Product Datasheet

SHMT2 Antibody - BSA Free
NBP1-80755

Unit Size: 0.1 ml

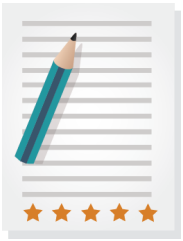
Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

www.novusbio.com technical@novusbio.com

Publications: 4

Protocols, Publications, Related Products, Reviews, Research Tools and Images at:
www.novusbio.com/NBP1-80755

Updated 12/2/2025 v.20.1



NBP1-80755

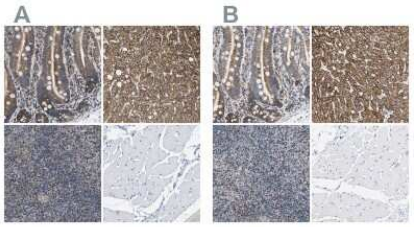
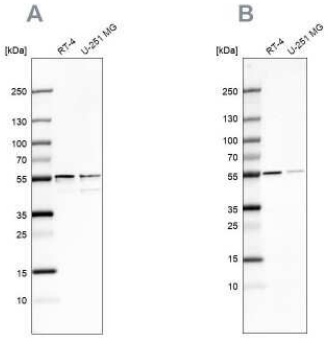
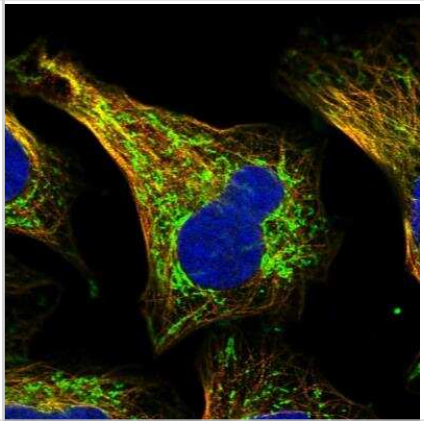
SHMT2 Antibody - BSA Free

Product Information	
Unit Size	0.1 ml
Concentration	Concentrations vary lot to lot. See vial label for concentration. If unlisted please contact technical services.
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.02% Sodium Azide
Isotype	IgG
Purity	Affinity purified
Buffer	PBS (pH 7.2) and 40% Glycerol

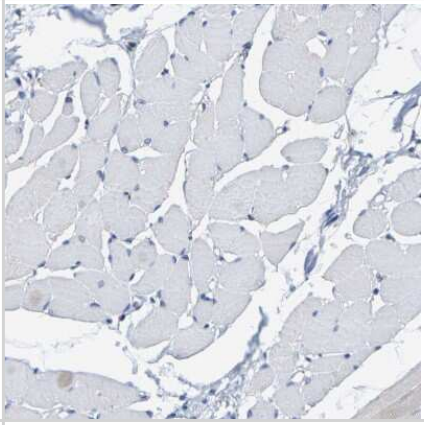
Product Description	
Description	Novus Biologicals Rabbit SHMT2 Antibody - BSA Free (NBP1-80755) is a polyclonal antibody validated for use in IHC, WB and ICC/IF. Anti-SHMT2 Antibody: Cited in 4 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
Host	Rabbit
Gene ID	6472
Gene Symbol	SHMT2
Species	Human, Mouse, Rat
Reactivity Notes	Reactivity reported in scientific literature (PMID: 24498411).
Immunogen	This antibody was developed against Recombinant Protein corresponding to amino acids: GQLVRMAIRAQHSNAAQTQTGEANRGWTGQESLSDSDPEMWELLQREKDRQ CRGLELIASENFCSRAALEAL

Product Application Details	
Applications	Western Blot, Immunohistochemistry-Paraffin, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry
Recommended Dilutions	Western Blot 0.04 - 0.4 ug/ml, Immunohistochemistry 1:500 - 1:1000, Immunocytochemistry/ Immunofluorescence 0.25-2 ug/ml, Immunohistochemistry-Paraffin 1:500 - 1:1000
Application Notes	For IHC-Paraffin, HIER pH 6 retrieval is recommended. ICC/IF, Fixation Permeabilization: Use PFA/Triton X-100.

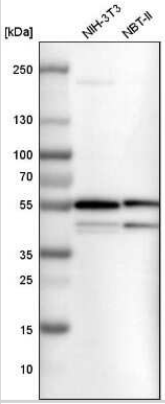
Images

Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Analysis in human liver and skeletal muscle tissues using NBP1-80755 antibody. Corresponding SHMT2 RNA-seq data are presented for the same tissues.	
Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Staining of human duodenum, liver, lymph node and skeletal muscle using Anti-SHMT2 antibody NBP1-80755 (A) shows similar protein distribution across tissues to independent antibody NBP1-80754 (B).	
Western Blot: SHMT2 Antibody [NBP1-80755] - Analysis using Anti-SHMT2 antibody NBP1-80755 (A) shows similar pattern to independent antibody NBP1-80754 (B).	
Immunocytochemistry/Immunofluorescence: SHMT2 Antibody [NBP1-80755] - Staining of human cell line U-2 OS shows localization to mitochondria & microtubules. Antibody staining is shown in green.	

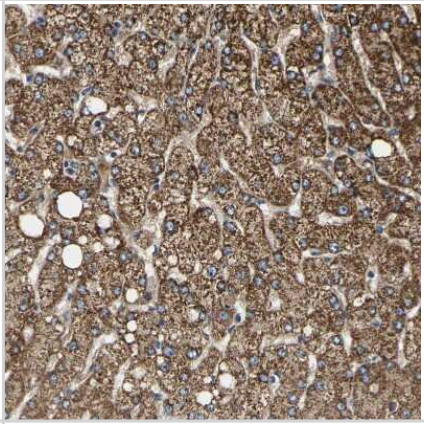
Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Staining of human skeletal muscle shows no positivity in myocytes as expected.



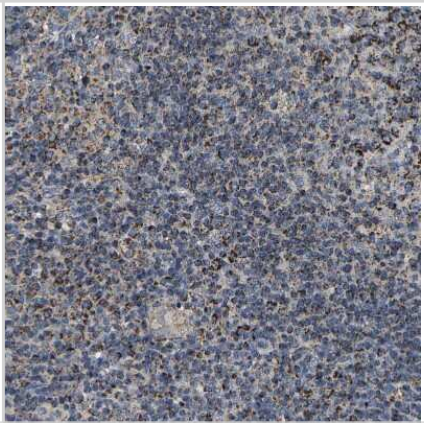
Western Blot: SHMT2 Antibody [NBP1-80755] - Analysis in mouse cell line NIH-3T3 and rat cell line NBT-II.



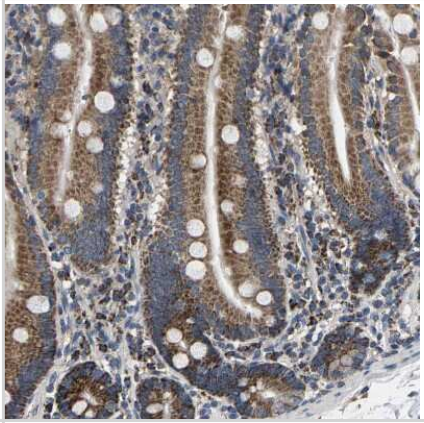
Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Staining of human liver shows moderate granular cytoplasmic positivity in hepatocytes.



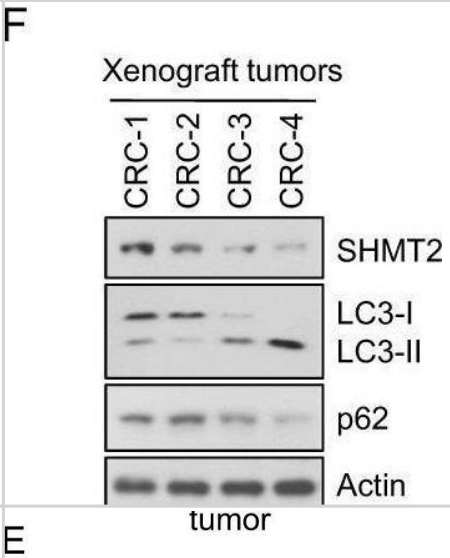
Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Staining of human lymph node shows moderate granular cytoplasmic positivity in non-germinal center cells.



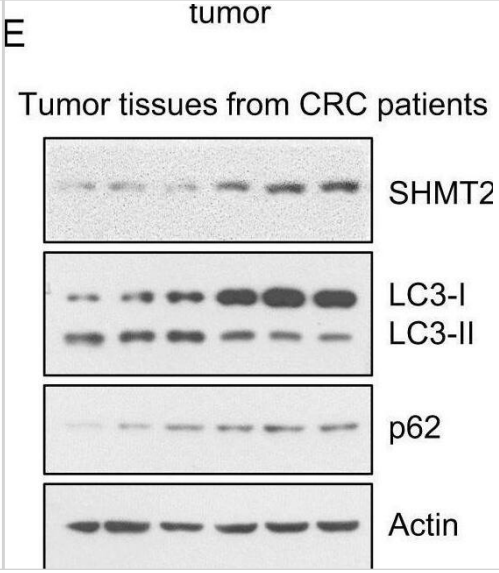
Immunohistochemistry-Paraffin: SHMT2 Antibody [NBP1-80755] - Staining of human duodenum shows moderate granular cytoplasmic positivity in glandular cells.



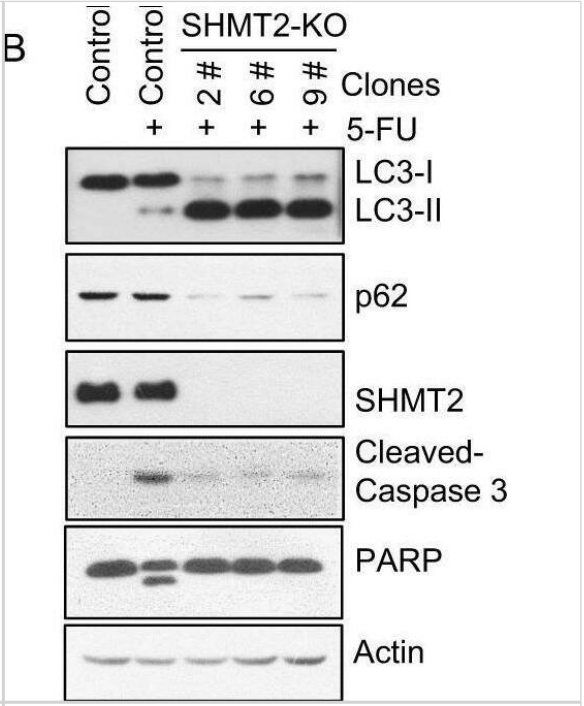
CQ sensitizes PDXs with low SHMT2 expression to 5-FU treatment.A Images of immunohistochemical staining for SHMT2, LC3, and p62 in CRC tissues from four selected patients (two with low SHMT2 expression and two with high SHMT2 expression) using the indicated antibodies. Scale bar, 50 μm. B Schematic of PDX model establishment. C–E Xenograft experiments with 5-FU or CQ treatment are described in the Methods section. C Xenograft tumors were harvested and photographed. D, E Quantification of the average volumes (D) and weights (E) of the xenograft tumors are shown. Four tumors from individual mice were included in each group; *P < 0.05, **P < 0.01. F Representative western blot of xenograft tumors. G Schematic diagram showing the basic hypothesis/conclusion/model. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/33990700), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



5-FU resistance is related to low SHMT2 expression and autophagy in CRC.A Expression of SHMT2 in three GEO datasets (GSE39582, GSE24551, and GSE21510). ***P < 0.001. B Representative images of immunohistochemical staining for SHMT2 in peritumor and CRC tissues. Scale bar, 50 μm. C 378 stage II–III paired CRC tissues assessed by immunohistochemistry are shown. **P < 0.01. D Survival of patients stratified by the SHMT2 expression level. DFS and OS of patients with stage II–III disease treated with 5-FU-based chemotherapy stratified by the SHMT2 expression level. E, F The protein levels of endogenous SHMT2, p62, LC3, and β-actin (as the internal standard) were examined by western blotting in CRC tissues. F The Spearman rank correlation test was used to evaluate correlations between the SHMT2, p62, and LC3 expression status in CRC tissues as determined by western blotting. G Representative images of immunohistochemical staining. Scale bar, 50 μm. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/33990700), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Inhibition of autophagy induced by low SHMT2 expression sensitizes CRC cells to 5-FU treatment.A SHMT2 promoted apoptosis and inhibited autophagy in response to 5-FU treatment. Western blot analysis of lysates of HCT116 cells that were transfected with SHMT2 or infected with SHMT2-sh lentivirus and treated with 5-FU (10 μM) for 24 h. The protein levels of SHMT2, p62, LC3, cleaved Caspase 3, PARP, and β-actin (as the internal standard) were assessed with the indicated antibodies. B The protein levels of SHMT2, p62, LC3, cleaved Caspase 3, PARP, and β-actin (as the internal standard) were assessed in SHMT2-KO HCT116 cells. C The indicated cells were treated with 5-FU (2 μM), 3-MA (10 mM) or chloroquine diphosphate salt (CQ, 20 μM) for 4 days and analyzed using the MTT cell viability assay. *P < 0.05, **P < 0.01. D–F The xenograft experiment with Control and SHMT2-sh cells treated with 5-FU or CQ is described in the Methods section. D Xenograft tumors were harvested and photographed. E, F Quantification of the average volumes (E) and weights (F) of the xenograft tumors are shown. Five tumors from individual mice were included in each group; *P < 0.05, **P < 0.01. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/33990700), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



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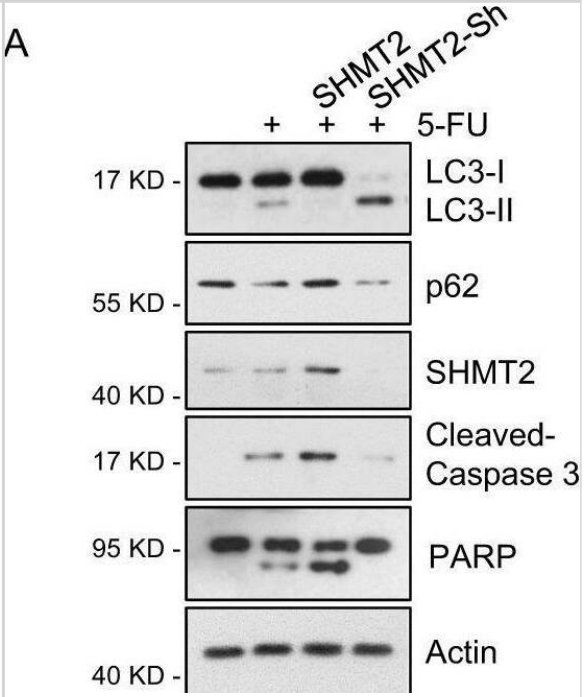
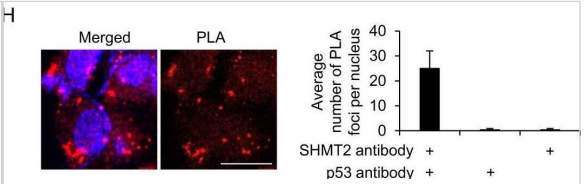


SHMT2 interacts with cytosolic p53.A, B SHMT2 purified by Flag-IP was collected after in-gel digestion and used for LC-MS/MS analysis to search for the binding proteins of SHMT2. A Flag-SHMT2 was transfected into 293 T cells for 24 h, isolated by coimmunoprecipitation, separated by SDS-PAGE and stained using Coomassie. B Tabular display of the number of tryptic peptides from each of the indicated proteins that coprecipitated with SHMT2. C HCT116 cells transfected with Flag-SHMT2 were immunoprecipitated with FLAG-M2 beads. Western blotting for p53 and SHMT2 was then performed. Immunoprecipitation using an anti-p53 antibody (Do-1) was followed by western blotting with anti-SHMT2 or anti-p53 antibodies (ab32389, Abcam). D SHMT2 interacted mainly with endogenous cytosolic p53 in HCT116 cells. Cyt cytosolic, Nuc nuclear. E Cytosolic p53 bound to SHMT2. HCT116 cells transfected with Flag-WT, nuclear (NES-) or cytosolic p53 (NLS-) were immunoprecipitated with FLAG-M2 beads. Western blotting for FLAG and SHMT2 was then performed. F–H Colocalization of SHMT2 and cytosolic p53. A set of partially enlarged pictures are attached on the right side. F Representative micrographs of HCT116 cells transfected with plasmids expressing WT, nuclear (NES-) and cytosolic p53 (NLS-). G Representative micrographs of HCT116 cells stained for SHMT2 and p53. H Representative micrographs of HCT116 cells in the proximity ligation assay (PLA). Scale bar, 10 μm. PLA foci per nucleus for the two antibodies are presented in the histogram. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/33990700), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

Dyshlovoy S, Shubina L, Makarieva T et al. New Guanidine Alkaloids Batzelladines O and P from the Marine Sponge Monanchora pulchra Induce Apoptosis and Autophagy in Prostate Cancer Cells Marine Drugs 2022-11-25 [PMID: 36547885] (WB, Human)

Redeker KM, Jensen O, Gebauer L et al. Atypical Substrates of the Organic Cation Transporter 1 Biomolecules 2022-11-09 [PMID: 36359014] (ICC/IF, Human)

Chen J, Na R, Xiao C et al. The loss of SHMT2 mediates 5-fluorouracil chemoresistance in colorectal cancer by upregulating autophagy Oncogene 2021-05-14 [PMID: 33990700]

Kjellin H, Johansson H, Hoog A et al. Differentially Expressed Proteins in Malignant and Benign Adrenocortical Tumors. PLoS One 2014-01-01 [PMID: 24498411]

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Products Related to NBP1-80755

NBP1-80755PEP	SHMT2 Recombinant Protein Antigen
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NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

Limitations

This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

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