Datasheet

Anti-p53 Antibody, Mouse Monoclonal

Clone DO-7, purified from hybridoma cell culture

P8999

Product Description

Monoclonal Anti-p53, (mouse IgG2b isotype) is derived from the hybridoma DO-7 produced by the fusion of mouse myeloma cells (SP2 cells) and splenocytes from BALB/c mice immunized with recombinant human wild type p53. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Cat. No. ISO2.

Monoclonal Anti-p53 recognizes human p53.[1, 2] The antibody may be used in immunoblotting (~ 53 kDa),[3] ELISA,[4] immunocytochemistry,[5] immunohistochemistry,[1,2] and immunoprecipitation.[3]

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.[6-14] 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-tumorogenic 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. [6-14] In response to DNA damage, p53 is phosphorylated at multiple sites by several protein kinases. Phosphorylation of p53 at Ser^{15} 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 Ser^{20}, 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.[6-14]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~ 2 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the 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 antibody concentration of 0.1-0.2 µg/mL is recommended using human A431 cells.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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