

Product Information

Monoclonal Anti-p53–Peroxidase

Clone DO-1

produced in mouse, purified immunoglobulin

Catalog Number **P9124**

Product Description

Monoclonal Anti-p53–Peroxidase is a solution of a Protein A purified fraction of monoclonal anti-p53 isolated from ascites fluid of the DO-1 hybridoma, conjugated to horseradish peroxidase.

Monoclonal Anti-p53–Peroxidase recognizes human p53.¹⁻⁵ The antibody epitope resides between amino acid 20-25 of human p53.² The peroxidase-conjugated antibody may be used in immunoblotting, ~53 kDa.¹⁻³ The non-conjugated antibody works in: immunoblotting, ELISA,⁷ immunocytochemistry,¹ immunohistochemistry,^{4, 5} flow cytometry,¹ immunoprecipitation,⁶ and CHIP assay.⁵

The p53 gene, located on chromosome 17p, is the most commonly mutated gene in human cancer with more than 500 mutations described. These mutations are found in various types of malignancies, hematologic as well as solid tumors. However, not all mutants are equivalent in terms of biological activity. The p53 protein is highly conserved and expressed in normal tissues.⁸⁻¹⁶ Wild-type p53 is shown to be a sequence-specific transcription factor, directly interacting with various cellular and viral proteins. Intact p53 function is essential for the maintenance of the non-tumorigenic phenotype of cells. Thus, p53 plays a vital role in suppressing the development of cancer. The p53 tumor suppressor protein is important in the cellular response to DNA damage and other genomic aberrations. Cells exposed to DNA-damaging agents such as ionizing radiation, UV radiation, and chemical agents initiate a complex response that includes the inhibition of cell cycle progression until damage is repaired. If the DNA damage is beyond repair, cells may enter a prolonged state of arrest or undergo a programmed cell death known as apoptosis, thereby maintaining genetic stability in the organism.⁸⁻¹⁶ In response to DNA damage, p53 is phosphorylated at multiple sites by several protein kinases. Phosphorylation of p53 at Ser¹⁵ by ATM, ATR, and DNAPK leads to a reduced interaction with its negative regulator, MDM2, and accumulation of p53 protein. Chk2 and Chk1 can phosphorylate p53 at Ser²⁰, which enhances its activity, tetramerization and stability. Elevation of p53 protein

induces the transcriptional activation of multiple genes, including p21^{waf1}. p21^{waf1} interacts directly with cyclin dependent kinases, important for cell cycle progression, thereby inhibiting their activity and resulting in cell cycle arrest.⁸⁻¹⁶

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 0.01% merthiolate as a preservative.

Antibody concentration: 2-4 mg/mL

Molar ratio: Ab/E: 0.7-1.4

Enzyme activity: 200-500 units/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in “frost-free” freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working dilution of 1:3,500-1:7,500 is recommended using A431 total cell extract.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Bonsing, B.A., et al., *Cytometry*, **28**, 11-24 (1997).
2. Craig, A.L., et al., *Biochem. J.*, **342**, 133-141 (1999).
3. Guang-Zhi, L., et al., *Proc. Natl. Acad. Sci. USA*, **100**, 527-531 (2003).

4. Sato, Y., et al., *Anticancer Res.*, **17**, 2779-2788 (1997).
5. Feng, Z., et al., *Oncogene*, **25**, 1-7 (2005).
6. Rehman, A., et al., *Breast Cancer Res.*, **7**, 765-774 (2005).
7. Gould K.A., et al., *Mol. Pharmacol.*, **66**, 1301-1309 (2004).
8. Hirao, A., et al., *Science*, **287**, 1824-1827 (2000).
9. Hung, J., et al., *Acta Orthop. Scand. Suppl.*, **273**, 68-73 (1997).
10. Levine, A.J., *Cell*, **88**, 323-331 (1997).
11. Milczarek, G.J., et al., *Life Sci.*, **60**, 1-11 (1997).
12. Milner, J., *Pathol. Biol.*, **45**, 797-803 (1997).
13. Prives, C., *J. Pathol.*, **187**, 122-126 (1999).
14. Prokocimer, M., et al., *Hum. Mutat.*, **12**, 4-18 (1998).
15. Shaw, P.H., *Pathol. Res. Pract.*, **192**, 669-675 (1996).
16. Shieh, S.Y., et al., *Cell*, **91**, 325-334 (1997).

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