ProductInformation

MONOCLONAL ANTI-p16$^{INK4/CDKN2}$
Clone DCS-50
Mouse Ascites Fluid

Product Number **P 0968**

Product Description

Monoclonal Anti-p16$^{INK4/CDKN2}$ (mouse IgG1 isotype) is derived from the DCS-50 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Recombinant p16$^{INK4/CDKN2}$ protein of human origin was used as the immunogen.[1] The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

During the cell cycle of most somatic cells, DNA synthesis (S-phase) and mitosis (M-phase) are separated by two gap phases (G_1 and G_2) of varying duration. Thus, a typical eukaryotic cell sequentially passes through G_1, S, G_2, and M and back into G_1 during a single cycle.[5] Regulation of cell cycle progression in eukaryotic cells depends on the expression of proteins called cyclins.[6] These proteins form complexes with several different cyclin dependent kinases (CDKs). Complexes of cyclins and CDKs play a key role in cell cycle control. Within the complexes, the cyclin subunit serves a regulatory role, whereas the CDKs have a catalytic protein kinase activity.[7] The association of members of the cyclin family with the kinase subunit forms an active kinase, which can initiate M phase of mitosis and meiosis, or function as key regulators of each step of the cell cycle by phosphorylation of several cellular targets. The eukaryotic cell cycle is regulated by the sequential activation of CDKs. The catalytic activity of CDKs is regulated by two general mechanisms, protein phosphorylation and association with regulatory subunits, including the cyclins and the CDK inhibitors (CKIs). Several mammalian CDK inhibitors have been identified which have been divided into two groups on the basis of sequence homology. One group includes p16^{INK4a}, p15^{INK4b}, p18^{INK4c} and p19^{INK4d}, all of which contain characteristic four-fold ankyrin repeats. The second group of CDK inhibitors includes p21^{Cip1}, p27^{Kip1} and p57^{Kip2}. These proteins are structurally and functionally distinct from those of the INK4 family and inhibit CDKs by associating with preactivated cyclin-CDK complexes. p16$^{INK4/CDKN2}$ (also known as p16^{INK4}, p16^{INK4a}, p16^{MTS1}, inhibitor of CDK4), is the product of the *CDKN2* gene. It inhibits the progression of cell cycle through the G_1 phase, by competing with D type cyclins to bind to CDK4, and CDK6. p16$^{INK4/CDKN2}$ is a candidate tumor suppressor, whose gene is frequently deleted or mutated in diverse types of cancer.[2] The availability of monoclonal antibody reacting specifically with p16$^{INK4/CDKN2}$ enables the subcellular detection and localization of p16$^{INK4/CDKN2}$ and the measurement of relative differences in p16$^{INK4/CDKN2}$ levels as a function of cell cycle phase.

Reagents

The product is provided as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety 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 up to one month. For extended storage freeze 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

Monoclonal Anti-p16$^{INK4/CDKN2}$ reacts specifically with the C-terminal 12 amino acids of the p16$^{INK4/CDKN2}$ molecule (also known as p16^{INK4}, p16^{INK4a}, p16^{MTS1}, inhibitor of CDK4). The product is useful applying immunoblotting (16 kDa),[1,2] immunocytochemistry,[1,2] immunohistochemistry on frozen sections,[3] ELISA, immunoprecipitation,[2,4] and microinjection into cells.[1] Reactivity has been observed with human[1-4] p16$^{INK4/CDKN2}$.

Monoclonal Anti-p16$^{INK4/CDKN2}$ may be used for the localization of p16INK4/CDKN2 using various immunochemical assays such as immunoblotting, immunocytochemistry, immunohistochemistry, immunoprecipitation and microinjection into cells.

A minimum working dilution of 1:1,000 is determined by immunoblotting, using a cultured human tumor cell line extract.

In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

References

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4. Lukas, J., et al., Cancer Res., **55**, 4818 (1995).
5. Freeman, R.S., and Donoghue, D.J., Biochemistry, **30**, 2293 (1991).
6. Pines, J., and Hunter, T., J. Cell Biol., **115**, 1 (1991).
7. Yamashita, M., et al., Dev. Growth Differ., **33**, 617 (1991).

JWM/KMR 02/02