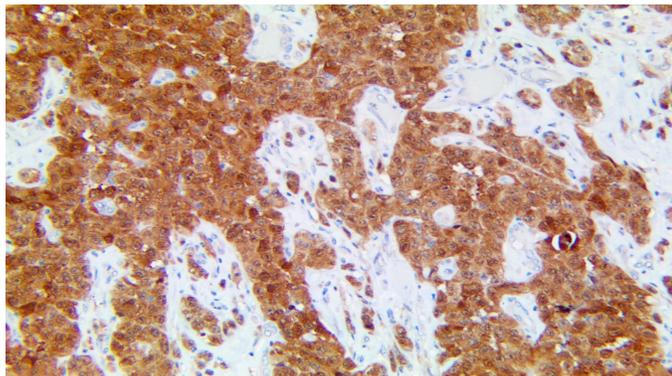


MTAP

Clone: RBT-MTAP
Rabbit Monoclonal



Inset: IHC of MTAP on a FFPE Melanoma Tissue

Intended Use

For In Vitro Diagnostic Use.

This antibody is intended for use in Immunohistochemical applications on formalin-fixed paraffin-embedded tissues (FFPE), frozen tissue sections, and cell preparations. Interpretation of results should be performed by a qualified medical professional.

Immunogen

Recombinant human MTAP protein.

Summary and Explanation

The S-methyl-5'-thioadenosine phosphorylase (MTAP) metabolizes methylthioadenosine (MTA), a byproduct of polyamine synthesis and regulator of protein methylation, to salvage adenine and methionine residues for reuse in many pathways affecting cell proliferation, signaling, and apoptosis. The *MTAP* gene, located at 9p12.3, is co-deleted with *CDKN2A* (encodes p16 tumor-suppressor) in several types of cancer and is abundant in all normal tissues but is deficient in various tumors.

IHC has been found to be an accurate and useful diagnostic method for detecting MTAP deficiency in NSCLC, and the frequency of MTAP deficiency was found to be relatively high. Accumulated MTA can upregulate transcription factors, activate ERK pathways in Melanoma and MAPK in Liver Cancer causing invasive and metastasizing tumors, and disrupt function of secretory cells in tissues like the prostate. Disrupted DNA methylation affects epigenetic factors and can lead to dedifferentiated stem-like cancer cells in Glioblastoma, although these cells can suffer purine starvation without a functioning salvage pathway. Overexpression of MTAP is also associated with increased proliferation and epithelial-to-mesenchymal transition in Colorectal Carcinoma.

A study has found that a combination of MTAP or BAP1 loss detected by IHC can likely detect malignant pleural mesothelioma (MPM) with good sensitivity and 100% specificity, and serve as a useful ancillary IHC for discriminating MPM from reactive mesothelial hyperplasia (RMH).

Antibody Type	Rabbit Monoclonal	Clone	RBT-MTAP
Isotype	IgG	Reactivity	Paraffin, Frozen
Localization	Cytoplasmic	Species Reactivity	Human
Control	Breast, Colon, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma		
Application	Melanoma and Skin Cancer, Cervical Cancer, Liver Cancer, Colon and Gastrointestinal Cancer, Prostate Cancer		

Presentation

Anti-MTAP is a Rabbit Monoclonal antibody derived from cell culture supernatant that is concentrated, dialyzed, filter sterilized and diluted in buffer pH 7.5, containing BSA and sodium azide as a preservative.

<i>Catalog No.</i>	<i>Presentation</i>	<i>Dilution</i>	<i>Volume</i>
BSB-3739-3	Predilute	Ready-to-Use	3.0 mL
BSB-3739-7	Predilute	Ready-to-Use	7.0 mL
BSB-3739-15	Predilute	Ready-to-Use	15.0 mL
BSB-3739-01	Concentrate	1:50-1:200	0.1 mL
BSB-3739-05	Concentrate	1:50-1:200	0.5 mL
BSB-3739-1	Concentrate	1:50-1:200	1.0 mL

Control Slides Available

<i>Catalog No.</i>	<i>Quantity</i>
BSB-3739-CS	5 slides

Storage Store at 2-8°C (Control Slides: Store at 20-25°C)

Precautions

1. For professional users only. Results should be interpreted by a qualified medical professional.
2. This product contains <0.1% sodium azide (NaN₃) as a preservative. Ensure proper handling procedures are used with this reagent.
3. Always wear personal protective equipment such as a laboratory coat, goggles, and gloves when handling reagents.
4. Dispose of unused solution with copious amounts of water.
5. Do not ingest reagent. If reagent is ingested, seek medical advice immediately.
6. Avoid contact with eyes. If contact occurs, flush with large quantities of water.
7. Follow safety precautions of the heating device used for epitope retrieval (TintoRetriever Pressure Cooker or similar).
8. For additional safety information refer to Safety Data Sheet for this product.
9. For complete recommendations for handling biological specimens, please refer to the CDC document, "Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories" (see References in this document).

Stability

This product is stable up to the expiration date on the product label. Do not use after expiration date listed on the package label. Temperature fluctuations should be avoided. Store appropriately when not in use, and avoid prolonged exposure to room temperature conditions.

Specimen Preparation

Paraffin sections: The antibody can be used on formalin-fixed paraffin-embedded (FFPE) tissue sections. Ensure tissue undergoes appropriate fixation for best results. Pre-treatment of tissues with heat-induced epitope retrieval (HIER) is recommended using Bio SB ImmunoDNA Retriever with Citrate (BSB 0020-BSB 0023), ImmunoDNA Retriever with EDTA (BSB 0030-BSB 0033), or ImmunoDNA Digester (BSB 0108-0112). See reverse side for complete protocol. Tissue should remain hydrated via use of Bio SB Immuno/DNA Washer solutions (BSB 0029 & BSB 0042).

Frozen sections and cell preparations: The antibody can be used on acetone-fixed frozen sections and acetone-fixed cell preparations.

IHC Protocol

1. Cut and mount 3-5 micron formalin-fixed paraffin-embedded tissues on positively charged slides such as Bio SB Hydrophilic Plus Slides (BSB 7028).
2. Air dry for 2 hours at 58° C.
3. Deparaffinize, dehydrate and rehydrate tissues.
4. Subject tissues to heat induced epitope retrieval (HIER) using a suitable retrieval solution such as ImmunoDNA Retriever with Citrate (BSB 0020-BSB 0023) or EDTA (BSB 0030-BSB 0033).
5. Any of three heating methods may be used:

a. TintoRetriever Pressure Cooker or Equivalent

Place tissues/slides in a staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA and place on trivet in the pressure cooker. Add 1-2 inches of distilled water to the pressure cooker and turn heat to high. Incubate for 15 minutes. Open and immediately transfer slides to room temperature.

b. TintoRetriever PT Module or Water Bath Method

Place tissues/slides in a pre-warmed staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA at 95°-99° C. Incubate for 30-60 minutes.

c. Conventional Steamer Method

Place tissues/slides in a pre-warmed staining dish or coplin jar containing the ImmunoDNA Retriever with Citrate or EDTA in a steamer, cover and steam for 30-60 minutes.

6. After heat treatment, transfer slides in ImmunoDNA Retriever with Citrate or EDTA to room temperature and let stand for 15-20 minutes.
7. For manual IHC, perform antibody incubation at ambient temperature. For automated IHC methods, perform antibody incubation according to instrument manufacturer's instructions.
8. Wash slides with ImmunoDNA washer or DI water.
9. Continue IHC protocol. Wash slides between each step with ImmunoDNA washer solution.

Step	ImmunoDetector AP/HRP	PolyDetector AP/HRP	PolyDetector Plus HRP
Peroxidase/AP Blocker	5 min.	5 min.	5 min
Primary Antibody	30-60 min.	30-60 min.	30-60 min.
1st Step Detection	10 min.	30-45 min.	15 min.
2nd Step Detection	10 min.	Not Applicable	15 min.
Substrate- Chromogen	5-10 min.	5-10 min.	5-10 min.
Counterstain / Coverslip	Varies	Varies	Varies

Mounting Protocols

For detailed instructions using biodegradable permanent mounting media such as XyGreen PermaMounter (BSB 0169-0174) or organic solvent based resin such as PermaMounter (BSB 0094-0097), refer to PI0174 or PI0097.

Product Limitations

Due to inherent variability present in immunohistochemical procedures (including fixation time of tissues, dilution factor of antibody, retrieval method utilized, and incubation time), optimal performance should be established through the use of positive and negative controls. Results should be interpreted by a qualified medical professional.

References

1. Schmid M, et al. A methylthioadenosine phosphorylase (MTAP) fusion transcript identifies a new gene on chromosome 9p21 that is frequently deleted in cancer. *Oncogene*. 2000. 19 (50):5747-54. doi:10.1038/sj.onc.1203942
2. Watanabe, F., et al. Immunohistochemical diagnosis of methylthioadenosine phosphorylase (MTAP) deficiency in non-small cell lung carcinoma. *Lung Cancer* Volume 63, Issue 1, January 2009, Pages 39-44. <https://doi.org/10.1016/j.lungcan.2008.04.019>
3. Limm K, et al. Characterization of the Methylthioadenosine Phosphorylase Polymorphism rs7023954 - Incidence and Effects on Enzymatic Function in Malignant Melanoma. *PLoS ONE*. 2016. doi:10.1371/journal.pone.0160348
4. Bataille F, et al. Strong expression of methylthioadenosine phosphorylase (MTAP) in human colon carcinoma cells is regulated by TCF1/ β -catenin. *Lab Invest*. 2005;85:124-136. <https://doi.org/10.1038/labinvest.37001>
5. Hansen LJ, et al. MTAP Loss Promotes Stemness in Glioblastoma and Confers Unique Susceptibility to Purine Starvation. *Cancer Res*. 2019;79(13):3383-3394. doi: 10.1158/0008-5472
6. Zhong Y, et al. Characterization of methylthioadenosine phosphorylase (MTAP) expression in colorectal cancer. *Artif Cell, Nanomed, and Biotech*. 2017;46(8):2082-2087. <https://doi.org/10.1080/21691401.2017.1408122>
7. Bistulfi G, et al. The essential role of methylthioadenosine phosphorylase in prostate cancer. *Oncotarget*. 2016;7(12):14380-14393. doi:10.18632/oncotarget.7486
8. Hida, T., et al. Immunohistochemical detection of MTAP and BAP1 protein loss for mesothelioma diagnosis: Comparison with 9p21 FISH and BAP1 immunohistochemistry. *Lung Cancer*. 2017 Feb;104:98-105. doi:10.1016/j.lungcan.2016.12.017.
9. U.S. Department of Health and Human Services: Centers for Disease Control and Prevention. Guidelines for Safe WorkPractices in Human and Animal Medical Diagnostic Laboratories. Supplement / Vol. 61, January 6, 2012.

Abbreviated Immunohistochemical Protocol

Symbol Key / Légende des symboles/Erläuterung der Symbole

	EMERGO EUROPE Prinsessegracht 20 2514 AP The Hague The Netherlands	 Storage Temperature Limites de température Zulässiger Temperaturbereich	 Manufacturer Fabricant Hersteller	 Catalog Number Référence du catalogue Bestellnummer
	In Vitro Diagnostic Medical Device Dispositif médical de diagnostic in vitro In-Vitro-Diagnostikum	 Read Instructions for Use Consulter les instructions d'utilisation Gebrauchsanweisung beachten	 Expiration Date Utiliser jusque Verwendbar bis	 Lot Number Code du lot Chargenbezeichnung