abcam

ab211639

Anti-CTP synthase/CTPS antibody [EPR8086(B)] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR8086(B)
Purification technique	Affinity purification Protein A
Dissociation constant	1.28 x 10^{-10} M
Concentration	0.952 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Human, Mouse, Rat

Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human

Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information CTPS1

Function

CTP synthase involved in the de novo synthesis of CTP, a precursor of DNA, RNA and phospholipids (PubMed:16179339, PubMed:17189248, PubMed:17463002, PubMed:24870241, PubMed:28459447, PubMed:34583994). Catalyzes the ATP-dependent amination of UTP to CTP with either L-glutamine or ammonia as a source of nitrogen (PubMed:16179339, PubMed:24870241, PubMed:28459447, PubMed:34583994). CTPS1 CTP synthase activity plays a crucial role in the proliferation of activated lymphocytes and immunity; additional CTP being required to meet increased demand for DNA, RNA and lipid membrane biosynthesis in proliferating lymphocytes (PubMed:24870241, PubMed:8530356). In addition to CTP synthase activity, also acts as a protein deamidase that catalyzes the side chain deamidation of specific asparagine residues of proteins to aspartate (PubMed:40240600). Acts as a negative regulator of innate immunity by mediating deamidation of 'Asn-85' of IRF3, preventing IRF3 from binding DNA (By similarity). Facilitates chromatin relaxation in response to DNA damage by mediating deamidation of 'Asn-76' and 'Asn-77' of histone H1, thereby promoting subsequent acetylation of histone H1 at 'Lys-75' (H1K75ac), increasing chromatin accessibility to facilitate the recruitment of DNA repair proteins (PubMed:40240600).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab211639 is the carrier-free version of ab133743.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	CTP synthase also known as CTPS or the CTP protein is an enzyme involved in pyrimidine metabolism. It catalyzes the conversion of UTP to CTP an essential step in nucleotide biosynthesis. The enzyme exists in two isoforms CTPS1 and CTPS2 with both found in various tissues but CTPS2 has a higher expression in the brain. CTP synthase has a molecular mass of roughly 70 kDa. CTPS can assemble into filamentous structures under certain conditions influencing its enzymatic activity. These filaments sometimes referred to as cytoophidia are observed in many types of cells.
Biological function summary	CTP synthase plays a significant role in the regulation of nucleotide pools. The enzyme ensures the balance of CTP levels necessary for DNA RNA and phospholipid synthesis acting as a rate-limiting step in these processes. CTPS is part of larger enzymatic complexes that aid in cellular response to nutrient availability and DNA damage. Allosteric regulation and product feedback inhibition modulate CTP synthase activity maintaining cellular homeostasis and a proper supply of CTP for various biosynthetic pathways.

Pathways	CTP synthase is an important component in the pyrimidine biosynthesis pathway essential for nucleic acid and lipid metabolism. The enzyme's activity is tightly linked to the salvage pathways collaborating with enzymes like ribonucleotide reductase to regulate deoxyribonucleotide levels for DNA replication and repair. These interactions highlight the enzyme's involvement in cellular proliferation and response to metabolic stresses underpinning its regulatory function in metabolic pathways.
Associated diseases and disorders	CTP synthase activity disorders relate to cancer and neurodegeneration. Dysregulation of CTPS is associated with increased proliferation seen in certain cancers given its role in nucleotide biosynthesis. Research also indicates a link between CTPS activity and neurodegenerative diseases as nucleotide imbalance affects neural function. Additionally interactions with proteins involved in cell cycle control and apoptosis such as p53 and Rb further highlight CTPS's role in disease etiology influencing therapeutic strategies targeting these diverse conditions.

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

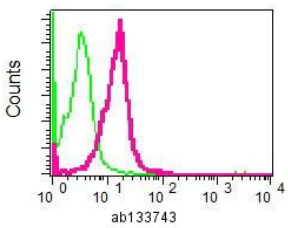
We do not recommend this combination. It is not covered by our product promise.

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.

Full details and terms and conditions can be found here:
Terms & Conditions.

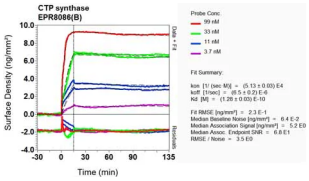
2 product images



Flow Cytometry (Intracellular) - Anti-CTP synthase/CTPS antibody [EPR8086(B)] - BSA and Azide free (ab211639)

CTP synthase/CTPS Flow Cytometry (Intracellular) staining using rabbit Anti-CTP synthase/CTPS antibody

Intracellular Flow Cytometry analysis of permeabilized Raji cells labelling CTP synthase/CTPS with ab133743 at 1/10 (red), with rabbit IgG negative control (green).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab133743).



OI-RD Scanning - Anti-CTP synthase/CTPS antibody [EPR8086(B)] - BSA and Azide free (ab211639)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.