

# p21 Waf1/Cip1 (187): sc-817

## 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 G<sub>1</sub> 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

- Sherr, C.J. 1993. Mammalian G<sub>1</sub> cyclins. *Cell* 73: 1059-1065.
- Harper, J.W., et al. 1993. The p21 Cdk-interacting protein Cip1 is a potent inhibitor of G<sub>1</sub> cyclin-dependent kinases. *Cell* 75: 805-816.
- El-Deiry, W.S., et al. 1993. WAF1, a potential mediator of p53 tumor suppression. *Cell* 75: 817-825.
- Hunter, T. 1993. Braking the cycle. *Cell* 75: 839-841.
- 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

p21 Waf1/Cip1 (187) is a mouse monoclonal antibody produced by immunization with full length p21 Waf1/Cip1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-817 X, 200 µg/0.1 ml.

p21 Waf1/Cip1 (187) is available conjugated to agarose (sc-817 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-817 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-817 PE), fluorescein (sc-817 FITC), Alexa Fluor® 488 (sc-817 AF488), Alexa Fluor® 546 (sc-817 AF546), Alexa Fluor® 594 (sc-817 AF594) or Alexa Fluor® 647 (sc-817 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-817 AF680) or Alexa Fluor® 790 (sc-817 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

p21 Waf1/Cip1 (187) is recommended for detection of p21 Waf1/Cip1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

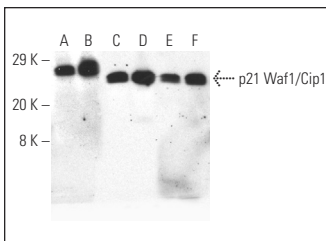
Suitable for use as control antibody for p21 Waf1/Cip1 siRNA (h): sc-29427, p21 Waf1/Cip1 siRNA (m): sc-29428, p21 Waf1/Cip1 siRNA (r): sc-108036, p21 Waf1/Cip1 shRNA Plasmid (h): sc-29427-SH, p21 Waf1/Cip1 shRNA Plasmid (m): sc-29428-SH, p21 Waf1/Cip1 shRNA Plasmid (r): sc-108036-SH, p21 Waf1/Cip1 shRNA (h) Lentiviral Particles: sc-29427-V, p21 Waf1/Cip1 shRNA (m) Lentiviral Particles: sc-29428-V and p21 Waf1/Cip1 shRNA (r) Lentiviral Particles: sc-108036-V.

p21 Waf1/Cip1 (187) X TransCruz antibody is recommended for ChIP assays.

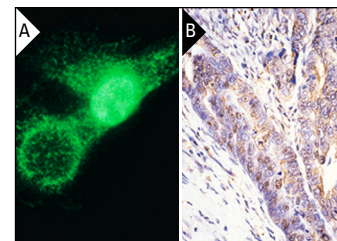
Molecular Weight of p21 Waf1/Cip1: 21 kDa.

Positive Controls: C32 nuclear extract: sc-2136, MCF7 whole cell lysate: sc-2206 or HeLa nuclear extract: sc-2120.

## DATA



Western blot analysis of p21 Waf1/Cip1 expression in untreated (A, C, E) and phorbol ester-induced (B, D, F) C32 nuclear extracts. Antibodies tested include p21 Waf1/Cip1 (187): sc-817 (A, B), p21 (C-19)-G: sc-397-G (C, D) and p21 (C-19): sc-397 (E, F).



p21 Waf1/Cip1 (187): sc-817. Immunofluorescence staining of a mixed population of NIH/3T3 cells transfected with human p21 Waf1/Cip1 cDNA. Note nuclear staining of a p21 Waf1/Cip1 positive cell (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human colon carcinoma tissue showing nuclear staining of ductal epithelia (B).

## SELECT PRODUCT CITATIONS

- Adams, P., et al. 1996. Identification of a cyclin-Cdk2 recognition motif present in substrates and p21-like cyclin-dependent kinase inhibitors. *Mol. Cell. Biol.* 16: 6623-6633.
- Li, H., et al. 2018. p21 protects cardiomyocytes against ischemia-reperfusion injury by inhibiting oxidative stress. *Mol. Med. Rep.* 17: 4665-4671.
- Uroda, T., et al. 2019. Conserved pseudoknots in lncRNA MEG3 are essential for stimulation of the p53 pathway. *Mol. Cell* 75: 982-995.e9.
- Ma, H.M., et al. 2020. HOXA5 inhibits the proliferation and neoplasia of cervical cancer cells via downregulating the activity of the Wnt/β-catenin pathway and transactivating TP53. *Cell Death Dis.* 11: 420.

## RESEARCH USE

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