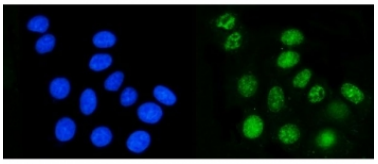
Dihydroorotate Dehydrogenase Antibody 4E3 / DHODH Monoclonal Antibody [clone 4E3.] (RQ6591)

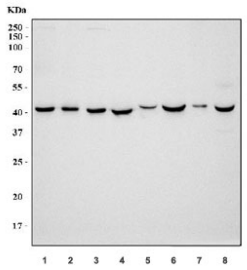
Catalog No.	Formulation	Size
RQ6591	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2b
Clone Name	4E3.
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q02127
Localization	Cytoplasmic, nuclear
Applications	Western blot: 1-2ug/ml Immunofluorescence (FFPE): 5ug/ml
Limitations	This Dihydroorotate Dehydrogenase Antibody 4E3 / DHODH Monoclonal Antibody is available for research use only.



Dihydroorotate Dehydrogenase Antibody 4E3 by IF in human MCF7 cells. Immunofluorescent staining of FFPE human MCF7 cells using Dihydroorotate Dehydrogenase Antibody 4E3 (green), with DAPI nuclear counterstaining (blue). Green fluorescence is visible in the cell preparation, including signal overlapping portions of the nuclear regions. Heat-induced epitope retrieval was performed by steaming in citrate buffer, pH 6.0, for 20 minutes. This DHODH Monoclonal Antibody detects a protein involved in mitochondrial pyrimidine nucleotide biosynthesis.



Dihydroorotate Dehydrogenase Antibody 4E3 by WB in human, rat, and mouse samples. Western blot analysis using Dihydroorotate Dehydrogenase Antibody 4E3 on human HeLa (lane 1), A431 (lane 2), HepG2 (lane 3), and MCF7 (lane 4) cell lysates; rat testis (lane 5) and liver (lane 6) lysates; and mouse testis (lane 7) and liver (lane 8) lysates. A prominent band appears at approximately 48 kDa across all eight lanes, somewhat above the predicted DHODH molecular weight of approximately 43 kDa. This DHODH Monoclonal Antibody detects a protein involved in de novo pyrimidine synthesis.

Description

Dihydroorotate Dehydrogenase Antibody 4E3 is a monoclonal antibody targeting dihydroorotate dehydrogenase (DHODH), an enzyme essential for de novo pyrimidine nucleotide biosynthesis. DHODH catalyzes the oxidation of dihydroorotate to orotate, a key reaction in the production of uridine monophosphate (UMP). UMP serves as a precursor for pyrimidine nucleotides required for DNA replication, RNA synthesis, and numerous metabolic processes. This enzyme connects nucleotide production with mitochondrial respiratory activity and is particularly important in cells with elevated biosynthetic demands.

The human DHODH gene is located on chromosome 16q22.2 and encodes a flavin-dependent protein of approximately 43 kDa. DHODH is associated with the outer surface of the mitochondrial inner membrane, where it transfers electrons generated during dihydroorotate oxidation to ubiquinone. Flavin mononucleotide (FMN) serves as a cofactor in this reaction. Because ubiquinone is also involved in mitochondrial electron transport, DHODH activity is closely linked to respiratory chain function and cellular redox balance.

De novo pyrimidine synthesis provides an important source of nucleotides for proliferating cells. Although pyrimidines can also be obtained through salvage pathways, dependence on de novo synthesis varies with cell type, nutrient availability, and metabolic conditions. DHODH is therefore an important regulatory point connecting mitochondrial function with nucleotide homeostasis. The DHODH Monoclonal Antibody is relevant to research investigating these metabolic relationships and the regulation of pyrimidine biosynthesis.

DHODH has received considerable attention as a therapeutic target in autoimmune disease, inflammatory disorders, and cancer. Pharmacological inhibition of DHODH reduces pyrimidine nucleotide production and can restrict the proliferation of activated lymphocytes. Leflunomide and its active metabolite teriflunomide are established examples of drugs that inhibit DHODH activity. Certain cancer cells also exhibit substantial dependence on de novo pyrimidine synthesis, making DHODH inhibition an area of ongoing oncology research.

Studies of DHODH contribute to understanding mitochondrial metabolism, nucleotide synthesis, immune cell activation, and cellular proliferation. Investigating DHODH expression can provide insight into metabolic adaptations associated with normal physiology and disease. NSJ Bioreagents offers antibodies targeting metabolic enzymes involved in these processes. A Dihydroorotate Dehydrogenase Antibody 4E3 provides a research tool for examining DHODH expression and its relationship to pyrimidine biosynthesis and mitochondrial function.

For an alternative monoclonal antibody targeting the same enzyme, see our DHODH Antibody 2G7.

Application Notes

Optimal dilution of the Dihydroorotate Dehydrogenase Antibody 4E3 / DHODH Monoclonal Antibody should be determined by the researcher.

Immunogen

N-terminal region amino acids RVFRLPEDQAVINRYGFNSHGLSVVEHRLRARQQKQAKLTED from the human protein were used as the immunogen for the Dihydroorotate Dehydrogenase Antibody 4E3.

Storage

After reconstitution, the Dihydroorotate Dehydrogenase Antibody 4E3 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

DHODH antibody, Dihydroorotate Dehydrogenase 4E3 antibody, Dihydroorotate Oxidase antibody, DHO Dehydrogenase antibody, Mitochondrial Dihydroorotate Dehydrogenase antibody

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