abcam

ab232021

Anti-Thymidylate Synthase antibody [EPR4545] - 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	EPR4545
Purification technique	Affinity purification Protein A
Concentration	1.01 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	Heat up to 98°C, below boiling, and then let cool for 10-20 minutes.

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information TYMS

Function	Catalyzes the reductive methylation of 2'-deoxyuridine 5'-monophosphate (dUMP) to thymidine 5'-monophosphate (dTMP), using the cosubstrate, 5,10-methylenetetrahydrofolate (CH2H4folate) as a 1-carbon donor and reductant and contributes to the mitochondrial and nuclear de novo thymidylate biosynthesis pathway.

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

ab232021 is the carrier-free version of ab108995.

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	Thymidylate Synthase (TS) also known as TYMS or TSase is an important enzyme involved in the de novo synthesis of thymidylate a nucleotide necessary for DNA replication and repair. TS catalyzes the methylation of deoxyuridine monophosphate (dUMP) to deoxythymidine monophosphate (dTMP) using 510-methylenetetrahydrofolate as a cofactor. It has an approximate molecular weight of 36 kDa. The enzyme is expressed in the cytoplasm of proliferating cells predominantly in tissues with high cellular turnover like bone marrow and the intestinal lining.

Biological function summary	Thymidylate synthase plays a critical role in DNA synthesis and cell division. As a member of the folate cycle it indirectly influences the supply of thymidine for DNA synthesis affecting cell proliferation. The enzyme generally functions as a homodimer which is necessary for its activity. Increased expression of TS usually correlates with high rates of cell division making it an important factor in rapidly growing tissues and tumors.
Pathways	Several important biological networks involve thymidylate synthase especially the folate and pyrimidine metabolism pathways. These pathways are essential for the maintenance of nucleotide pools within the cell. TS is functionally related to proteins like dihydrofolate reductase (DHFR) which also play roles in folate metabolism and DNA synthesis. Collectively these proteins ensure the proper balance of nucleotide precursors for DNA replication and repair.
Associated diseases and disorders	Thymidylate synthase is closely associated with cancer and certain autoimmunity conditions. Overexpression of TS is commonly observed in various cancers as tumor cells require increased nucleotide synthesis for rapid proliferation. This makes TS a target for several anticancer drugs like 5-fluorouracil which inhibits TS activity. Additionally aberrations in enzymes like dihydropyrimidine dehydrogenase (DPD) could affect TS function leading to chemotherapeutic agent sensitivity in cancer treatments.

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

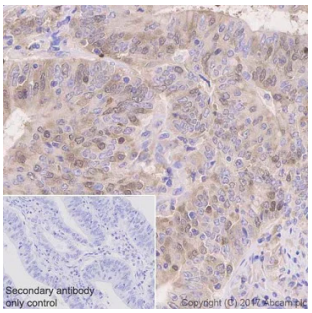
We do not recommend this combination. It is not covered by our product promise.

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.

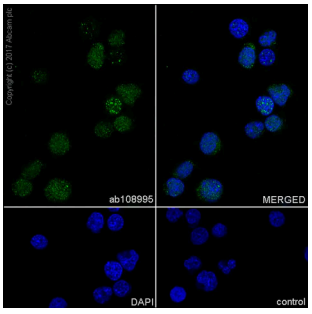
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thymidylate Synthase antibody [EPR4545] - BSA and Azide free (ab232021)

Thymidylate Synthase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thymidylate Synthase antibody

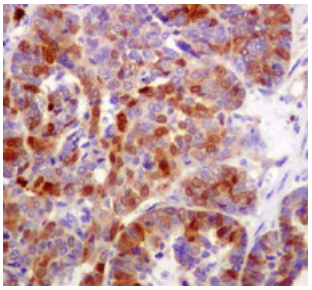
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human colon carcinoma tissue sections labeling Thymidylate Synthase with purified ab108995 at 1:100 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained with hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108995).



Immunocytochemistry/ Immunofluorescence - Anti-Thymidylate Synthase antibody [EPR4545] - BSA and Azide free (ab232021)

Thymidylate Synthase Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Thymidylate Synthase antibody

Immunocytochemistry/ Immunofluorescence analysis of Jurkat (Human T cell leukemia T lymphocyte) cells labeling Thymidylate Synthas with Purified ab108995 at 1:100 dilution. Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100 ab150077 Goat anti rabbit IgG(Alexa Fluor ® 488) was used as the secondary antibody at 1:1000 dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108995).

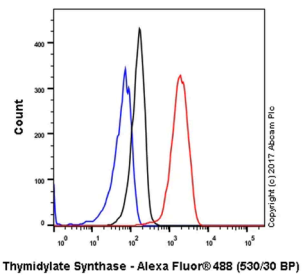


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thymidylate Synthase antibody [EPR4545] - BSA and Azide free (ab232021)

Thymidylate Synthase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Thymidylate Synthase antibody

Unpurified ab108995 at 1/50 dilution, staining Thymidylate Synthase in Human ovary carcinoma Immunohistochemistry, Paraffin-embedded tissue.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108995).

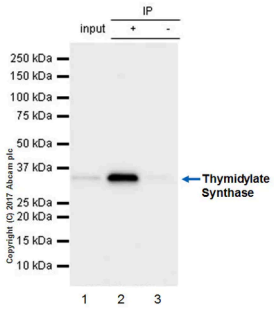
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Thymidylate Synthase antibody [EPR4545] - BSA and Azide free (ab232021)

Thymidylate Synthase Flow Cytometry (Intracellular) staining using rabbit Anti-Thymidylate Synthase antibody

Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Thymidylate Synthase with purified ab108995 at 1/50 dilution (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue). This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108995).



Immunoprecipitation - Anti-Thymidylate Synthase antibody [EPR4545] - BSA and Azide free (ab232021)

ab108995 (purified) at 1:30 dilution (2µg) immunoprecipitating Thymidylate Synthase in Jurkat whole cell lysate.

Lane 1 (input): Jurkat (Human T cell leukemia T lymphocyte) whole cell lysate,10µg
Lane 2 (+): ab108995 & Jurkat whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab108995 in Jurkat whole cell lysate

For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab108995).

All lanes:
Immunoprecipitation - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

Predicted band size: 36 kDa

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