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Product Information

Anti-LIS1 antibody, Mouse monoclonal
clone LIS1-338, purified from hybridoma cell culture

Catalog Number **L7391**

Product Description

Monoclonal Anti-LIS1 (mouse IgG1 isotype) is derived from the LIS1-338 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with a recombinant human LIS1 protein.[1] The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Catalog Number ISO2).

Monoclonal Anti-LIS1 reacts specifically with the LIS1 protein.[1,2] By immunoblotting, the antibody prefers the phosphorylated form of the LIS1 molecule (46 kDa).[1,2] The antibody may also be used for immuno-precipitation.[2] Reactivity has been observed with human, bovine,[1,2] rat, mouse,[2] chicken, and zebra fish LIS1.

In humans, the development of the nerve system begins with the formation of the embryonic disk. Lissencephaly is a neuronal migration abnormality, in which the brain is “smooth”. Mutations in either *LIS1* or *DCX* (*doublecortin*) are the most common causes for type I lissencephaly.[3,4] Indeed, LIS1 and DCX interact physically both *in vitro* and *in* vivo.[5]

The LIS1 protein (~46 kDa) contains seven WD (tryptophan-aspartic acid) repeats, a motif shared by at least 140 known proteins involved in cell regulation, including the β subunits of G-proteins (Gβ). This protein motif is likely to mediate protein-protein interactions. LIS1 is a protein that is highly conserved during evolution; bovine, mouse, and chicken proteins exceed 99% similarity. The homologue in *Drosophila* is 70% similar to the human protein.

LIS1 was cloned as a subunit of the heterotrimeric cytosolic platelet-activating factor acetylhydrolase (PAF-AH) isoform Ib. PAF-AHs are enzymes that inactivate platelet activating factor (PAF) by removing the acetyl moiety at the *sn-2* position of PAF.[6] Among its numerous known roles, PAF can act as an intercellular messenger.

Of the three subunits of isoform Ib, the β subunit is identical to the *Lis1* gene product, and two highly homologous α (α1, α2) subunits form a catalytic heterodimer. The β subunit, LIS1, has a regulatory role; it enhances the enzymatic activity of α2/α2 but reduces the activity of α1/α1.[7]

LIS1 interacts with tubulin and microtubules, which directly influence microtubule dynamics *in vitro* and during neuronal differentiation and migration.[1] Also, it is found in a complex with two protein kinases: a T cell Tat-associated kinase, which contains casein-dependent kinase (CDK) activating kinase (CAK), as well as CAK-inducing activity, and a spleen protein-tyrosine kinase similar to the catalytic domain of p72syk. Phosphorylation is one of the ways to control cellular localization and protein-protein interactions. LIS1 appears to be a phosphoprotein that is developmentally regulated.[2]

Monoclonal antibodies reacting specifically with LIS1 are useful tool for the study of the regulatory roles of LIS1 and its interaction with other cellular components during differentiation.

Reagent

Monoclonal Anti-LIS1 is 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

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 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
Immunoblotting: A working concentration of 0.5–1 μg/ml is determined using a rat brain cytosol preparation.

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

References

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