abcam

ab108995

Anti-Thymidylate Synthase antibody [EPR4545]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR4545
Purification technique	Affinity purification Protein A
Concentration	0.596 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	Heat up to 98°C, below boiling, and then let cool for 10-20 minutes. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100 - 1/250
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
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	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
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

Notes

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.

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

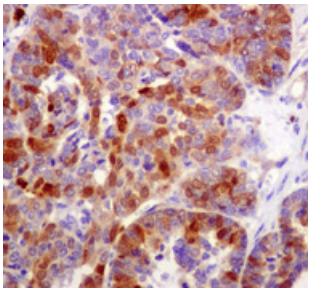
We do not recommend this combination. It is not covered by our product promise.

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.

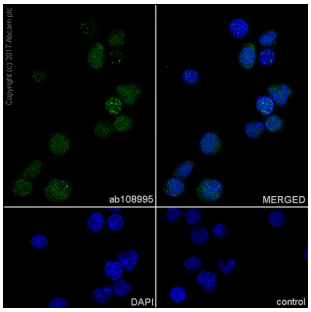
7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

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

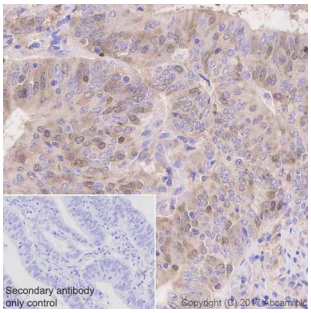
Unpurified ab108995 at 1/50 dilution, staining Thymidylate Synthase in Human ovary carcinoma Immunohistochemistry, Paraffin-embedded tissue.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

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

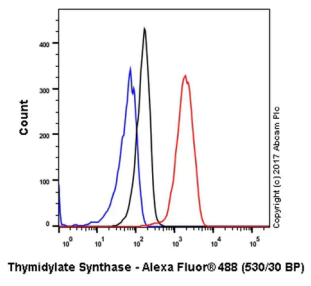
Immunocytochemistry/ Immunofluorescence analysis of Jurkat (Human T cell leukemia T lymphocyte) cells labeling Thymidylate Synthas with Purified ab108995 at 1:100 dilution. Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100 ab150077 Goat anti rabbit IgG(Alexa Fluor ® 488) 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

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

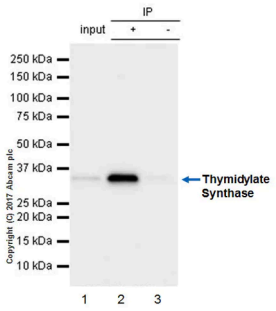
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human colon carcinoma tissue sections labeling Thymidylate Synthase with purified ab108995 at 1:100 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). Tissue was counterstained 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.



Flow Cytometry (Intracellular) - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

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).



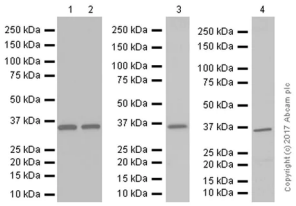
Immunoprecipitation - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

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

Predicted band size: 36 kDa



Western blot - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995) at 1/10000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
Jurkat (Human T cell leukemia T lymphocyte) whole cell lysates at 20 µg

Lane 3:
C6 (Rat glial tumor glial cell) whole cell lysates at 20 µg

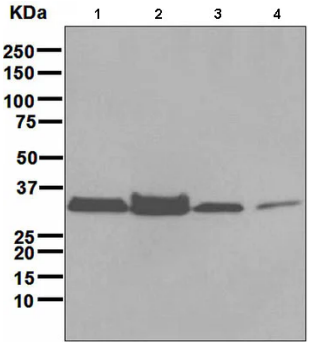
Lane 4:
RAW 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysates at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 36 kDa, 77 kDa

Observed band size: 77 kDa



Western blot - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995)

All lanes:
Western blot - Anti-Thymidylate Synthase antibody [EPR4545] (ab108995) at 1/1000 dilution

Lane 1:
HeLa cell lysate at 10 µg

Lane 2:
Jurkat cell lysate at 10 µg

Lane 3:
HL60 cell lysate at 10 µg

Lane 4:
MCF7 cell lysate at 10 µg

Performed under reducing conditions.

Predicted band size: 36 kDa

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