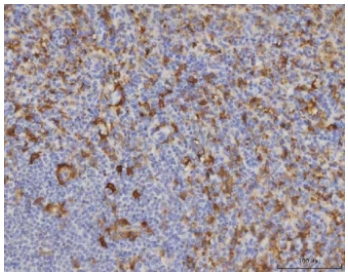
Malic Enzyme 1 Antibody 5E5F7 / ME1 Monoclonal Antibody [clone 5E5F7] (RQ7391)

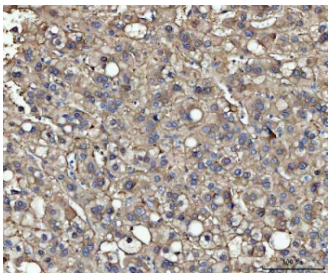
Catalog No.	Formulation	Size
RQ7391	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

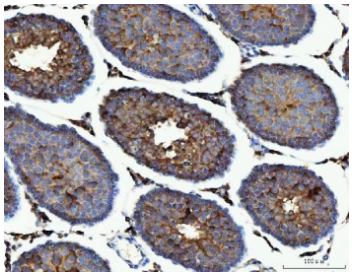
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1
Clone Name	5E5F7
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P48163
Localization	Cytoplasm, nucleus, cell membrane
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml
Limitations	This Malic Enzyme 1 Antibody 5E5F7 / ME1 Monoclonal Antibody is available for research use only.



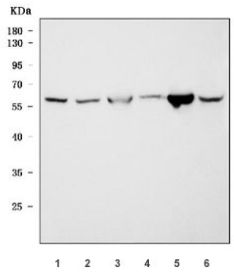
Malic Enzyme 1 Antibody 5E5F7 IHC Staining of Human Spleen Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human spleen tissue using ME1 Monoclonal Antibody clone 5E5F7. Brown immunoreactivity is distributed among cells within the splenic tissue, with heterogeneous staining intensity across the section. Nuclei are counterstained blue with hematoxylin. Heat-induced epitope retrieval was performed by boiling tissue sections in EDTA buffer at pH 8 for 20 minutes.



.Figure 2 - Human Liver Cancer IHCMalic Enzyme 1 Antibody 5E5F7 IHC Staining of Human Liver Cancer Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human liver cancer tissue using ME1 Monoclonal Antibody clone 5E5F7. Brown immunoreactivity is observed in numerous cells throughout the tissue, with prominent staining in cellular regions surrounding the hematoxylin-counterstained nuclei. Staining intensity varies between cells and tissue areas. Heat-induced epitope retrieval was performed by boiling tissue sections in EDTA buffer at pH 8 for 20 minutes.



Malic Enzyme 1 Antibody 5E5F7 IHC Staining of Rat Testis Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat testis tissue using ME1 Monoclonal Antibody clone 5E5F7. Brown immunoreactivity is visible within multiple seminiferous tubules, with heterogeneous staining among the cellular layers and regions of the tubular structures. Nuclei are counterstained blue with hematoxylin. Heat-induced epitope retrieval was performed by boiling tissue sections in EDTA buffer at pH 8 for 20 minutes.



Malic Enzyme 1 Antibody 5E5F7 WB Analysis of Human A549 and HeLa Cells, Rat Testis and Brain, and Mouse Testis and Brain. Western blot analysis of human A549 (lane 1) and HeLa (lane 2) cell lysates, rat testis (lane 3) and brain (lane 4) tissue lysates, and mouse testis (lane 5) and brain (lane 6) tissue lysates using ME1 Monoclonal Antibody clone 5E5F7. Immunoreactive bands are observed between the 55 and 70 kDa molecular weight markers, near the expected molecular weight of approximately 64 kDa for ME1. Signal intensity varies among samples, with particularly prominent immunoreactivity in the mouse testis lysate.

Description

Malic Enzyme 1 Antibody 5E5F7 / ME1 Monoclonal Antibody targets malic enzyme 1 (ME1), a cytosolic NADP-dependent oxidoreductase involved in intermediary metabolism and the production of reducing equivalents. ME1 catalyzes the oxidative decarboxylation of L-malate to pyruvate and carbon dioxide while reducing NADP+ to NADPH. This reaction connects malate metabolism with biosynthetic processes and helps regulate the availability of cytosolic reducing power.

ME1 contributes to the NADPH supply required for fatty acid synthesis, cholesterol biosynthesis, and cellular antioxidant defense. Its metabolic importance varies according to nutrient availability, cellular differentiation, and the activity of other NADPH-generating pathways. These include the oxidative pentose phosphate pathway and reactions catalyzed by cytosolic isocitrate dehydrogenase. Consequently, changes in ME1 abundance do not necessarily produce proportional changes in total NADPH production.

The expression of ME1 is influenced by nutritional and hormonal signals. Carbohydrate availability and thyroid hormone signaling can affect its transcriptional regulation, particularly in metabolically active tissues. ME1 activity is associated with lipogenic metabolism, where the generation of NADPH supports reductive biosynthetic reactions. The enzyme also participates in metabolic adaptations that help cells balance carbon utilization with antioxidant requirements.

Three major malic enzyme isoforms are encoded by distinct genes. ME1 is primarily cytosolic and uses NADP+, whereas ME2 is a mitochondrial enzyme capable of utilizing NAD+ or NADP+ under appropriate conditions. ME3 is also mitochondrial and preferentially uses NADP+. Differences in cofactor preference, intracellular localization, and regulation allow these enzymes to participate in distinct metabolic processes. Their activities should therefore not be considered interchangeable.

Altered ME1 expression has been investigated in metabolic disorders and cancer, where changes in lipid synthesis and redox regulation can influence cellular growth and survival. However, the contribution of ME1 depends on the metabolic

characteristics of the particular cellular environment. Malic Enzyme 1 Antibody 5E5F7 provides a monoclonal reagent for investigating ME1 protein abundance in relation to NADPH metabolism, metabolic adaptation, and the regulation of cellular biosynthetic activity.

For an alternative reagent with knockout-supported Western blot validation, immunofluorescence, and intracellular flow cytometry data, explore our ME1 Antibody (RQ8885).

Application Notes

Optimal dilution of the Malic Enzyme 1 Antibody 5E5F7 / ME1 Monoclonal Antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids M1-Q572) was used as the immunogen for the Malic Enzyme 1 Antibody 5E5F7.

Storage

After reconstitution, the Malic Enzyme 1 Antibody 5E5F7 can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Cytosolic Malic Enzyme antibody, NADP-Dependent Malic Enzyme antibody, NADP-Dependent Malic Enzyme 1 antibody, Cytoplasmic Malic Enzyme antibody, NADP-Malic Enzyme antibody, Malate Decarboxylating Enzyme antibody, Cytosolic NADP-Malic Enzyme antibody, ME1 NADPH-Generating Enzyme antibody, Malic Enzyme Cytosolic Form antibody, ME1 Malate Oxidoreductase antibody

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