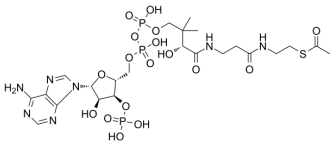
Acetyl coenzyme A

Cat. No.:	HY-114293
CAS No.:	72-89-9
Molecular Formula:	$C_{23}H_{38}N_7O_{17}P_3S$
Molecular Weight:	809.57
Target:	Endogenous Metabolite; Autophagy; Oxidative Phosphorylation
Pathway:	Metabolic Enzyme/Protease; Autophagy
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Acetyl-coenzyme A (Acetyl-CoA) is a membrane-impermeant central metabolic intermediate, participates in the TCA cycle and oxidative phosphorylation metabolism. Acetyl-coenzyme A, regulates various cellular mechanisms by providing (sole donor) acetyl groups to target amino acid residues for post-translational acetylation reactions of proteins. Acetyl Coenzyme A is also a key precursor of lipid synthesis[1][2][3][4].
IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Acetyl coenzyme A increases cytoplasmic protein acetylation in starved U2OS cells while reducing starvation-induced autophagic fluxes. (U2OS cells stably expressing GFP-LC3 and are microinjected with Acetyl coenzyme A; incubated in nutrient-free conditions in the presence of 100 nM BafA1 and fixed after 3 h)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Acetyl coenzyme A blunts pressure overload-induced cardiomyopathy in a mice cardiac pressure overload model by Suppressing maladaptive autophagy[2][3].Mice deprived of food (but with access to water ad libitum) for 24 h exhibit a significant reduction in total Acetyl coenzyme A levels in several organs, including the heart and muscles, corresponding to a decrease in protein acetylation levels. However, the same experimental conditions have no major effects on Acetyl coenzyme A concentrations in the brain and actually increase hepatic Acetyl coenzyme A and protein acetylation levels[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Cell Physiol. 2023 Feb 6.

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REFERENCES

[1]. Choudhary C, et al. The growing landscape of lysine acetylation links metabolism and cell signalling. Nat Rev Mol Cell Biol. 2014 Aug;15(8):536-50.

[2]. Mariño G, et al. Regulation of autophagy by cytosolic acetyl-coenzyme A. Mol Cell. 2014 Mar 6;53(5):710-25.

[3]. Zhu H, et al. Cardiac autophagy is a maladaptive response to hemodynamic stress. J Clin Invest. 2007 Jul;117(7):1782-93.

[4]. Pietrocola F, et al. Acetyl coenzyme A: a central metabolite and second messenger. Cell Metab. 2015 Jun 2;21(6):805-21.

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