3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

MONOCLONAL ANTI- CDC25C
CLONE DCS-193
Mouse Ascites Fluid

Product Number **C 0349**

Product Description

Monoclonal Anti-CDC25C (mouse IgG1 isotype) is derived from the DCS-193 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with a recombinant human CDC25C. 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).

Monoclonal Anti-CDC25C recognizes human CDC25C (65 kDa) using immunoblotting.

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.[1] Regulation of cell cycle progression in eukaryotic cells depends on the expression of proteins called cyclins.[2] These proteins form complexes with several different cyclin dependent kinases (CDKs). Within the complexes, the cyclin subunit serves a regulatory role, whereas the CDKs have a catalytic protein kinase activity.[3] Complexes of cyclins and CDKs play a key role in cell cycle control; The eukaryotic cell cycle is regulated by the sequential activation and deactivation of CDKs, and by proteolysis of cyclins. 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 catalytic activity of CDKs is activated by a family of CDC25 phosphatases. In mammals, at least three different isoforms, encoded by a multigene family, are known, which act at different phases of the cell cycle. They are denoted CDC25A, CDC25B and CDC25C.[4] CDC25A plays a crucial role at the G_1/S phase transition, CDC25B appears during late S phase and peaks during G_2 phase, while CDC25C, a dual-specificity protein phosphatase, is involved in the dephosphorylation and thus activation of the mitotic kinase, CDC2/cyclin B complex (MPF, maturation promoting factor). It controls entry into mitosis by dephosphorylating $p34^{CDC2}$ on both threonine 14 and tyrosine 15. CDC25C phosphatase itself is also regulated by phosphorylation/ dephosphorylation and presumably by interaction with other cellular proteins.[4] Thus, CDC25C is phosphorylated on serine 216 by C-TAK1, throughout interphase, but not during mitosis. Serine 216 phosphorylation mediates the binding of 14-3-3 protein to CDC25C, and CDC25C/14-3-3 complexes are present throughout interphase but not during mitosis.[5] The availability of a monoclonal antibody reacting specifically with CDC25C enables the subcellular detection and localization of CDC25C and the measurement of relative differences in CDC25C levels as a function of cell cycle phase.

Reagents

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

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet 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. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
A minimum working dilution of 1:1,000 is determined by immunoblotting using a cultured human chronic myelogenous leukemia cell line, K562, extract.

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

References

1. Freeman, R.S., and Donoghue, D.J., Biochemistry, **30**, 2293 (1991).
2. Pines, J., and Hunter, T., J. Cell Biol., **115**, 1 (1991).
3. Yamashita, M., et al., Dev. Growth Differ., **33**, 617 (1991).
4. Lammer, C., et al., J. Cell Sci., **111**, 2445 (1998).
5. Peng, C.Y., et al., Cell Growth Differ., **9**, 197 (1998).

lpg 5/99