abcam

ab224649

Anti-Thymidylate Synthase antibody [TYMS/1884]

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.05% Sodium azide Constituents: PBS, 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human TYMS aa 50-200. The exact immunogen used to generate this antibody is proprietary information. Database link P04818
Clone number	TYMS/1884
Purification technique	Affinity purification Protein A/G
Light chain type	kappa
Concentration	0.2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab224649 was purified from Bioreactor concentrate by Protein A/G.

Reactivity data

ICC

Tested

Species	Human
Dilution info	1-2 µg/mL

Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg for 10^6 Cells
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Protein Array

Tested

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	Primary incubation for 30 minutes at room temperature. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Recombinant full length protein - Human
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 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

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

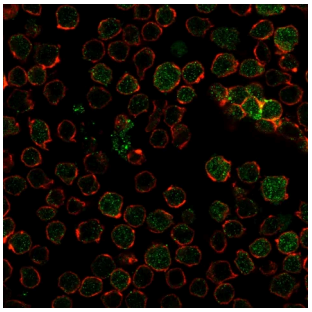
We do not recommend this combination. It is not covered by our product promise.

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.

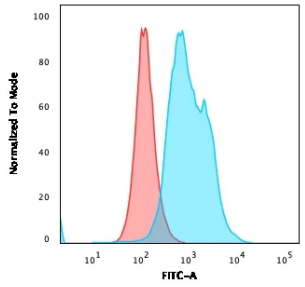
5 product images



Immunocytochemistry - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649)

Thymidylate Synthase Immunocytochemistry staining using mouse Anti-Thymidylate Synthase antibody

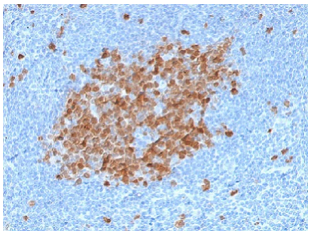
Flow Cytometry analysis of PFA-fixed Ramos (human Burkitt's lymphoma cell line) cells labeling Thymidylate Synthase with ab224649 at 2 µg/mL followed by Goat anti-Mouse IgG-CF488 (Green). Membrane is labeled with Phalloidin (Red).



Flow Cytometry - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649)

Thymidylate Synthase Flow Cytometry staining using mouse Anti-Thymidylate Synthase antibody

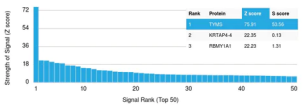
Flow Cytometry analysis of PFA-fixed MOLT-4 (human lymphoblastic leukemia cell line) cells labeling Thymidylate Synthase with ab224649 at 2 µg/10^6 cells followed by goat anti-Mouse IgG-CF488 (Blue); Isotype Control (Red).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649)

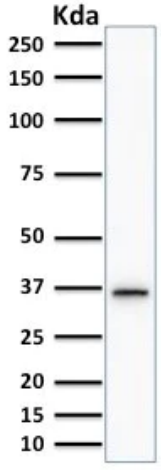
Thymidylate Synthase Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Thymidylate Synthase antibody

Formalin-fixed paraffin-embedded human tonsil tissue stained for Thymidylate Synthase using ab224649 at 2 µg/ml in immunohistochemical analysis.



Protein Array - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649)

ab224649 was tested in protein array against over 19000 different full-length human proteins.
Z- and S- Score: The Z-score represents the strength of a signal that a monoclonal antibody (MAb) (in combination with a fluorescently-tagged anti-IgG secondary antibody) produces when binding to a particular protein on the HuProtTM array. Z-scores are described in units of standard deviations (SD's) above the mean value of all signals generated on that array. If targets on HuProtTM are arranged in descending order of the Z-score the S-score is the difference (also in units of SD's) between the Z-score. S-score therefore represents the relative target specificity of a MAb to its intended target.
A MAb is specific to its intended target if the MAb has an S-score of at least 2.5. For example if a MAb binds to protein X with a Z-score of 43 and to protein Y with a Z-score of 14 then the S-score for the binding of that MAb to protein X is equal to 29.



Western blot - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649)

All lanes:
Western blot - Anti-Thymidylate Synthase antibody [TYMS/1884] (ab224649) at 2 µg/mL

All lanes:
HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate

Predicted band size: 36 kDa

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