3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-Cdc7 Kinase antibody, Mouse monoclonal
clone DCS-341, purified from hybridoma cell culture

Product Number **C6613**

Product Description

Anti-Cdc7 Kinase antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the DCS-341 hybridoma produced by the fusion of mouse myeloma cells (NS2) and splenocytes from BALB/c mice immunized with full-length human Cdc7 kinase. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-Cdc7 Kinase recognizes human Cdc7 kinase (approx. 55 kDa). The product may be used in ELISA, immunoblotting, immunoprecipitation, and immunocytochemistry.

DNA replication in eukaryotic cells is dependent on the phosphorylation of the pre-replicative complex (preRC) at the origin of replication. Two complexes of proteins mediate this event, the cyclin dependent kinase (CDK) complex, and the Cdc7 kinase-ASK complex. The involvement of the latter complex in DNA replication was shown by different assays such as injection of antibodies against Cdc7 kinase that caused inhibition of DNA replication. Furthermore, mutant mice lacking mouse Cdc7 kinase are early embryonic lethal at E3.5-6.5.[1-3]

Human Cdc7 kinase consists of 574 amino acids with a molecular weight of 55 kDa. The protein shares about 45% identity with yeast Cdc7 kinase in the kinase domain. Cdc7 kinase is inert as a kinase unless it is activated by the ASK protein (the human homologue of yeast Dbf4). The expression of ASK is tightly regulated with cell cycle. ASK protein level is very low at the M-G1 phase and increases at late G1, staying high during S phase and through G2 phase. As a consequence, the activity of Cdc7 kinase oscillates during cell cycle.

The major targets of Cdc7 kinase are proteins that belong to the MCM complex (mini chromosome maintenance proteins).[1-3] The phosphorylation of proteins of the MCM complex by Cdc7 kinase is important for complex reorganization and duplex unwinding activity in the replication fork. Cdc7 kinase was also found to be important in meiosis, checkpoint responses, maintenance of chromosome structure, and repair.[1-3]

Reagent

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

Antibody Concentration: Approx. 2 mg/ml.

Precautions and Disclaimer

This product is 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 prolonged 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 minimum working concentration of 0.4 μg/ml is recommended using a total cell extract of the A431 cell line.

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

References

1. Masai, H., et al., *J. Cell. Physiol*., **190**, 287-296 (2002).
2. Lei, M., et al**.,** *J. Cell Sci*., **114**, 1447-1454 (2001).
3. Jares, P., et al., *EMBO Rep*., **1**, 319-322 (2000).

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