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## **p21<sup>WAF1</sup> Ab-6 (Clone HJ21; same as WA-1)**

### **Mouse Monoclonal Antibody**

**Cat. #DLN-09522, DLN-09523, or DLN-09521 (0.1ml, 0.5ml, or 1.0ml at 200µg/ml)** (Purified Ab with BSA and Azide)

**Cat. #DLN-09524 or DLN-09525 (0.1ml or 0.2ml at 1.0mg/ml)** (Purified Ab without BSA and Azide)

**Cat. #DLN-38591 (0.1ml)** (Positive Control for Western Blot)

**Description:** p21<sup>WAF1</sup>/*Cip1*/*Sdi1*/*Pic1* is a tumor suppressor protein. Expression of p21<sup>WAF1</sup> is induced by wild type, but not mutant, p53 suppressor protein. The p21<sup>WAF1</sup> protein binds to cyclin/CDK complexes and inhibits their kinase activity thereby stopping cell cycle progression. It also binds to PCNA (proliferating cell nuclear antigen) and blocks DNA replication but not the DNA repair process.

**Mol. Wt. of Antigen:** 21kDa

**Epitope:** Not determined

**Species Reactivity:** Human and Rat. Others-not known.

**Clone Designation:** HJ21 (same as WA-1)

**Ig Isotype:** IgG<sub>1</sub>

**Immunogen:** Human recombinant p21 protein.

### **Applications and Suggested Dilutions:**

- Flow Cytometry (Not Suitable)
- Immunohistology (Not suitable)
- Immunofluorescence
- Immunoprecipitation (Not suitable)
- Western Blotting (Ab 1-2µg/ml for 2hrs at RT)

The optimal dilution for a specific application should be determined by the investigator.

**Positive Control:** PC12, Ls174T or Raji cells

**Cellular Localization:** Nuclear

### **Supplied As:**

200µg/ml antibody purified from the ascites fluid by Protein G chromatography. Prepared in 10mM PBS, pH 7.4, with 0.2% BSA and 0.09% sodium azide. Also available without BSA and azide at 1mg/ml.

### **Storage and Stability:**

Ab with sodium azide is stable for 24 months when stored at 2-8°C. Antibody WITHOUT sodium azide is stable for 36 months when stored at below 0°C.



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***Key References:***

1. Kovalic J, et al. (1996) Int J Oncol 9, suppl, 835.

***Limitations and Warranty:***

Our products are intended FOR RESEARCH USE ONLY and are not approved for clinical diagnosis, drug use or therapeutic procedures. No products are to be construed as a recommendation for use in violation of any patents. We make no representations, warranties or assurances as to the accuracy or completeness of information provided on our data sheets and website. Our warranty is limited to the actual price paid for the product. Dianova is not liable for any property damage, personal injury, time or effort or economic loss caused by our products.

***Material Safety Data:***

This product is not licensed or approved for administration to humans or to animals other than the experimental animals. Standard Laboratory Practices should be followed when handling this material. The chemical, physical, and toxicological properties of this material have not been thoroughly investigated. Appropriate measures should be taken to avoid skin and eye contact, inhalation, and ingestion. The material contains 0.09% sodium azide as a preservative. Although the quantity of azide is very small, appropriate care should be taken when handling this material as indicated above. The National Institute of Occupational Safety and Health has issued a bulletin citing the potential explosion hazard due to the reaction of sodium azide with copper, lead, brass, or solder in the plumbing systems. Sodium azide forms hydrazoic acid in acidic conditions and should be discarded in a large volume of running water to avoid deposits forming in metal drainage pipes.

***For Research Use Only***

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**dianova GmbH**

Warburgstr. 45 • 20354 Hamburg

Telefon (040)45067-0 • Telefax (040) 45067-490 • [www.dianova.de](http://www.dianova.de)



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1. Deng, C., Zhang, P., Harper, W. J., Elledge, S. J., Leder, P. Mice lacking p21<sup>CIP1</sup>/WAF1 undergo normal development, but are defective in G1 checkpoint control. *Cell* 82: 675-684, 1995.
2. el-Deiry, W. S., Tokino, T., Waldman, T., Oliner, J. D., Velculescu, V. E., Burrell, M., Hill, D. E., Healy, E., Rees, J. L., Hamilton, S. R., Kinzler, W., Vogelstein, B. Topological control of p21<sup>WAF1</sup> expression in normal and neoplastic tissue. *Cancer Res.* 55: 2910-2919, 1995.
3. el-Deiry, W.S., Harper, J.W., O'Connor, P.M., Velculescu, V.E., Canman, C.E., Jackman, J., Pietenpol, J.A., Burrell, M., Hill, D.E., Wang, Y., Wiman, K.G., Mercer, W.E., Kastan, M.B., Kohn, K.W., Elledge, S.J., Kinzler, K.W., and Vogelstein, B. WAF1/CIP1 is induced in p53-mediated G1 arrest and apoptosis. *Cancer Res.*, 54: 1169-1174, 1994.
4. el-Deiry, W.S., Tokino, T., Velculescu, V.E., Levy, D.B., Parsons, R., Trent, J.M., Lin, D., Mercer, W.E., Kinzler, K.W., and Vogelstein, B. WAF1, a potential mediator of p53 tumor suppression. *Cell*, 75: 817-825, 1993.
5. Gao, X., Y. Q. Chen, N. Wu, D. J. Grignon, W. Sakr, A. T. Porter, K. V. Honn. Somatic mutations of the WAF1/CIP1 gene in human prostate cancer. *Oncogene*, 11:1395-1398, 1995.
6. Greenblatt, M.S., Bennett, W.P., Hollstein, M., and Harris, C.C. Mutations in the p53 tumor suppressor gene: clues to cancer etiology and molecular pathogenesis. *Cancer Res.*, 54: 4855-4878, 1994.
7. Halevy, O., Novitsch, B. G., Spicer, D. B., Skapek, S. X., Rhee, J., Hannon, G.J., Beach, D., and Lassar, A. B. Correlation of terminal cell cycle arrest of skeletal muscle with induction of p21 by MyoD. *Science*, 267: 1018-1024, 1995.
8. Harper, J.W., Adami, G.R., Wei, N., Keyomarsi, K., and Elledge, S.J. The p21 Cdk-interacting protein Cip1 is a potent inhibitor of G1 cyclin-dependent kinases. *Cell*, 75: 805-816, 1993.
9. Hunter, T., Pines, J. Cyclins and cancer II: cyclin D and CDK inhibitors come of age. *Cell* 79: 573-582, 1994.
10. Jiang, H., Lin, J., Su, Z.Z., Collart, F.R., Huberman, E., and Fisher, P.B. Induction of differentiation in human promyelocytic HL-60 leukemia cells activates p21, WAF1/CIP1, expression in the absence of p53. *Oncogene.*, 9:3397-3406, 1994.
11. Jiang, W., Kahn, S.M., Tomita, N., Zhang, Y.J., Lu, S.H., and Weinstein, I.B. Amplification and expression of the human cyclin D gene in esophageal cancer. *Cancer Res.*, 52: 2980-2983, 1992.
12. Keyomarsi, K. and Pardee, A.B. Redundant cyclin overexpression and gene amplification in breast cancer cells. *Proc. Natl. Acad. Sci. U. S. A.*, 90:1112-1116, 1993.
13. Keyomarsi, K., O'Leary, N., Molnar, G., Lees, E., Fingert, H.J., and Pardee, A.B. Cyclin E, a potential prognostic marker for breast cancer. *Cancer Res.*, 54: 380-385, 1994.
14. Khatib, Z.A., Matsushime, H., Valentine, M., Shapiro, D.N., Sherr, C.J., and Look, A.T. Coamplification of the CDK4 gene with MDM2 and GLI in human sarcomas. *Cancer Res.*, 53: 5535-5541, 1993.
15. Kuerbitz, S.J., Plunkett, B.S., Walsh, W.V., and Kastan, M.B. Wild-type p53 is a cell cycle checkpoint determinant following irradiation. *Proc. Natl. Acad. Sci. U. S. A.*, 89: 7491-7495, 1992.
16. Leach, F.S., Elledge, S.J., Sherr, C.J., Willson, J.K., Markowitz, S., Kinzler, K.W., and Vogelstein, B. Amplification of cyclin genes in colorectal carcinomas. *Cancer Res.*, 53: 1986-1989, 1993.
17. Li, R., Waga, S., Hannon, G.J., Beach, D. and Stillman, B. Differential effects by the p21 CDK inhibitor on PCNA-dependent DNA replication and repair. *Nature*, 371: 534-537, 1994.
18. Michieli, P., Chedid, M., Lin, D., Pierce, J.H., Mercer, W.E., and Givol, D. Induction of WAF1/CIP1 by a p53-independent pathway. *Cancer Res.*, 54:3391-3395, 1994.
19. Motokura, T., Bloom, T., Kim, H. G., Juppner, H., Ruderman, J. V., Kronenberg, H. M., Arnold, A. A novel cyclin encoded by a bcl-linked candidate oncogene. *Nature* 350: 512-515, 1991.
20. Nishida, N., Fukuda, Y., Komeda, T., Kita, R., Sando, T., Furukawa, M., Amenomori, M., Shibagaki, I., Nakao, K., and Ikenaga, M. Amplification and overexpression of the cyclin D1 gene in aggressive human hepatocellular carcinoma. *Cancer Res.*, 54: 3107-3110, 1994.
21. Noda, A., Ning, Y., Venable, S.F., Pereira-Smith, O.M., and Smith, J.R. Cloning of senescent cell-derived inhibitors of DNA synthesis using an expression screen. *Exp. Cell Res.*, 211: 90-98, 1994.
22. Nurse, P. Ordering S phase and m phase in the cell cycle. *Cell* 79:547-550, 1994.
23. O'Connor, P.M., Ferris, D.K., Pagano, M., Draetta, G., Pines, J., Hunter, T., Longo, D.L., and Kohn, K.W. G2 delay induced by nitrogen mustard in human cells affects cyclin A/cdk2 and cyclin B1/cdc2-kinase complexes differently. *J. Biol. Chem.*, 268: 8298-8308, 1993.
24. Parker, S. B., Eichele, G., Zhang, P., Rawls, A., Sands, A. T., Bradley, A., Olson, E. N., Harper, J. W., and Elledge, S. J. P53-independent expression of p21<sup>Cip1</sup> in muscle and other terminally differentiating cells. *Science*, 267: 1024-1027, 1995.

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**dianova GmbH**

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Telefon (040)45067-0 • Telefax (040) 45067-490 • [www.dianova.de](http://www.dianova.de)