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ProductInformation

MONOCLONAL ANTI-CDK7/CAK
Mouse Ascites Fluid
Clone MO-1.1

Product Number **C 7089**

Product Description

Monoclonal Anti-Cdk7/CAK (mouse IgG2b isotype) is derived from the MO-1.1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Recombinant human Cdk7 protein 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.[4] Regulation of cycle progression in eukaryotic cells depends on the expression of proteins called cyclins.[5] 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.[6] 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. Cdk activation is dependent on cyclin binding and on phosphorylation of a conserved threonine within. This phosphorylation is mediated by the cdk-activating kinase (CAK). Mammalian cak is comprised of two polypeptide subunits of 40-42 kDa and 37 kDa, corresponding to Cdk7 and a novel cyclin termed cyclin H, respectively. The Cdk7 subunit is the mammalian homologue of the *Xenopus* protein kinase MO15, which is known to be a component of CAK in amphibians and enchinoderms. CAK has been shown to be associated also with the general transcription factor TFIIH and to be capable of phosphorylating the RNA polymerase II carboxy-terminal domain. The availability of monoclonal antibody reacting specifically with Cdk7/CAK enables the subcellular detection and localization of Cdk7/CAK and the measurement of relative differences in Cdk7/CAK levels as a function of cell cycle phase.

Monoclonal Anti-Cdk7/CAK may be used for the localization of Cdk7/CAK, using various immuno-chemical assays such as immunoblotting, immunocyto-chemistry, immunoprecipitation and immunohisto-chemistry.[1-3]

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 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

A minimum dilution of at least 1:50,000 is determined by immunoblotting using a cultured human 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.

Specificity

Monoclonal Anti-Cdk7/CAK reacts specifically with Cdk7, the 40 kDa catalytic subunit of Cdk activating kinase (CAK). The antibody detects human Cdk7/CAK uaing immunoblotting (40 kDa), immunocyto-chemistry, immunoprecipitation and immunohistochemistry (frozen sections).[1-3]

References

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5. Pines, J., and Hunter, T., J. Cell Biol., **115**, 1 (1991).
6. Yamashita, M., et al., Dev. Growth Differ., **33**, 617 (1991).

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