. Res.* 517: 239-250.
2. Rössner, P., Jr., et al. 2003. The influence of occupational exposure to PAHs on the blood plasma levels of p53 and p21^{WAF1} proteins. *Mutat. Res.* 535: 87-94.
3. Zu, K., et al. 2006. Enhanced selenium effect on growth arrest by BiP/GRP78 knockdown in p53-null human prostate cancer cells. *Oncogene* 25: 546-554.
4. Furuta, T., et al. 2006. p21^{CDKN1A} allows the repair of replication-mediated DNA double-strand breaks induced by topoisomerase I and is inactivated by the checkpoint kinase inhibitor 7-hydroxystaurosporine. *Oncogene* 25: 2839-2849.
5. Rössner, P., Jr., et al. 2007. Air pollution by carcinogenic PAHs and plasma levels of p53 and p21^{WAF1} proteins. *Mutat. Res.* 620: 34-40.

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.