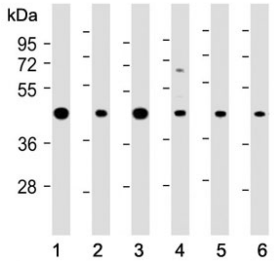
Argininosuccinate Synthetase 1 Antibody / ASS1 Polyclonal Antibody (F49896)

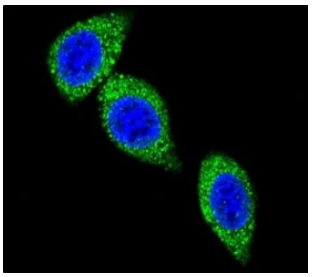
Catalog No.	Formulation	Size
F49896-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F49896-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

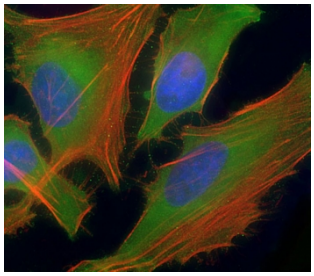
Availability	1-3 business days
Species Reactivity	Human, Mouse
Predicted Reactivity	Rat
Format	Purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Purified
UniProt	P00966
Localization	Cytoplasmic
Applications	Western blot: 1:1000 IHC (Paraffin): 1:50-1:100 Flow Cytometry: 1:10-1:50 Immunofluorescence: 1:10-1:50
Limitations	This Argininosuccinate Synthetase 1 Antibody / ASS1 Polyclonal Antibody is available for research use only.



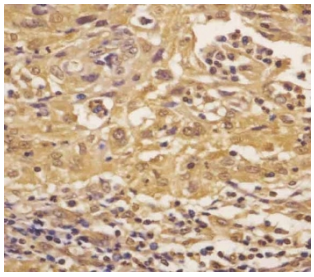
Argininosuccinate Synthetase 1 Antibody WB Analysis of A431, MOLT4, Jurkat, PC-12, NIH3T3 and Mouse Brain Lysates. Western blot analysis of A431 (lane 1), MOLT4 (lane 2), Jurkat (lane 3), PC-12 (lane 4), mouse NIH3T3 (lane 5), and mouse brain (lane 6) lysates using ASS1 Polyclonal Antibody at a dilution of 1:2000. A prominent immunoreactive band is detected near 46 kDa in all six samples, consistent with the predicted molecular weight of ASS1.



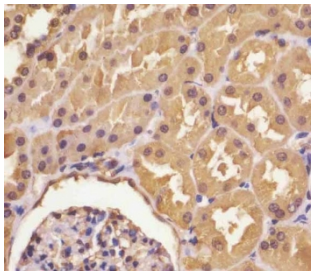
Argininosuccinate Synthetase 1 Antibody Confocal IF Staining of Human HeLa Cells. Confocal immunofluorescence analysis of human HeLa cells using ASS1 Polyclonal Antibody, followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG. Green ASS1 immunoreactivity is distributed throughout the cytoplasm, surrounding blue DAPI-stained nuclei. The staining pattern is consistent with the established cytosolic localization of ASS1.



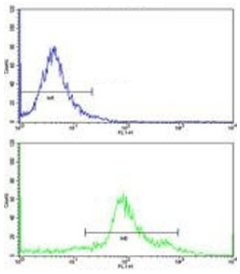
Argininosuccinate Synthetase 1 Antibody IF Staining of Permeabilized Human HeLa Cells. Immunofluorescence analysis of permeabilized human HeLa cells using ASS1 Polyclonal Antibody at a dilution of 1:25, followed by DyLight 488-conjugated goat anti-rabbit IgG. Green ASS1 immunoreactivity is observed throughout the cytoplasm, while nuclei are counterstained blue and actin filaments are visualized in red. The distribution of ASS1 staining is consistent with its predominantly cytosolic localization.



Argininosuccinate Synthetase 1 Antibody IHC Staining of Human Cervical Cancer Tissue. Immunohistochemical analysis of FFPE human cervical cancer tissue using ASS1 Polyclonal Antibody at a dilution of 1:25. Brown immunoreactivity is observed in tumor-associated cells, with predominantly cytoplasmic staining and heterogeneous distribution throughout the tissue section. Heat-induced epitope retrieval was performed by boiling sections in 10 mM citrate buffer, pH 6.0, for 10-20 minutes, followed by cooling at room temperature for 20 minutes.



Argininosuccinate Synthetase 1 Antibody IHC Staining of Human Kidney Tissue. Immunohistochemical analysis of FFPE human kidney tissue using ASS1 Polyclonal Antibody at a dilution of 1:25. Brown cytoplasmic immunoreactivity is observed in renal tubular epithelial cells, with variable staining among individual tubules. Glomerular structures exhibit comparatively limited staining. Heat-induced epitope retrieval was performed by boiling sections in 10 mM citrate buffer, pH 6.0, for 10-20 minutes, followed by cooling at room temperature for 20 minutes.



Argininosuccinate Synthetase 1 Antibody FACS Analysis of Human WiDr Cells. Flow cytometry analysis of human WiDr cells using ASS1 Polyclonal Antibody, followed by FITC-conjugated goat anti-rabbit secondary antibody. The green histogram represents antibody-stained cells, while the blue histogram represents the negative control. The antibody-stained population exhibits a rightward fluorescence shift relative to the negative control, supporting detection of ASS1 under the tested conditions.

Description

Argininosuccinate Synthetase 1 Antibody / ASS1 Polyclonal Antibody targets argininosuccinate synthetase 1 (ASS1), a cytosolic enzyme involved in the urea cycle and the biosynthesis of arginine. ASS1 catalyzes the ATP-dependent reaction between citrulline and aspartate to produce argininosuccinate, an intermediate required for nitrogen disposal and arginine production. This reaction connects amino acid metabolism with pathways responsible for maintaining nitrogen balance and supporting cellular biosynthetic requirements.

Within the hepatic urea cycle, ASS1 functions downstream of ornithine transcarbamylase and upstream of argininosuccinate lyase (ASL). The argininosuccinate produced by ASS1 is subsequently cleaved by ASL to generate

arginine and fumarate. Arginine is then converted to urea and ornithine by arginase, completing the cycle responsible for eliminating excess nitrogen. Impaired ASS1 activity can disrupt this process, resulting in the accumulation of ammonia and citrulline.

ASS1 also contributes to arginine regeneration outside the urea cycle. In cells expressing nitric oxide synthase, arginine is converted into nitric oxide and citrulline. ASS1 and ASL participate in recycling citrulline into arginine, helping maintain substrate availability for nitric oxide production. This metabolic relationship is relevant to vascular signaling, immune regulation, and cellular responses that depend on nitric oxide synthesis.

Inherited mutations in ASS1 cause citrullinemia type I, an autosomal recessive urea cycle disorder characterized by impaired argininosuccinate formation. Disease manifestations vary according to residual enzyme function and can include hyperammonemia, neurological complications, and metabolic instability. Investigation of ASS1 activity and regulation contributes to understanding the biochemical consequences of disrupted nitrogen metabolism.

ASS1 expression is also important in cancer metabolism. Some tumors exhibit reduced or absent ASS1 expression, limiting their capacity for endogenous arginine synthesis and increasing dependence on extracellular arginine. This metabolic characteristic has been investigated as a potential vulnerability in arginine-deprivation strategies. However, ASS1 expression and its biological significance vary among tumor types and cellular environments.

Argininosuccinate Synthetase 1 Antibody supports research into the regulation of ASS1 expression, arginine metabolism, nitrogen homeostasis, and the metabolic adaptations associated with altered urea cycle activity.

For an alternative reagent with knockout-supported Western blot validation, explore our ASS1 Antibody targeting argininosuccinate synthetase 1.

Application Notes

Titration of the Argininosuccinate Synthetase 1 Antibody / ASS1 Polyclonal Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 192-221 from the human protein was used as the immunogen for this ASS1 antibody.

Storage

Aliquot the ASS1 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

ASS1 antibody, Argininosuccinate synthetase antibody, Argininosuccinate synthase antibody, Argininosuccinate synthetase type 1 antibody, Citrulline-aspartate ligase antibody, ASS enzyme antibody, ASS1 cytosolic enzyme antibody, Argininosuccinate synthetase 1 protein antibody, ASS1 urea cycle enzyme antibody, ASS1 arginine biosynthesis enzyme antibody

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