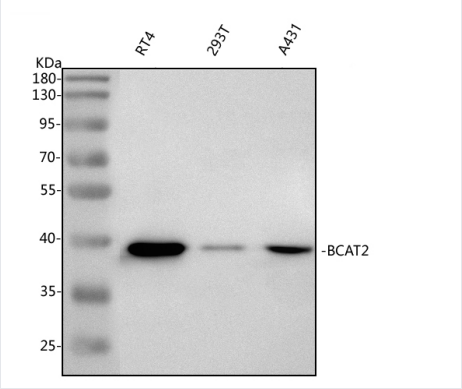
# BCAT2 Antibody – Rabbit Polyclonal

## PRODUCT OVERVIEW

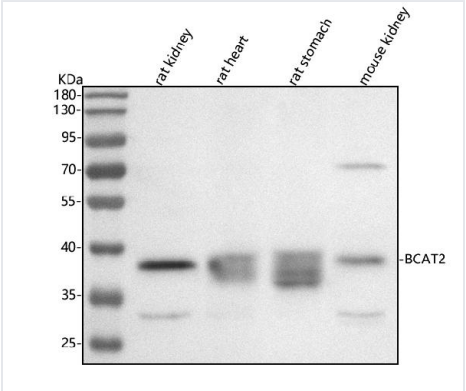
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| **Product Name** | BCAT2, Polyclonal Antibody |
| **Full Product Name** | Anti-BCAT2 Antibody Picoband |
| **Product Gene Name** | anti-BCAT2 antibody |
| **Product Synonym Names** | Serine/threonine-protein kinase AtPK1/AtPK6; 70 kDa ribosomal protein S6 kinase 1 antibody, KS6B1_HUMAN antibody, p70 alpha antibody, P70 beta 1 antibody, p70 ribosomal S6 kinase alpha antibody, p70 ribosomal S6 kinase beta 1 antibody, p70 S6 kinase alpha antibody, P70 S6 Kinase antibody, p70 S6 kinase alpha 1 antibody, p70 S6 kinase alpha 2 antibody, p70 S6K antibody, p70 S6K-alpha antibody, p70 S6KA antibody, p70(S6K) alpha antibody, p70(S6K)-alpha antibody, p70-alpha antibody, p70-S6K 1 antibody, p70-S6K antibody, P70S6K antibody, P70S6K1 antibody, p70S6Kb antibody, PS6K antibody, Ribosomal protein S6 kinase 70kDa polypeptide 1 antibody, Ribosomal protein S6 kinase beta 1 antibody, Ribosomal protein S6 kinase beta-1 antibody, Ribosomal protein S6 kinase I antibody, RPS6KB1 antibody, S6K antibody, S6K-beta-1 antibody, S6K1 antibody, Serine/threonine kinase 14 alpha antibody, Serine/threonine-protein kinase 14A antibody, STK14A antibody |
| **Clonality** | Polyclonal |
| **Isotype** | IgG |
| **Host** | Rabbit |
| **Species Reactivity** | Human, Mouse, Rat |
| **Form/Format** | Lyophilized. Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **Purity/Purification** | Immunogen affinity purified. |
| **Specificity** | Expressed in all tissues. |
| **Preparation and Storage** | At -20 degree C for one year from date of receipt. After reconstitution, at 4 degree C for one month. It can also be aliquotted and stored frozen at -20 degree C for six months.Avoid repeated freezing and thawing. |
| **Molecular Weight** | 392 |
| **OMIM** | 113530 |
| **3D Structure** | ModBase 3D Structure for O15382 |
| **Immunogen** | E coli-derived human BCAT2 recombinant protein (Position: A11-E363). Human BCAT2 shares 83.6% and 81.9% amino acid (aa) sequence identity with mouse and rat BCAT2, respectively. |
| **Subcellular Localization** | Cytoplasm, Nucleus |
| **Reconstitution** | Adding 0.2 ml of distilled water will yield a concentration of 500ug/ml. |
| **Cross Reactivity** | No cross reactivity with other proteins. |
| **Protein Function** | Downstream effector of TOR signaling pathway involved in osmotic stress response. Could be involved in the control of plant growth and development. Phosphorylates the ribosomal proteins P14, P16 and S6. Functions as a repressor of cell proliferation and required for maintenance of chromosome stability and ploidy levels through the RBR1-E2F pathway. |
| **Product Categories/Family for anti-BCAT2 antibody** | Primary Antibodies; Signal Transduction; Signaling Pathway; Small G Proteins |
| **ISO Certification** | Manufactured in an ISO 13485:2003 and EN ISO 13485:2012 Certified Laboratory. |
| **Applications Tested/Suitable for anti-BCAT2 antibody** | ELISA (EIA), Immunofluorescence (IF), Immunohistochemistry (IHC), Western Blot (WB), Flow Cytometry (FC/FACS) |

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| **Application Notes for anti-BCAT2 antibody** | WB: 0.25-0.5ug/ml, Human, Mouse, Rat<br>IHC: 2-5ug/ml, Human<br>IF: 5ug/ml, Human<br>FC/FACS (Fixed): 1-3ug/1x$10^6$ cells, Human<br>ELISA: 0.1-0.5ug/ml |
| **Related Product Information for anti-BCAT2 antibody** | The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance. |
| **Product References and Citations for anti-BCAT2 antibody** | 1. Yennawar NH, et al. Human mitochondrial branched chain aminotransferase isozyme: structural role of the CXXC center in catalysis. J Biol Chem, 2006 Dec 22.2. Goto M, et al. Structural determinants for branched-chain aminotransferase isozyme-specific inhibition by the anticonvulsant drug gabapentin. J Biol Chem, 2005 Nov 4. |
| **Other Notes** | Small volumes of anti-BCAT2 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply. |
| **Searchable Terms for BCAT2 purchase** | MBS1758705 is an antibody targeting BCAT2. Also known as Anti-BCAT2 Antibody Picoband. Reactive in Human, Mouse, Rat. Host: Rabbit. |



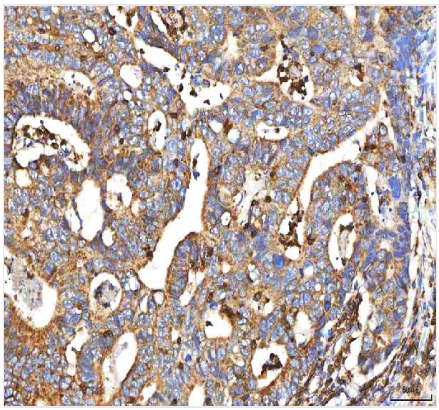

**Western Blot (WB) of anti-BCAT2 antibody**

Figure 1. Western blot analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel)/90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.Lane 1: human RT4 whole cell lysates,Lane 2: human 293T whole cell lysates,Lane 3: human A431 whole cell lysates.After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-BCAT2 antigen affinity purified polyclonal antibody (#MBS1758705) at 0.5ug/mL overnight at 4 degree C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (#MBS176460) with Tanon 5200 system. A specific band was detected for BCAT2 at approximately 39 kDa. The expected band size for BCAT2 is at 44, 38-42 kDa.



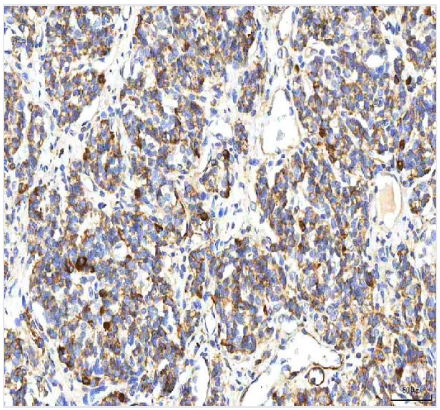

**Western Blot (WB) of anti-BCAT2 antibody**

Figure 2. Western blot analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel)/90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.Lane 1: rat kidney tissue lysates,Lane 2: rat heart tissue lysates,Lane 3: rat stomach tissue lysates,Lane 4: mouse kidney tissue lysates.After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-BCAT2 antigen affinity purified polyclonal antibody (#MBS1758705) at 0.5ug/mL overnight at 4 degree C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (#MBS176460) with Tanon 5200 system. A specific band was detected for BCAT2 at approximately 39 kDa. The expected band size for BCAT2 is at 44, 38-42 kDa.



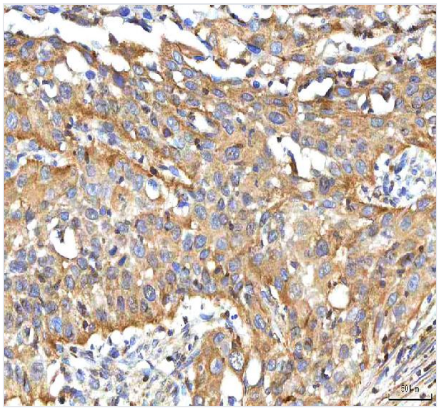
**Immunohistochemistry (IHC) of anti-BCAT2 antibody**

Figure 3. IHC analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).BCAT2 was detected in a paraffin-embedded section of human colon adenocarcinoma tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2ug/ml rabbit anti-BCAT2 Antibody (MBS1758705) overnight at 4 degree C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (#MBS176453) with DAB as the chromogen.



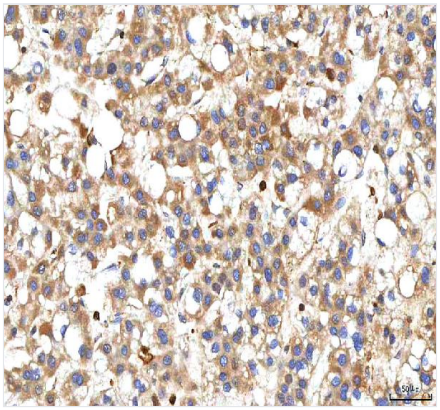
**Immunohistochemistry (IHC) of anti-BCAT2 antibody**

Figure 4. IHC analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).BCAT2 was detected in a paraffin-embedded section of human lung cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2ug/ml rabbit anti-BCAT2 Antibody (MBS1758705) overnight at 4 degree C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (#MBS176453) with DAB as the chromogen.



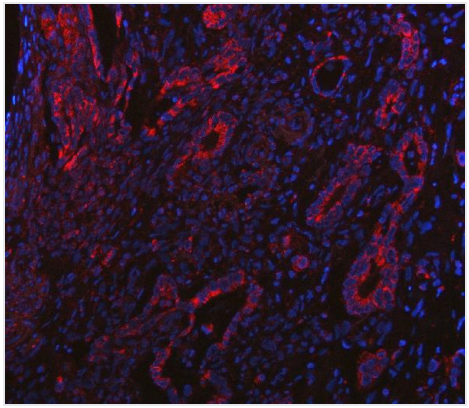
**Immunohistochemistry (IHC) of anti-BCAT2 antibody**

Figure 5. IHC analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).BCAT2 was detected in a paraffin-embedded section of human urothelial carcinoma tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2ug/ml rabbit anti-BCAT2 Antibody (MBS1758705) overnight at 4 degree C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (#MBS176453) with DAB as the chromogen.



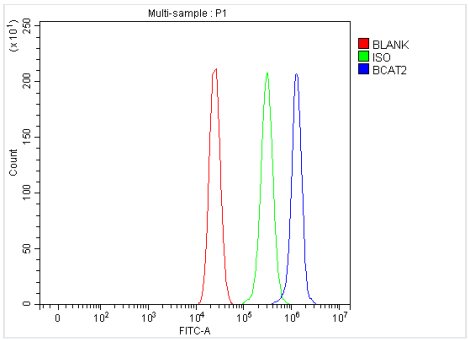
**Immunohistochemistry (IHC) of anti-BCAT2 antibody**

Figure 6. IHC analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).BCAT2 was detected in a paraffin-embedded section of human liver cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2ug/ml rabbit anti-BCAT2 Antibody (MBS1758705) overnight at 4 degree C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (#MBS176453) with DAB as the chromogen.



**Immunofluorescence (IF) of anti-BCAT2 antibody**

Figure 7. IF analysis of BCAT2 using anti-BCAT2 antibody (MBS1758705).BCAT2 was detected in a paraffin-embedded section of human intestinal cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5ug/mL rabbit anti-BCAT2 Antibody (MBS1758705) overnight at 4 degree C. Cy3 Conjugated Goat Anti-Rabbit IgG (BA1032) was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37 degree C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.




**Flow Cytometry (FC/FACS) of anti-BCAT2 antibody**

Figure 8. Flow Cytometry analysis of MCF-7 cells using anti-BCAT2 antibody (MBS1758705).Overlay histogram showing MCF-7 cells stained with MBS1758705 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-BCAT2 Antibody (MBS1758705, 1ug/1x106 cells) for 30 min at 20 degree C. DyLight488 conjugated goat anti-rabbit IgG (MBS177405, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20 degree C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

## ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for BCAT2. It may not necessarily be applicable to this product.

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|---|---|
| **NCBI GI #** | 20455470 |
| **NCBI GeneID** | 587 |
| **NCBI Accession #** | O15382.2 |
| **UniProt Primary Accession #** | O15382 |
| **UniProt Secondary Accession #** | O00269; Q96KG1; Q9BTB6; Q9BUU6; B2RB87 |
| **UniProt Related Accession #** | O15382 |
| **NCBI Official Full Name** | Branched-chain-amino-acid aminotransferase, mitochondrial |
| **NCBI Official Synonym Full Names** | branched chain amino-acid transaminase 2, mitochondrial |
| **NCBI Official Symbol** | BCAT2 |
| **NCBI Official Synonym Symbols** | BCAM; BCT2; PP18; BCATM |
| **UniProt Protein Name** | Branched-chain-amino-acid aminotransferase, mitochondrial |
| **UniProt Synonym Protein Names** | Placental protein 18; PP18 |
| **UniProt Gene Name** | BCAT2 |
| **UniProt Synonym Gene Names** | BCATM; BCT2; ECA40; BCAT(m); PP18 |
| **UniProt Entry Name** | BCAT2_HUMAN |
| **NCBI Protein Information** | branched-chain-amino-acid aminotransferase, mitochondrial; placental protein 18; branched chain aminotransferase 2, mitochondrial |
| **NCBI Summary for BCAT2** | This gene encodes a branched chain aminotransferase found in mitochondria. The encoded protein forms a dimer that catalyzes the first step in the production of the branched chain amino acids leucine, isoleucine, and valine. Multiple transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Sep 2009] |

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| **UniProt Comments for BCAT2** | BCAT2: Catalyzes the first reaction in the catabolism of the essential branched chain amino acids leucine, isoleucine, and valine. May also function as a transporter of branched chain alpha-keto acids. Belongs to the class-IV pyridoxal-phosphate-dependent aminotransferase family. Homodimer. 2 isoforms of the human protein are produced by alternative splicing.<br><br>Protein type: Amino Acid Metabolism - valine, leucine and isoleucine biosynthesis; EC 2.6.1.42; Transferase; Amino Acid Metabolism - valine, leucine and isoleucine degradation; Cofactor and Vitamin Metabolism - pantothenate and CoA biosynthesis; Mitochondrial<br><br>Chromosomal Location of Human Ortholog: 19q13<br><br>Cellular Component: mitochondrion; mitochondrial matrix<br><br>Molecular Function: branched-chain-amino-acid transaminase activity<br><br>Biological Process: valine metabolic process; branched chain family amino acid catabolic process; leucine metabolic process; isoleucine catabolic process; branched chain family amino acid biosynthetic process |
| **Research Articles on BCAT2** | **1.** The mitochondrial isoform human brain BCAT 2 is largely confined to vascular endothelial cells, whereas the cytosolic human brain BCAT 1 is restricted to neurons. |
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