

AGAT (T-16): sc-241785

BACKGROUND

AGAT, also known as glycine amidinotransferase (L-arginine:glycine amidinotransferase), GATM or transamidinase, is a 423 amino acid protein belonging to the amidinotransferase family. Encoded by a gene that maps to human chromosome 15q21.1, AGAT exists as three alternatively spliced isoforms and consists of a homodimer, with equilibrium between monomeric and dimeric forms favoring a monomer subunit structure. AGAT localizes to mitochondrial inner membranes, peripheral membranes and cytoplasm. Biallelically expressed in placenta and fetal tissues, AGAT is also expressed in brain, heart, liver, lung, salivary gland and skeletal muscle tissue, with high expression in kidney. AGAT is elevated in the myocardium during heart failure and is decreased in inter-uterine growth restriction (IUGR)-associated placenta. AGAT catalyzes biosynthesis of guanidinoacetate, the immediate precursor of creatine, which plays a vital role in energy metabolism in muscle tissues. AGAT defects are associated with arginine:glycine amidinotransferase deficiency, an autosomal recessive disorder characterized by developmental delay or regression, mental retardation, severe disturbance of expressive and cognitive speech and severe depletion of creatine/phosphocreatine in brain. AGAT may be linked to embryonic and central nervous system development and may function in heart failure response by elevating local creatine synthesis.

REFERENCES

- Gross, M.D., et al. 1986. The purification and characterization of human kidney L-arginine:glycine amidinotransferase. *Arch. Biochem. Biophys.* 251: 747-755.
- Humm, A., et al. 1994. The amino acid sequences of human and pig L-arginine:glycine amidinotransferase. *FEBS Lett.* 339: 101-107.
- Humm, A., et al. 1997. Recombinant expression and isolation of human L-arginine:glycine amidinotransferase and identification of its active-site cysteine residue. *Biochem. J.* 322: 771-776.
- Humm, A., et al. 1997. Structure and reaction mechanism of L-arginine:glycine amidinotransferase. *Biol. Chem.* 378: 193-197.

CHROMOSOMAL LOCATION

Genetic locus: GATM (human) mapping to 15q21.1; Gatm (mouse) mapping to 2 E5.

SOURCE

AGAT (T-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of AGAT of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-241785 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

AGAT (T-16) is recommended for detection of AGAT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

AGAT (T-16) is also recommended for detection of AGAT in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for AGAT siRNA (h): sc-90190, Gatm siRNA (m): sc-145345, AGAT shRNA Plasmid (h): sc-90190-SH, Gatm shRNA Plasmid (m): sc-145345-SH, AGAT shRNA (h) Lentiviral Particles: sc-90190-V and Gatm shRNA (m) Lentiviral Particles: sc-145345-V.

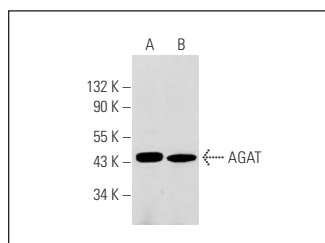
Molecular Weight of AGAT: 49 kDa.

Positive Controls: human kidney extract: sc-363764 or mouse kidney extract: sc-2255.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



AGAT (T-16): sc-241785. Western blot analysis of AGAT expression in human kidney (A) and mouse kidney (B) tissue extracts.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.