abcam

# ab305227

# Anti-HMGCS2 antibody [EPR26978-39]

Recombinant | RabMAb | 20ul selling size

## 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** | EPR26978-39 |
| **Purification technique** | Affinity purification Protein A |
| **Concentration** | 0.473 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Dot

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/2000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

### Not recommended

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |

| | |
|---|---|
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/30 |

| | |
|---|---|
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information Hydroxymethylglutaryl-CoA synthase, mitochondrial

| | |
|---|---|
| **Function** | Catalyzes the first irreversible step in ketogenesis, condensing acetyl-CoA to acetoacetyl-CoA to form HMG-CoA, which is converted by HMG-CoA reductase (HMGCR) into mevalonate. |

## 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** | HMGCS2 also known as hydroxymethylglutaryl-CoA synthase 2 is an enzyme involved in ketogenesis. It catalyzes the conversion of acetyl-CoA to HMG-CoA an essential step in the production of ketone bodies. This enzyme has a molecular mass of approximately 57 kDa. HMGCS2 is mainly expressed in the liver and is located within the mitochondria where it works under controlled metabolic conditions. |
| **Biological function summary** | HMGCS2 activates the ketogenesis process which generates ketone bodies such as acetoacetate and β-hydroxybutyrate that serve as alternative energy sources when glucose is scarce. This enzyme is not known to be part of any larger protein complex. During fasting states or prolonged exercise the liver uptakes fatty acids and converts them into ketone bodies through HMGCS2 activity providing energy especially for organs like the brain and muscles. |
| **Pathways** | HMGCS2 functions in the ketogenesis and lipid metabolism pathways. It works alongside enzymes like HMG-CoA lyase which further processes HMG-CoA into acetoacetate a precursor for other ketone bodies. The interplay of HMGCS2 with fatty acid oxidation allows it to regulate energy homeostasis coordinating with enzymes such as carnitine palmitoyltransferase I which aids in transporting fatty acids into mitochondria for oxidation. |
| **Associated diseases and disorders** | HMGCS2 malfunctions or deficiencies relate to disorders such as hypoketotic hypoglycemia and hepatic encephalopathy. Disrupted activity can affect energy balance particularly during fasting impacting glucose homeostasis. Alterations in HMGCS2 expression or function can connect with proteins like medium-chain acyl-CoA dehydrogenase which plays roles in fatty acid metabolism disorders further complicating the metabolic landscape when HMGCS2 is impaired. |

## 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.

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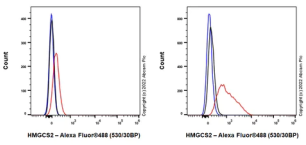
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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## 8 product images

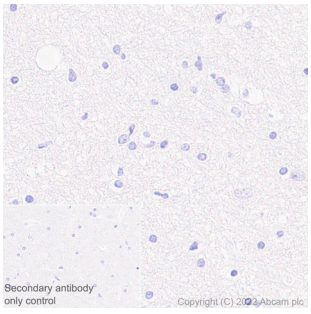


### Flow Cytometry (Intracellular) - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

HMGCS2 Flow Cytometry (Intracellular) staining using rabbit Anti-HMGCS2 antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HCT116 (human colorectal carcinoma epithelial cell, Left) / Caco-2 (human colorectal adenocarcinoma epithelial cell, Right) cells labelling HMGCS2 with ab305227 at 1/500 dilution (0.1ug) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody. Negative control: HCT116 (PMID: 28468827).

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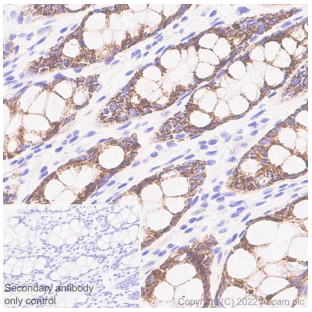



### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

HMGCS2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human cerebrum using rabbit Anti-HMGCS2 antibody

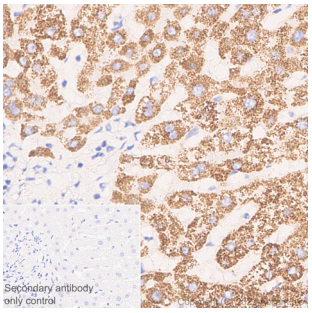
Immunohistochemical analysis of paraffin-embedded Human cerebrum tissue labeling HMGCS2 with ab305227 at 1/2000 (0.237 µg/ml) followed by a LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Negative control: no staining on human cerebrum (PMID: 7893153, PMID: 22523078, PMID: 23943793, PMID: 24391449). The section was incubated with ab305227 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

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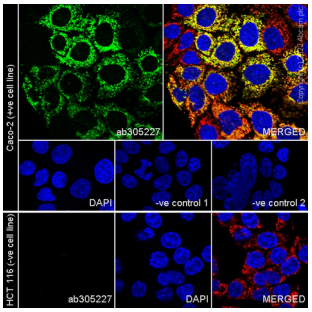

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

Immunohistochemical analysis of paraffin-embedded Human colon tissue labeling HMGCS2 with ab305227 at 1/2000 (0.237 µg/ml) followed by a LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on human colon (PMID: 35422042, PMID: 31355161). The section was incubated with ab305227 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



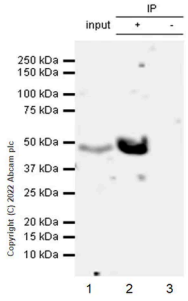

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling HMGCS2 with ab305227 at 1/2000 (0.237 µg/ml) followed by a LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on human liver (PMID: 31779269). The section was incubated with ab305227 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is LeicaDS9800 (Bond™ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins




## Immunocytochemistry/ Immunofluorescence - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Caco-2 (human colorectal adenocarcinoma epithelial cell) cells labelling HMGCS2 with ab305227 at 1/500 dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green). Confocal image showing mitochondrial staining in Caco-2 cells. Negative control: HCT 116 (PMID: 28468827). The image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab33985 Anti-COX IV mouse monoclonal antibody - Mitochondrial Marker was used to counterstain tubulin at 1/1000 dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution.




## Immunoprecipitation - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

HMGCS2 was immunoprecipitated from 0.35 mg Caco-2 (human colorectal adenocarcinoma epithelial cell), whole cell lysate 10 µg with ab305227 at 1/30 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab305227 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution. Lane 1: Caco-2 (human colorectal adenocarcinoma epithelial cell), whole cell lysate 10 µg Lane 2: ab305227 IP in Caco-2 whole cell lysate Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab305227 in Caco-2 whole cell lysate Blocking and dilution buffer and concentration: 5% NFDM/TBST. Exposure time: 180 seconds
All lanes:
Immunoprecipitation - Anti-HMGCS2 antibody [EPR26978-39] (ab305227) at 1/30 dilution

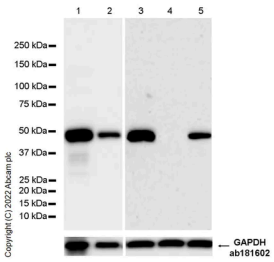
All lanes:
Caco-2 (human colorectal adenocarcinoma epithelial cell)

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Observed band size: 50 kDa

Exposure time: 180s




## Western blot - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

Blocking and diluting buffer and concentration: 5% NFDM/TBST Negative control: HCT 116 (PMID: 28468827) Exposure time: lanes 1-2: 6 seconds lanes 3-5: 180 seconds
All lanes:
Western blot - Anti-HMGCS2 antibody [EPR26978-39] (ab305227) at 1/1000 dilution

Lane 1:
Human liver tissue lysate at 20 µg

Lane 2:
Human colon tissue lysate at 20 µg

Lane 3:
COLO 205 (human colon adenocarcinoma tumor ascitic epithelial cell), whole cell lysate at 20 µg

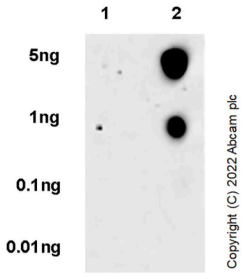
Lane 4:
HCT 116 (human colorectal carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 5:
Caco-2 (human colorectal adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 50 kDa




## Dot Blot - Anti-HMGCS2 antibody [EPR26978-39] (ab305227)

Dot blot analysis of HMGCS2 using ab305227 at 1:1000 (0.473 µg/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution. Lane 1: His-tagged human HMGCS1 recombinant protein 10 ng Lane 2: MYC/DDK tagged human HMGCS2 recombinant protein 10 ng Exposure time: 180 seconds Blocking and diluting buffer and concentration: 5% NFDM/TBST

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