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Product Information

Anti-Sirt1 antibody, Mouse monoclonal
clone SIR11, purified from hybridoma cell culture

Product Number **S5196**

Product Description

Monoclonal Anti-Sirt1 (Sir2α) (mouse IgG1 isotype) is derived from the hybridoma SIR11 produced by the fusion of mouse myeloma cells (NS1 cells) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a fragment at the C-terminus of mouse Sir2 with C-terminal added lysine. The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-Sirt1 (Sir2α) recognizes mouse Sir2α. The antibody may be used in immunoblotting (~105 kDa) and ELISA.

Eukaryotic genomes are organized as functional domains that facilitate the fundamental processes of transcription, replication, and DNA repair. Inactivation of large domains of DNA by packaging them into a specialized inaccessible chromatin structure leads to gene silencing. This type of inactivation is involved in the regulation of gene expression and is also associated with the chromosomal structure required for chromosome maintenance and inheritance.[1] Genetic and biochemical studies have identified the main regulatory sites and proteins that collaborate to assemble silenced DNA in budding yeasts.[2] Sir2, one of the silent information regulator genes in yeast, encodes a protein that promotes a compact chromatin structure, thereby preventing or silencing gene transcription at selected loci.[3,4]

Sirt proteins are a family of proteins that are found in organisms ranging from bacteria to complex eukaryotes. Members of this family contain a 250 amino acid core domain that shares about 25-60% sequence identity.[5] Silencing occurs as a series of events initiated by formation of Sir complexes (Sir2, Sir3, Sir4). The complexes are recruited to their chromosome targets via interactions with DNA-binding proteins, followed by deacetylation of histones H3 and H4. A final step required for telomeric silencing is binding of the complex to the deacetylated histones and recruitment of the telosome to the nuclear periphery.[6]

Sirt1 protein, a mammalian homolog of yeast Sir2, is an NAD-dependent histone deacetylase, an enzyme that removes acetyl groups from lysine residues of histone proteins and possibly other substrates. Sirt1 transfers acetyl groups from its protein substrates to ADP-ribose, and synthesizes O-acetyl-ADP-ribose.[7] Through histone deacetylation, Sirt1 may silence chromatin.[8,9] It appears that Sirt1 NAD requirement makes this protein an important player in the pathway that leads to increased life span of several species through calorie restriction. The maintenance or silencing of chromatin may be at the center of processes leading to aging of cells and development of cancer.[10]

Reagent

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

Antibody concentration: ~2 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, 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 working concentration of 1-2 μg/mL is recommended using total cell extract of C-2 cells.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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VS,EK,KAA,PHC,MAM 08/19-1