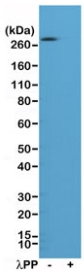
Phospho-ACC1 (Ser79) Antibody / ACACA Phospho Antibody - AMPK Signaling Marker [clone RM270] (R20287)

Catalog No.	Formulation	Size
R20287-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

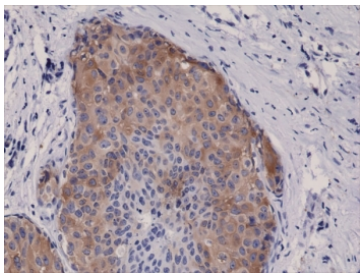
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM270
Purity	Protein A purified from animal origin-free supernatant
UniProt	Q13085, O00763
Gene ID	31, 32
Localization	Cytoplasmic
Applications	Immunohistochemistry (FFPE) : 1:1000-1:2000 (1) Western Blot : 1:1000-1:5000
Limitations	This Phospho-ACC1 (Ser79) Antibody / ACACA Phospho Antibody - AMPK Signaling Marker is available for research use only.



Phospho-ACC1 (Ser79) Antibody for WB. Western blot analysis of ACACA / Acetyl-CoA carboxylase 1 phosphorylation in human A431 cell lysate using Phospho-ACC1 (Ser79) Antibody - AMPK Signaling Marker (clone RM270) at 1:1000. Lysates were untreated (-) or treated (+) with lambda protein phosphatase (Î»PP). A band is detected at approximately 260 kDa in the untreated sample, consistent with phosphorylated ACC1, while signal is markedly reduced following phosphatase treatment, confirming phosphorylation-dependent detection at Ser79. This result supports specificity of the antibody for the phosphorylated form of ACC1 and reflects AMPK-mediated regulatory signaling.



Phospho-ACC1 (Ser79) Antibody Breast Cancer IHC. Immunohistochemistry analysis of ACACA / Acetyl-CoA carboxylase 1 phosphorylation in FFPE human breast cancer tissue using Phospho-ACC1 (Ser79) Antibody - AMPK signaling marker (clone RM270) at 1:5000. Cytoplasmic HRP-DAB brown staining is observed in tumor epithelial cells, consistent with phosphorylated ACC1 localization and reflecting AMPK-mediated metabolic regulation within cancer cells, while nuclei are counterstained blue.

Description

Acetyl-CoA carboxylase 1 (ACACA), commonly referred to as ACC1, is a central regulator of fatty acid synthesis that functions as a key metabolic control point linking nutrient availability to lipid biosynthesis. Phosphorylation of ACC1 at serine 79 (Ser79) represents a critical inhibitory modification that directly suppresses enzymatic activity and reduces malonyl-CoA production. This regulatory event is mediated primarily by AMP-activated protein kinase (AMPK), positioning ACC1 Ser79 phosphorylation as a direct molecular readout of cellular energy stress and metabolic signaling. Phospho-ACC1 (Ser79) Antibody enables detection of this functionally significant modification, supporting detailed analysis of metabolic pathway regulation.

Phospho-ACC1 antibody, also referred to as phospho ACACA antibody or ACC1 Ser79 antibody in the literature, specifically recognizes ACC1 only when phosphorylated at Ser79. This site-specific modification disrupts the enzymeÃ¢Â€Â™s ability to support fatty acid synthesis and shifts cellular metabolism toward energy conservation and fatty acid oxidation. Because Ser79 phosphorylation is tightly coupled to AMPK activation, detection of this modification provides a highly sensitive indicator of intracellular energy status and nutrient sensing.

ACC1 Ser79 phosphorylation is rapidly induced under conditions such as glucose deprivation, hypoxia, mitochondrial dysfunction, and increased AMP to ATP ratios. In these settings, AMPK activation leads to robust phosphorylation of ACC1, resulting in decreased lipogenesis and enhanced metabolic adaptation. As a consequence, phospho-ACC1 detection is widely used as a functional biomarker of AMPK pathway activation and metabolic stress responses in both normal physiology and disease models.

In cancer and proliferative systems, suppression of ACC1 Ser79 phosphorylation is frequently observed to maintain high levels of fatty acid synthesis required for membrane production and tumor growth. Conversely, pharmacologic or genetic activation of AMPK increases Ser79 phosphorylation and inhibits lipogenic flux, highlighting this modification as a critical regulatory node in cancer metabolism. Measurement of phospho-ACC1 therefore provides valuable insight into metabolic reprogramming and therapeutic response mechanisms.

Unlike total ACC1 detection, which reflects overall protein abundance, phosphorylation-specific detection at Ser79 directly reports on enzyme activity state and regulatory signaling. This distinction is essential for interpreting metabolic pathway dynamics, as elevated ACC1 expression does not necessarily indicate active lipogenesis if the enzyme is phosphorylated and inhibited. Because ACC2 is regulated at a different phosphorylation site, Ser79-specific antibodies are selective for ACC1 and do not detect ACC2, ensuring precise target specificity.

This Phospho-ACC1 (Ser79) Antibody (clone RM270) is designed to detect ACACA only when phosphorylated at Ser79 and does not recognize non-phosphorylated ACC1. It is well suited for research applications focused on AMPK signaling, lipid metabolism regulation, and cellular energy homeostasis, providing a robust tool for studying metabolic control at the level of enzyme activity.

This antibody is part of the ACACA antibody collection, where additional Acetyl-CoA Carboxylase 1 antibodies can be explored.

Application Notes

The stated application concentrations are suggested starting points. Titration of the Phospho-ACC1 (Ser79) Antibody / ACACA Phospho Antibody - AMPK Signaling Marker may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A phospho-peptide corresponding to human phospho-Acetyl CoA Carboxylase (Ser79) was used as the immunogen for this recombinant phospho-ACC antibody.

Storage

Store the recombinant phospho-ACC antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

phospho ACC1 antibody, phospho ACACA antibody, ACC1 Ser79 antibody, ACACA pSer79 antibody, phospho acetyl-CoA carboxylase antibody, AMPK substrate antibody