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Product Information

Monoclonal Anti-Myogenin, clone F12B
produced in mouse, purified immunoglobulin

Catalog Number **M5815**

Product Description

Monoclonal Anti-Myogenin (mouse IgG1 isotype) is derived from the hybridoma produced by the fusion of mouse myeloma NS1 cells with splenocytes from BALB/c mice immunized with recombinant protein consisting of amino acids 30-224 of rat myogenin. The antibody is purified by protein G chromatography.

Monoclonal Anti-Myogenin recognizes human, rat, and mouse myogenin (34 kDa). The epitope recognized by the antibody lies within amino acids 158 to 178 of myogenin. It has been used in ELISA, gel shift, immunohistochemistry with formalin-fixed, paraffin-embedded tissue sections, immunoprecipitation, immunofluorescence, and immunoblotting.

Myogenin, a transcriptional activator, is a member of a family of myogenic regulatory proteins called muscle determination factors (MDFs). This unique family of basic helix-loop-helix proteins includes MyoD, Myf-5, myogenin, and MRF-4. These proteins play important roles in skeletal muscle development. Binding sites for these proteins are found in the promoters of a number of genes whose expression is specific to muscle cells. Tight control of the gene expression, however, is dependent on the interaction of various factors

Skeletal myogenesis may be viewed as a two-step process in which Myf-5 and MyoD act early to establish myoblasts. Available evidence suggests that activation of Myf-5 and MyoD determines commitment of the cells to myogenic lineage. Subsequent expression of myogenin triggers terminal muscle cell differentiation and activates muscle-specific genes. MRF4 is also assumed to exert late functions, similar to myogenin.[1]

Experiments on knockout mice have shown that embryos lacking MyoD or Myf-5 alone did not show any impairment in skeletal muscle formation. In contrast, embryos that lacked both MyoD and Myf-5 failed to develop detectable skeletal muscle cells. Mouse embryos lacking myogenin died immediately after birth and exhibited severe skeletal muscle abnormalities. The requirement for myogenin to promote skeletal muscle differentiation varies in different muscle groups. Axial muscle can differentiate into mature cells in the absence of myogenin. In contrast, limb bud myoblasts lacking myogenin are arrested in their development. Thus, myogenin seems to be required for the completion of the differentiation program *in* vivo for some, but not all, skeletal muscle.[2,3]

Myogenin is induced during differentiation of every skeletal muscle cell line that has been investigated, in contrast to the other myogenic regulatory factors that only appear in certain cell types.

Reagent

Supplied as a solution in phosphate buffered saline with 0.08% sodium azide as a preservative.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at –20 °C. Upon initial thawing freeze the solution in working aliquots for extended storage. Avoid repeated freezing and thawing to prevent denaturing the antibody. Do not store in a frost-free freezer. The antibody is stable for at least 12 months when stored appropriately. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunohistochemistry: the recommended working concentration is 1 to 2 μg/mL with formalin-fixed, paraffin-embedded human rhabdomyosarcoma tissue sections.

Immunoblotting: the recommended working concentration is 1 μg/mL.

ELISA, immunofluorescence, gel supershift assays and immunoprecipitation: a working concentration of 2 μg/mL is suggested.

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

References

1. Arnold, H.H. and Winter, B., Muscle differentiation: more complexity to the network of myogenic regulators. *Curr. Opin. Gen. Develop*., **8,** 539-544 (1998).
2. Lassar, A. and Munsterberg, A., Wiring diagrams: regulatory circuits and the control of skeletal myogenesis. *Current Opinion Cell Biol*., **6,** 432-442 (1994).
3. Buckingham, M., Skeletal muscle formation in vertebrates. *Curr. Opinion Genet. Develop*. **11**, 440-448 (2001).

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