

PRODUCT INFORMATION

AMPK α 1 Rabbit Monoclonal Antibody (Clone RM301)

Item No. 32246

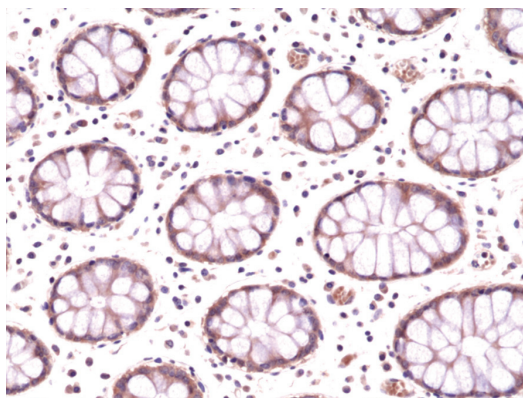
Overview and Properties

Contents:	This vial contains 100 μ l of protein A-affinity purified monoclonal antibody.
Synonym:	AMP-activated Protein Kinase α 1
Immunogen:	Peptide corresponding to residues around the C-terminus of human AMPK α 1
Cross Reactivity:	(+) AMPK α 1
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	\geq 1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM301
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC and WB is 1:100-1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of HeLa cell lysates using AMPK α 1 Rabbit Monoclonal Antibody (Clone RM301) at a dilution of 1:100.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human colon tissue using AMPK α 1 Rabbit Monoclonal Antibody (Clone RM301) at a 1:200 dilution.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

AMP-activated protein kinase α 1 (AMPK α 1) is a subunit of AMPK, a serine/threonine kinase that acts as a metabolic sensor to maintain cellular energy homeostasis.¹ AMPK is a heterotrimeric complex composed of a catalytic α subunit and β and γ regulatory subunits, where each subunit has multiple isoforms encoded by different genes, forming up to 12 distinct heterotrimers. The α subunit has two isoforms, α 1 and α 2, encoded by *PRKAA1* and *PRKAA2*, respectively, in humans. AMPK α 1 is ubiquitously expressed and contains an N-terminal kinase domain that is subject to phosphorylation, a modification required for its activation, as well as an auto-inhibitory domain connected to the C-terminal domain by a flexible α -linker that associates with the γ subunit and regulates AMPK activity.^{1,2} Under conditions of low intracellular ATP, such as hypoxia or nutrient deprivation, AMPK α 1 is phosphorylated by liver kinase B1 (LKB1), leading to AMPK α 1 activation and alterations in several key metabolic processes that restore energy homeostasis.³ AMPK α 1 activation inhibits anabolic processes, such as glucose, lipid, or protein biosynthesis, activates catabolic processes, such as glycolysis, lipolysis, and autophagy, and stimulates mitochondrial biogenesis and lysosomal degradation. Cayman's AMPK α 1 Rabbit Monoclonal Antibody (Clone RM301) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Ross, F.A., MacKintosh, C., and Hardie, D.G. AMP-activated protein kinase: A cellular energy sensor that comes in 12 flavours. *FEBS J.* **283**(16), 2987-3001 (2016).
2. Zungu, M., Schisler, J.C., Essop, M.F., *et al.* Regulation of AMPK by the ubiquitin proteasome system. *Am. J. Pathol.* **178**(1), 4-11 (2011).
3. Herzig, S. and Shaw, R.J. AMPK: Guardian of metabolism and mitochondrial homeostasis. *Nat. Rev. Mol. Cell Biol.* **19**(2), 121-135 (2018).

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