Product Information

Anti-Geminin Antibody, Mouse Monoclonal

Clone GEM-1, Purified from Hybridoma Cell Culture

SAB4200863

Product Description

Monoclonal Anti-Geminin antibody (mouse IgG2a isotype) is derived from the GEM-1 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with synthetic peptide corresponding to the N-terminal region of human Geminin protein (GeneID: 51053), conjugated to KLH as immunogen. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2). The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-Geminin antibody specifically recognizes human geminin. The antibody may be used in various immunochemical techniques including Immunoblotting and Immunofluorescence.

Cell proliferation involves the passage through a series of finely regulated phases that are known as cell cycle checkpoints[1]. In order to carry out a correct replication, the eukaryotic cell undergoes a series of events ensuring that each copy of duplicated chromosome exactly segregates in the daughter cells[2,3]. A main critical control of the cell cycle is ensuring that the DNA replication takes place and is followed by mitosis, only once for each cell cycle. Alterations in the expression of genes that regulate the cell cycle can lead to malignant transformation and tumor progression by perturbing cell proliferation and/or genomic stability[4,5].

Geminin is a 25 kDa nuclear protein that functions by inhibiting DNA replication[6] During specific phases of the cell cycle, geminin bind to Cdt1 protein and inhibits the pre-replicative complex (preRC) formation[7]. In eukaryotes, the origins of replication are bound by a complex of six proteins, evolutionally well conserved among different species[8,9]. These proteins constitute the origin recognition protein complex (ORC) (1–6), essential for the initiation of DNA replication. This was first identified in Saccharomyces cerevisiae as protein that bound to the core ARS consensus sequence[10]. The ORC complex serve as a chromatin substrate for the assembly of other replication initiation factors such as Cdc6, an ATPase family member, and Cdt1[11,12].

The recruitment of these proteins induces a chromatin structural change that promotes the loading of the mini-chromosome maintenance proteins (MCMs 2–7) onto the ORC/chromatin complex[13]. The MCM proteins have a similar helicase activity and are able to unwind the DNA double helix in order to make it more accessible to the action of different polymerases[14]. During the G1 phase of the cell cycle, the proteins are sequentially recruited to the origins of replication forming the preRC[15]. At the G1/S transition, the licensed origins are activated by the activity of cyclin E/CDK2, cyclin A/CDK2 and Cdc7-Dbf4 kinases and by the recruitment of MCM10 protein[16,17]. Cdt1 cooperates with Cdc6 to promote the DNA initiation by regulating the formation of preRC through the recruitment of MCMs on the chromatin associated with ORCs[18,19]. The Anti Geminin Antibody may serve as an important tool for cell proliferation and differentiation research.

Reagent

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

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

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 extended storage, freeze in working aliquots. Repeated freezing and thawing are 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 working concentration of 2.5- 5.0 µg/mL is recommended using whole extracts of Hella Nuclear.

Immunofluorescence: a working concentration of 2.5-5 µg/mL is recommended using human HeLa cells.

Note: In order to obtain best results in different techniques and preparations it is recommended to determine optimal working concentration by titration test.

References

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