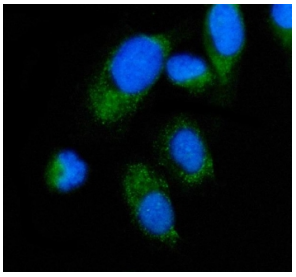
ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody (RQ6930)

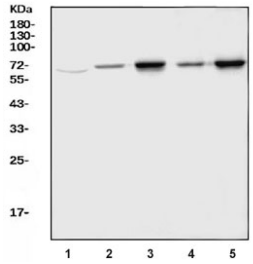
Catalog No.	Formulation	Size
RQ6930	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

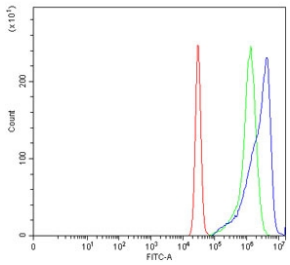
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P22557
Applications	Western blot: 0.5-1 ug/ml Flow cytometry: 1-3ug/million cells Immunofluorescence: 5ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody is available for research use only.



ALAS2 Antibody IF. Immunofluorescent staining of FFPE human PC-3 cells using ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody demonstrates granular cytoplasmic green fluorescence with enrichment in a perinuclear distribution, consistent with the mitochondrial localization of ALAS2. ALAS2 is a mitochondrial enzyme that catalyzes the first and rate-limiting step of heme biosynthesis, initiating the pathway required for production of heme and subsequent hemoglobin synthesis. The observed cytoplasmic staining pattern is consistent with localization of ALAS2 within intracellular mitochondrial compartments involved in cellular metabolic activity and heme production. Nuclei are counterstained with DAPI (blue). HIER: steam section in pH 6 citrate buffer for 20 minutes. Green = ALAS2 antibody; Blue = DAPI nuclear stain.



ALAS2 Antibody Multi-Species WB. Western blot analysis of human 293T (lane 1), rat liver (lane 2), rat heart (lane 3), mouse liver (lane 4), and mouse heart (lane 5) lysates using ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody demonstrates a prominent immunoreactive band at approximately 65-72 kDa. ALAS2 is a mitochondrial enzyme that catalyzes the first and rate-limiting step of heme biosynthesis, initiating production of 5-aminolevulinic acid required for heme and hemoglobin synthesis. The observed banding pattern across human, rat, and mouse tissues supports cross-species recognition of ALAS2 and is consistent with expression of this highly conserved heme biosynthetic enzyme. The detected molecular weight is in agreement with the expected migration of ALAS2, which is commonly observed at approximately 65-72 kDa depending on species, processing state, and electrophoretic conditions. Predicted molecular weight: approximately 65 kDa. Observed molecular weight: approximately 65-72 kDa.



ALAS2 Antibody FACS. Flow cytometry analysis of human K562 cells stained with ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody demonstrates a clear rightward shift of the antibody-stained population (blue) relative to the isotype control (green), consistent with positive detection of ALAS2 expression. ALAS2 is an erythroid-specific mitochondrial enzyme that catalyzes the first and rate-limiting step of heme biosynthesis and is essential for hemoglobin production and erythroid maturation. K562 cells possess erythroid differentiation characteristics and are frequently utilized as a model for studies of hemoglobin synthesis and erythropoiesis. The observed fluorescence shift supports expression of ALAS2 and is consistent with its established role in erythroid lineage biology and heme metabolism. Cells were stained with 1 ug antibody per million cells following blocking with goat serum. Red = cells alone; Green = isotype control; Blue = ALAS2 antibody.

Description

ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody detects ALAS2 (5-Aminolevulinate Synthase 2), an erythroid-specific mitochondrial enzyme that catalyzes the first and rate-limiting step of heme biosynthesis. ALAS2 converts glycine and succinyl-CoA into 5-aminolevulinic acid, initiating the multistep pathway that ultimately generates heme, an essential component of hemoglobin and numerous heme-containing proteins. Because erythroid cells require large quantities of heme to support hemoglobin synthesis, ALAS2 serves as a critical regulator of red blood cell development and oxygen transport capacity. ALAS2 Antibody is widely utilized for studies of erythropoiesis, hematopoiesis, iron metabolism, and heme biosynthesis.

Expression of ALAS2 is tightly regulated during erythroid differentiation and is largely restricted to developing erythroblasts and maturing red blood cell precursors. As hematopoietic progenitor cells commit to the erythroid lineage, ALAS2 expression increases substantially to meet the metabolic demands of hemoglobin production. The resulting heme synthesis supports assembly of functional hemoglobin complexes that are required for oxygen transport throughout the body. Because of this highly specialized role, ALAS2 is frequently used as a marker of erythroid maturation and red blood cell lineage development.

ALAS2 occupies a central position within the heme biosynthetic pathway and serves as a key point of integration between iron availability, erythropoietic signaling, and hemoglobin production. Multiple regulatory mechanisms coordinate ALAS2 expression and activity to ensure balanced heme synthesis and prevent accumulation of potentially toxic metabolic intermediates. Through these functions, ALAS2 contributes to maintenance of normal erythrocyte physiology and efficient oxygen delivery within vertebrate organisms.

Disruption of ALAS2 activity has been associated with inherited and acquired disorders of erythropoiesis. Mutations affecting ALAS2 can impair heme production and contribute to abnormalities in red blood cell maturation and function. Consequently, ALAS2 has become an important target in studies of hematologic disease, iron utilization, and

mechanisms regulating erythroid differentiation. Researchers frequently utilize ALAS2 Antibody to investigate pathways governing heme metabolism, erythroid development, and red blood cell biology.

Beyond its role in hematology, ALAS2 serves as an important model for understanding the relationship between cellular metabolism and lineage-specific differentiation. The enzyme links mitochondrial metabolic pathways with erythroid gene expression programs that drive hemoglobin synthesis and red blood cell maturation. Analysis of ALAS2 expression provides valuable insight into developmental hematopoiesis, iron homeostasis, and molecular mechanisms controlling erythroid lineage commitment.

ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody is useful for researchers studying erythropoiesis, hematopoiesis, heme biosynthesis, hemoglobin production, iron metabolism, red blood cell development, mitochondrial metabolism, hematologic disorders, and erythroid differentiation. Validation may include immunohistochemistry, western blotting, immunofluorescence, flow cytometry, and related protein expression applications when supported by experimental data.

Explore our Metabolism Antibodies page for additional markers involved in heme biosynthesis, iron metabolism, mitochondrial function, cellular energy pathways, and metabolic regulation.

Application Notes

Optimal dilution of the ALAS2 Antibody / Erythroid Heme Biosynthesis Enzyme Antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids M1-D190) was used as the immunogen for the ALAS2 antibody.

Storage

After reconstitution, the ALAS2 antibody 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

ALAS2 Antibody, Erythroid Heme Biosynthesis Enzyme Antibody, 5-Aminolevulinate Synthase 2 Antibody, Delta-Aminolevulinate Synthase 2 Antibody, Erythroid-Specific ALA Synthase Antibody, Hemoglobin Synthesis Enzyme Antibody

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