Qty: 100 µg/200 µL

Mouse anti-Acetyl CoA Carboxylase 1

Catalog No.: 437100

Mouse anti- Acetyl CoA Carboxylase 1

FORM

This affinity-purified mouse monoclonal antibody is supplied as a 200 µL aliquot at a concentration of 0.5 mg/mL in PBS, pH 7.4, containing 0.1% sodium azide. This antibody is highly purified from mouse ascites by protein A chromatography.

Clone: 143 **Isotype**: IgG1

IMMUNOGEN

Recombinant protein derived from the C-terminus of human Acetyl CoA Carboxylase 1 (ACC-1) protein (accession # Q13085, NP_942131), which is identical to chimpanzee. This protein is also 99% similar to Rhesus monkey, 96% similar to pig and bovine and 95% similar to mouse and rat.

SPECIFICITY

This antibody is specific for human ACC-1(ACC-alpha Biotin carboxylase, COA1_human) protein. On Western blots of human Jurkat cell lysates, it identifies the target band at ~265 kDa.

REACTIVITY

Reactivity has been confirmed with human A431 cell lysates in a sandwich ELISA assay. The reactivity has also been confirmed with human Jurkat cell lysates using Western blotting and immunoprecipitation and with human HeLa cells by Western blotting and immunofluorescence. Based on amino acid sequence homology, reactivity with chimpanzee, Rhesus monkey, pig, bovine, mouse and rat is also expected.

Sample	ELISA	Western Blotting	Immunoprecipitation	Immunofluoescence
Human	+++	+++	+++	+++
Chimpanzee	ND	ND	ND	ND
Monkey (Rhesus)	ND	ND	ND	ND
Pig	ND	ND	ND	ND
Bovine	ND	ND	ND	ND
Mouse	ND	ND	ND	ND
Rat	ND	ND	ND	ND

(Excellent +++, Good ++, Poor +, No reactivity 0, Not applicable N/A, Not determined ND)

USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

ELISA : 1 µg/mL
Western Blotting: 2 µg/mL
Immunofluorescence: 2 µg/mL
Immunoprecipitation: 5 µg/IP reaction

(cont')

STORAGE

Store at 2-8°C for up to one month. Store at –20°C for long-term storage. Avoid repeated freezing and thawing.

BACKGROUND

Acetyl CoA carboxylase (ACC) is a complex multifunctional enzyme system which catalyzes the carboxylation of acetyl-CoA to malonyl-CoA. In cells, excess of metabolic fuel is converted into fatty acids in cytosol and oxidized later in mitochondria to generate ATP and acetyl-CoA. The limiting step in fatty acid synthesis is the catalytic formation of malonyl-CoA (precursor for long-chain fatty acetyl-CoA, LCFA-CoA) from acetyl-CoA by a 256 kDa protein called Acetyl CoA carboxylase 1 (ACC-1).[1] The translocation of LCFA-CoA from cytosol to mitochondria is catalyzed by two carnitine palmitoyl transferases (CPT-1 & CPT-2) and regulated by ACC-2, the rate limiting step of mitochondrial fatty acid oxidation. Activities of ACC-1 and 2 are regulated by their phosphorylation by 5'-AMP-activated protein kinase (AMPK).[2]

Diabetes deranges AMPK master-switch and represses the ACC-1 gene-expression and stimulates excessive fatty acid oxidation which in turn interferes with glucose metabolism. ACC-1 also known as ACC-alpha is a cytosolic enzyme, enriched in liver, adipose and lactating mammary tissues.[2] Development and progression of cancer is accompanied by marked changes in the expression and activity of enzymes involved in the cellular homeostasis of fatty acids. It has been shown that ACC-1 has a possible role in susceptibility to breast cancer due to the ACC-alpha common sequence variants.[3] Since ACCs activity in cancer cells are essential for proliferation and survival, the concept of using small-molecule ACC inhibitors as therapeutic agents has been suggested.[4,5]

REFERENCES

1. Abu-Elheiga L et al. *Proc Natl Acad Sci* 92(9):4011-4015,1995.
2. Munday MR et al. *Adv Enzyme Regul* 39:205-234, 1999.
3. Beckers A et al. *Cancer Res* 67(17):8180-7, 2007.
4. Sinilnikova OM *Cancer Epidemiol Biomarkers Prev* 16(3):409-15, 2007.
5. Tong L et al. *J Cell Biochem* 99(6):1476-1488, 2006.

RELATED PRODUCTS

Product	***Conjugate***	***Cat. No.***
Protein A	Sepharose 4B	10-1041
rec-Protein G	Sepharose 4B	10-1241
ZyMAX™ Goat anti-rabbit IgG	Unconjugated	81-6100
ZyMAX™ Goat anti-mouse IgG	Unconjugated	81-6500

Secondary antibody conjugates.

Conjugate	***Goat anti-rabbit IgG (H+L)***	***Goat anti-mouse IgG (H+L)***	***Ex/Em****	***Fluorescence similar to--***
Alexa Fluor® 488	A11008	A11001	495/519	FITC
Alexa Fluor® 555	A21428	A21422	555/565	Cy3
Alexa Fluor® 594	A11012	A11005	590/617	Texas Red
Alexa Fluor® 647	A21244	A21235	650/668	Cy5
HRP	81-6120	81-6520	NA**	NA
AP	81-6122	81-6522	NA	NA
Biotin	B2770	B2763	NA	NA

*Excitation/emission (nm); **Not applicable

For additional secondary antibody conjugates, visit www.invitrogen.com/antibodies

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