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ProductInformation

ANTI-p53
Developed in Sheep, Fractionated Antiserum

Product Number **P 4235**

Product Description

Anti-p53 is developed in sheep using a GST p53 fusion protein corresponding to the amino acids 1 to 393 of human p53 as immunogen.[1] Whole antiserum is salt-fractionated to provide primarily the immunoglobulin fraction of antiserum.

Anti-p53 recognizes p53 by various immunochemical techniques including immunoblotting, immunoprecipitation, and immunohistochemistry. It is reactive to both wild-type and mutant p53 in human, mouse, and rat.

The tumor-suppressor protein p53 exhibits sequence specific DNA-binding, directly interacts with various cellular and viral proteins, and induces cell cycle arrest in response to DNA damage.[1,2] In response to signals generated by a variety of genotoxic stresses, e.g, UV irradiation or DNA damage, p53 is expressed and undergoes post-translational modification that results in its accumulation in the nucleus.[3] Activation of p53 leads to cell cycle arrest and in some cases to apoptosis, resulting in the inability of genetically damaged cells to proliferate. Thus, the p53-dependent pathways help to maintain genomic stability by eliminating damaged cells.

Point mutations of the wild-type p53 gene are key events in the development of malignancy as the mutant protein acts as the dominant regulatory oncogene. Indeed, mutations of the p53 gene are the most common molecular changes identified in human cancer. They have been reported [4] 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 and 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 in the protein and significantly prolonged half-life. The accumulation of high levels of p53 is a potential marker for malignancy.

Reagent

Anti-p53 is supplied as 1 mg/ml of fractionated antiserum in phosphate buffered saline containing 0.08 % sodium azide.

Storage/Stability

For continuous use, store at 2 °C to 8 °C for up to one month. For extended storage, freeze in working aliquots at –20 °C. Avoid repeated freezing and thawing. Do not store in a frost-free freezer. 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.

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.

Product Profile

For immunoblotting, a working concentration of 1.0 to 10 µg/ml antibody is recommended. A band of approximately 53 kDa is detected.

For tissue immunohistochemistry, the antibody detects human p53 in formalin-fixed, paraffin-embedded tissue sections.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentrations by titration test.

References

1. Ko, L.J., and Prieves, C., Genes Dev., **10**, 1054-1072 (1996).
2. Hartwell, L.H., and Kastan, M.B., Science, **266**, 1821-1828 (1994).
3. Jimenez. G. S., et al., Oncogene, **18**, 7656-7665 (1999).
4. Midgley, C., et al., J. Cell Sci., **101**, 183-189 (1992).

KAA 06/01