



碧云天生物技术/Beyotime Biotechnology
 订货热线: 400-1683301 或 800-8283301
 订货 e-mail: order@beyotime.com
 技术咨询: info@beyotime.com
 网址: http://www.beyotime.com

AICAR (AMPK激活剂, >99%)

产品编号	产品名称	包装
S1515-5mg	AICAR (AMPK激活剂, >99%)	5mg
S1515-50mg	AICAR (AMPK激活剂, >99%)	50mg

产品简介:

- AICAR, 全称为5-Aminoimidazole-4-carboxamide 1-β-D-ribofuranoside, 也称AICA Riboside或Acadesine, 是一种可通透细胞膜AMP-activated protein kinase (AMPK)的激活剂。AMPK是代谢调控的关键蛋白, 当能量供应不足时, AMP/ATP的比率上调, AMPK就会被激活, 抑制合成代谢。AICAR可以激活AMPK, 但不影响ATP、ADP和AMP的水平。在细胞或动物水平, AICAR可以通过激活AMPK从而促进骨骼肌非胰岛素依赖的葡萄糖摄入。AICAR诱导的骨骼肌葡萄糖摄入不能被PI3K的抑制剂所阻断。
- AICAR分子量为258.23, 分子式为C₉H₁₄N₄O₅, CAS Number: 2627-69-2。本产品为进口分装, 纯度大于99%。可溶于DMSO(20mg/ml), 甲醇(10mg/ml), 乙醇(1mg/ml), 水(>7mg/ml)和二甲基甲酰胺, 在PBS中的溶解度约为0.3mg/ml。
- AICAR配制于水性溶液中后建议立即使用。配制在DMSO等有机溶剂中的AICAR可在-20°C保存长达3个月。

包装清单:

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S1515-5mg	AICAR (AMPK激活剂, >99%)	5mg
S1515-50mg	AICAR (AMPK激活剂, >99%)	50mg
—	说明书	1份

保存条件:

-20°C保存。

注意事项:

- 本产品对人体有刺激性, 操作时请小心, 并注意适当防护以避免直接接触人体或吸入体内。
- 本产品仅限于专业人员的科学研究用, 不得用于临床诊断或治疗, 不得用于食品或药品, 不得存放于普通住宅内。
- 为了您的安全和健康, 请穿实验服并戴一次性手套操作。

使用说明:

1. AICAR常见使用浓度范围为0.5-5mM。具体的最佳工作浓度请参考相关文献, 或根据实验目的, 以及所培养的特定细胞和组织, 通过实验进行摸索和优化。

使用本产品的文献:

1. Ding X, Liu S, Tian M, Zhang W, Zhu T, Li D, Wu J, Deng H, Jia Y, Xie W, Xie H, Guan JS. . Activity-induced histone modifications govern Neurexin-1 mRNA splicing and memorypreservation. Nat Neurosci. 2017 May;20(5):690-699.
2. Xie N, Yuan K, Zhou L, Wang K, Chen HN, Lei Y, Lan J, Pu Q, Gao W, Zhang L, Shen G, Li Q, Xiao H, Tang H, Xiang R, He M, Feng P, Nice EC10, Wei Y, Zhang H, Yang J1, Huang C. . PRKAA/AMPK restricts HBV replication through promotion of autophagic degradation. Autophagy. 2016 Sep;12(9):1507-20.
3. Liang Sun, Xiaoqin Yang, Xiaoheng Huang, Yizhou Yao, Xiangyu Wei, Shugao Yang, Diyuan Zhou, Wei Zhang, Zhimin Long, Xiaoyan Xu, Xinguo Zhu, Songbing He, Xiong Su . 2-Hydroxylation of Fatty Acids Represses Colorectal Tumorigenesis and Metastasis via the YAP Transcriptional Axis Cancer Res. 2021 Jan 15;81(2):289-302.
4. Wang M, Gao X, Zhao W, Zhao W, Jiang S, Huang F, Kou J, Liu B, Liu K. . Opposite effects of genistein on regulation of insulin-mediated glucose homeostasis in adipose tissue. BRIT J PHARMACOL. 2013 Sep;170(2):328-40.
5. Li X, Li J, Wang L, Li A, Qiu Z, Qi LW, Kou J, Liu K, Liu B, Huang F. . The role of metformin and resveratrol in the prevention of hypoxia-inducible factor 1α accumulation andfibrosis in hypoxic adipose tissue. BRIT J PHARMACOL. 2016 Jun;173(12):2001-15.
6. Song J, Li J, Hou F, Wang X, Liu B. . Mangiferin inhibits endoplasmic reticulum stress-associated thioredoxin-interacting protein/NLRP3 inflammasome activation with regulation of AMPK in endothelial cells. Metabolism. 2015 Mar;64(3):428-37.
7. Sun Y, Li J, Xiao N, Wang M, Kou J, Qi L, Huang F, Liu B, Liu K. . Pharmacological activation of AMPK ameliorates perivascular adipose/endothelial dysfunction in a manner interdependent on AMPK and SIRT1. Pharmacol Res. 2014 Nov;89:19-28.
8. Bai T, Yang Y, Yao YL, Sun P, Lian LH, Wu YL, Nan JX. . Betulin alleviated ethanol-induced alcoholic liver injury via SIRT1/AMPK signaling pathway. Pharmacol Res. 2016 Mar;105:1-12.
9. Zhu Z, Li R, Ma G, Bai W, Fan X, Lv Y, Luo J, Zeng W . 5'-AMP-Activated Protein Kinase Regulates Goat Sperm Functions via Energy

- Metabolism In Vitro. CELL PHYSIOL BIOCHEM. 2018;47(6):2420-2431.
10. Xu M, Hu J, Zhao W, Gao X, Jiang C, Liu K, Liu B, Huang F. . Quercetin differently regulates insulin-mediated glucose transporter 4 translocation under basal and inflammatory conditions in adipocytes. Mol Nutr Food Res. 2014 May;58(5):931-41.
 11. Liu K, Mei F, Wang Y, Xiao N, Yang L, Wang Y, Li J, Huang F, Kou J, Liu B, Qi LW. . Quercetin oppositely regulates insulin-mediated glucose disposal in skeletal muscle under normal and inflammatory conditions: The dual roles of AMPK activation. Mol Nutr Food Res. 2016 Mar;60(3):551-65.
 12. Zhang B, Guo X, Li Y, Peng Q, Gao J, Liu B, Wang M. . d-chiro inositol ameliorates endothelial dysfunction via inhibition of oxidative stress and mitochondrial fission. Mol Nutr Food Res. 2017 Jan 14.
 13. Zhang B, Guo X, Li Y, Peng Q, Gao J, Liu B, Wang M. . d-Chiro inositol ameliorates endothelial dysfunction via inhibition of oxidative stress and mitochondrial fission. Mol Nutr Food Res. 2017 Aug;61(8).
 14. Gao M, Kong Q, Hua H, Yin Y, Wang J, Luo T, Jiang Y. . AMPK-mediated up-regulation of mTORC2 and MCL-1 compromises the anti-cancer effects of aspirin. ONCOTARGET. 2016 Mar 29;7(13):16349-61.
 15. Miao XY, Gu ZY, Liu P, Hu Y, Li L, Gong YP, Shu H, Liu Y, Li CL. . The human glucagon-like peptide-1 analogue liraglutide regulates pancreatic beta-cell proliferation and apoptosis via an AMPK/mTOR/P70S6K signaling pathway. Peptides. 2013 Jan;39:71-9.
 16. Zhao Q, Sun Y, Ji Y, Xu L, Liu K, Liu B, Huang F. . Total polyphenol of Anemarrhena asphodeloides ameliorates advanced glycation end products-induced endothelial dysfunction by regulation of AMP-Kinase. J Diabetes. 2014 Jul;6(4):304-15.
 17. Shi X, YongyanWu, Ai Z, Du J, Cao L, Guo Z, Zhang Y. . MicroRNA modulation induced by AICA ribonucleotide in J1 mouse ES cells. PLoS One. 2014 Jul 31;9(7):e103724.
 18. Wu J, Xu X, Li Y, Kou J, Huang F, Liu B, Liu K. . Quercetin, luteolin and epigallocatechin gallate alleviate TXNIP and NLRP3-mediated inflammation and apoptosis with regulation of AMPK in endothelial cells. Eur J Pharmacol. 2014 Dec 15;745:59-68.
 19. Lu J, Cao Y, Cheng K, Xu B, Wang T, Yang Q, Yang Q, Feng X, Xia Q. . Berberine regulates neurite outgrowth through AMPK-dependent pathways by lowering energy status. Exp Cell Res. 2015 Jun 10;334(2):194-206.
 20. Zhao Y, Li Q, Zhao W, Li J, Sun Y, Liu K, Liu B, Zhang N. . Astragaloside IV and cycloastragenol are equally effective in inhibition of endoplasmic reticulum stress-associated TXNIP/NLRP3 inflammasome activation in the endothelium. J Ethnopharmacol. 2015 Jul 1;169:210-8.
 21. Jiang SJ, Dong H, Li JB, Xu LJ, Zou X, Wang KF, Lu FE, Yi P. . Berberine inhibits hepatic gluconeogenesis via the LKB1-AMPK-TORC2 signaling pathway in streptozotocin-induced diabetic rats. WORLD J GASTROENTERO. 2015 Jul 7;21(25):7777-85.
 22. Rao Y, Liu H, Gao L, Yu H, Tan JH, Ou TM, Huang SL, Gu LQ, Ye JM, Huang ZS. . Discovery of natural alkaloid bouchardatine as a novel inhibitor of adipogenesis/lipogenesis in 3T3-L1 adipocytes. BIOORG MED CHEM LETT. 2015 Aug 1;23(15):4719-27.
 23. Li J, Wang Y, Wang Y, Wen X, Ma XN, Chen W, Huang F, Kou J, Qi LW, Liu B, Liu K. . Pharmacological activation of AMPK prevents Drp1-mediated mitochondrial fission and alleviates endoplasmic reticulum stress-associated endothelial dysfunction. J Mol Cell Cardiol. 2015 Sep;86:62-74.
 24. Lv S, Xu QY, Sun EC, Zhang JK, Wu DL. . Dissection and integration of the autophagy signaling network initiated by bluetongue virus infection:crucial candidates ERK1/2, Akt and AMPK. SCI REP-UK. 2016 Mar 15;6:23130.
 25. Ke J, Liu Y, Yang J, Lu R, Tian Q, Hou W, Wang G, Wei R, Hong T. . Synergistic effects of metformin with liraglutide against endothelial dysfunction through GLP-1 receptor and PKA signalling pathway. SCI REP-UK. 2017 Feb 1;7:41085.
 26. Ke J, Liu Y, Yang J, Lu R, Tian Q, Hou W, Wang G, Wei R, Hong T. . Synergistic effects of metformin with liraglutide against endothelial dysfunction through GLP-1receptor and PKA signalling pathway. SCI REP-UK. 2017 Feb 1;7:41085.
 27. Wu C, Hu S, Wang N, Tian J. . Dipeptidyl peptidase 4 inhibitor sitagliptin prevents high glucose induced apoptosis via activation of AMP activated protein kinase in endothelial cells. Mol Med Rep. 2017 Jun;15(6):4346-4351.
 28. Peng L, Lu Y, Xu Y, Hu J, Wang F, Zhang Y, Xiong W. . Pyrocincholic acid 3β-O-β-D-quinovopyranosyl-28-O-β-D-glucopyranoside suppresses adipogenesis and regulates lipid metabolism in 3T3-L1 adipocytes. Nat Prod Bioprospect. 2017 Jun;7(3):225-234.
 29. Yang CQ, Xu JH, Yan DD, Liu BL, Liu K, Huang F. . Mangiferin ameliorates insulin resistance by inhibiting inflammation and regulating adipokine expression in adipocytes under hypoxic condition. CHIN J NAT MEDICINES. 2017 Sep;15(9):664-673.
 30. Zhang J, Zhang H, Deng X, Zhang Y, Xu K. . Baicalin protects AML-12 cells from lipotoxicity via the suppression of ER stress and TXNIP/NLRP3 inflammasome activation. CHEM-BIOL INTERACT. 2017 Dec 25;278:189-196.
 31. Wu C, Qin N, Ren H, Yang M, Liu S, Wang Q. . Metformin Regulating miR-34a Pathway to Inhibit Egr1 in Rat Mesangial Cells Cultured with High Glucose. Int J Endocrinol. 2018 Feb 21;2018:6462793.
 32. Yang WR, Liao TT, Bao ZQ, Zhou CQ, Luo HY, Lu C, Pan MH, Wang XZ. . Role of AMPK in the expression of tight junction proteins in heat-treated porcine Sertoli cells. Theriogenology. 2018 Nov;121:42-52.
 33. Yu CL, Guan JY, Ding J, Huang S, Lian Y, Luo HY, Wang XZ. . AMP-activated protein kinase negatively regulates heat treatment-induced lactate secretion in cultured boar sertoli cells. Theriogenology. 2018 Nov;121:35-41.
 34. Zhang DS, Liang GY, Liu DX, Yu J, Wang F. . Role of Phosphorylated AMP-Activated Protein Kinase (AMPK) in Myocardial Insulin Resistance After Myocardial Ischemia-Reperfusion During Cardiopulmonary Bypass Surgery in Dogs. MED SCI MONITOR. 2019 Jun 4 25:4149-4158.
 35. Xiao-Hu Xu, Qian Hu, Li-Shan Zhou, Li-Jun Xu, Xin Zou, Fu-Er Lu, Ping Yi. . Berberine Inhibits Gluconeogenesis in Skeletal Muscles and Adipose Tissues in Streptozotocin-induced Diabetic Rats via LKB1-AMPK-TORC2 Signaling Pathway Curr Med Sci. 2020 Jun;40(3):530-538.
 36. Miaomiao Nie, Yunliang Lu, Congcong Zou, Lijuan Wang, Peijun Zhang, Feng You. . Insight into AMPK regulation mechanism in vivo and in vitro: Responses to low temperatures in the olive flounder Paralichthys olivaceus J Therm Biol. 2020 Jul;91:102640.
 37. Tian-Yu Feng, Dong-Liang Lv, Xing Zhang, Ye-Qing Du, Yi-Tian Yuan, Mei-Jie Chen, Hua-Ming Xi, Yu Li, Ning Han, Jian-Hong Hu. . Rosmarinic acid improves boar sperm quality, antioxidant capacity and energy metabolism at 17°C via AMPK activation Reprod Domest Anim. 2020 Dec;55(12):1714-1724.