



Product Information

MONOCLONAL ANTI-p53

Clone BP53-12

Mouse Ascites Fluid

Product Number **P 5813**

Product Description

Monoclonal Anti-p53 (mouse Ig2a isotype) is derived from the BP53-12 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with recombinant human wild-type p53 protein.¹ The isotype is determined using the Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-p53 recognizes a denaturation-resistant epitope on the primate p53 nuclear protein (53 kDa). It does not react with other cellular proteins. The antibody is reactive in immunoblotting of SDS-PAGE-separated whole cell lysates from human cell lines known to express high levels of the p53 protein (e.g., the human breast cancer line PMC42), but not against normal fibroblasts.¹ Immunohistochemical staining confined to the malignant lesion has been found across a wide range of human malignancies using frozen, methacarn-, modified-formol- or cold formol-saline-fixed, paraffin-embedded tissue sections. However, not all cancer tissues express p53 protein.^{1,2} The product is also useful for immunoprecipitation, ELISA and immunocytochemical staining of cultured cell lines. The antibody recognizes the p53/T complex (SV-40 encoded large T antigen).

Human cancer is a multistep process in which genetic damage to key regulatory genes, known as oncogenes, and tumor-suppressor genes accumulates. The wild-type p53 gene is classified as a tumor-suppressor gene.³ Point mutations of the wild-type gene have been suggested to be a key event in the development of malignancy as the mutant protein acts as a dominant oncogene. Indeed, mutations of the p53 gene are the most common molecular changes identified in human cancer. They have been reported⁴ to be a frequent feature of breast, lung, colon, ovarian, brain, testicular and bladder cancers, melanoma, neurofibrosarcoma, and certain types of leukemia.

In all of these cases, the mutation is found only in the tumor tissue and not in the normal tissue. The human wild-type p53 protein is a 393 amino acid nuclear phosphoprotein, present in the nucleus of all normal mammalian cells where it appears to be involved in the regulation of cell proliferation. The normal protein has a very short half-life and is present in only minute amounts in normal tissues and cells. In contrast, mutant p53 protein produced by malignant cells is usually a product of a point mutation in the p53 gene leading to substitution of a single amino acid that significantly prolongs the half-life of the protein. The accumulation of high levels of p53 is a potential novel marker for malignancy. Monoclonal antibody is a useful tool suitable for the detection and quantitation of p53 applying various immunochemical techniques, especially immunohistochemistry using conventionally fixed and processed histological sections.⁵

Reagents

The product is provided as ascites fluid with 0.1% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for a maximum of one month. For extended storage, the solution may be frozen in working aliquots. Repeated freezing and thawing is **not** recommended. Storage in "frost-free" freezers is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

The minimum working dilution of 1:400 is determined by indirect immunoperoxidase labeling of methacarn-fixed, paraffin-embedded sections of human or animal tissue.

In order to obtain best results in different techniques or preparations, it is recommended that each individual user determine their optimal working dilutions by titration assay.

References

1. Bártek, J., et al., *Oncogene*, **6**, 1699-1703 (1991).
2. Bártkova, J., et al., *Int. J. Cancer*, **49**, 196-202 (1991).
3. Levine, A., et al., *Nature*, **351**, 453-456 (1991).
4. Midgley, C. A., et al., *J. Cell Sci.*, **101**, 183-189 (1992).
5. Vojtesek, B., et al., *J. Immunol. Methods*, **151**, 237-244 (1992).

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