abcam

ab33520

Anti-ATIC antibody [F38 P7 H9]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human ATIC aa 550 to C-terminus conjugated to Ovalbumin. The exact immunogen used to generate this antibody is proprietary information. Database link P31939
Clone number	F38 P7 H9
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Chicken
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	2 µg/mL
Notes	-

Predicted

Species	Chicken
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Predicted

Species	Chicken
Dilution info	-
Notes	-

Target data

See full target information ATIC

Function	Bifunctional enzyme that catalyzes the last two steps of purine biosynthesis (PubMed:11948179, PubMed:14756554). Acts as a transformylase that incorporates a formyl group to the AMP analog AICAR (5-amino-1-(5-phospho-beta-D-ribosyl)imidazole-4-carboxamide) to produce the intermediate formyl-AICAR (FAICAR) (PubMed:10985775, PubMed:11948179, PubMed:9378707). Can use both 10-formyldihydrofolate and 10-formyltetrahydrofolate as the formyl donor in this reaction (PubMed:10985775). Also catalyzes the cyclization of FAICAR to inosine monophosphate (IMP) (PubMed:11948179, PubMed:14756554). Is able to convert thio-AICAR to 6-mercaptopurine ribonucleotide, an inhibitor of purine biosynthesis used in the treatment of human leukemias (PubMed:10985775). Promotes insulin receptor/INSR autophosphorylation and is involved in INSR internalization (PubMed:25687571).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	ATIC also known as AICAR transformylase/IMP cyclohydrolase is a bifunctional enzyme involved in purine biosynthesis within cells. It has a molecular mass of approximately 64 kDa. This enzyme is found in various tissues including liver kidney and brain. It catalyzes the last two steps in the de novo purine biosynthesis pathway playing an important role in cellular proliferation and energy homeostasis.
Biological function summary	ATIC participates importantly in purine metabolism by facilitating the conversion of 5-aminoimidazole-4-carboxamide ribonucleotide (AICAR) into inosine monophosphate (IMP). It acts both as a transformylase and cyclohydrolase forming part of the multi-enzyme purinosome complex. This involvement ensures efficient synthesis of IMP which is a precursor for adenosine and guanosine nucleotide production essential for DNA and RNA synthesis.
Pathways	ATIC is integral to the de novo purine biosynthesis pathway a critical cellular process for generating nucleotides. It interacts with other enzymes in this pathway such as phosphoribosylaminoimidazole carboxamide formyltransferase (PAIC) and

	adenylosuccinate lyase (ADSL) ensuring a steady supply of nucleotides. This pathway is also linked to the folate cycle highlighting the importance of ATIC in broader metabolic contexts.
Associated diseases and disorders	ATIC has associations with several conditions notably cancer and autoimmune diseases. Its role in purine and folate metabolism makes it a target in cancer therapies where fast-dividing cells depend on nucleotide synthesis. ATIC also connects to dihydrofolate reductase (DHFR) due to the shared pathway implicating both in therapies aimed at autoimmune conditions like rheumatoid arthritis. Understanding ATIC's function and interaction plays a part in advancing disease treatment strategies.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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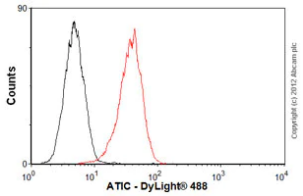
3 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ATIC antibody [F38 P7 H9] (ab33520)

ATIC Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-ATIC antibody

ab33520, at a concentration of 5 µg/ml, staining ATIC in Human colon carcinoma tissue by Immunohistochemistry.



Flow Cytometry - Anti-ATIC antibody [F38 P7 H9] (ab33520)

ATIC Flow Cytometry staining using mouse Anti-ATIC antibody

Overlay histogram showing HeLa cells stained with ab33520 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab33520, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

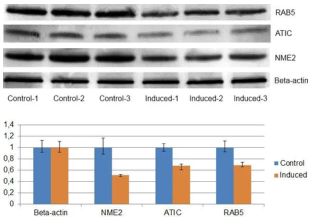


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Western blot - Anti-ATIC antibody [F38 P7 H9] (ab33520)

ATIC western blot using anti-ATIC antibody [F38 P7 H9] ab33520. Publication image and figure legend from Parviainen, V. I., Joenväärä, S., et al., 2013, Proteome Sci, PubMed 23915316.

ab33520 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab33520 please see the product overview.

Western blot validation. NME2, ATIC and RAB5 were analyzed with Western Blot to validate the MS results. The WB quantification displayed good correlation with MS results. Average NME2 induced/control ratio in MS was 0.55 and with WB 0.69. For ATIC, the ratios were 0.62 (MS) and 0.68 (WB) and for RAB5 the ratios were 0.66 (MS) and 0.69 (WB). Beta-actin was used as loading control. The Western Blot results were normalized to average control values. Bars represent the average of three biological repeats and the error bars represent lowest and highest WB quantification results of the three biological replicates.

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