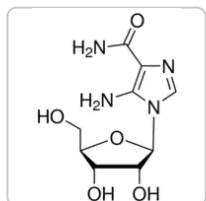


Type in Product Names, Product Numbers, or CAS Numbers to see suggestions.



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Documents

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A9978 ▶ **Sigma-Aldrich®**

AICAR

★★★★★ (0)

≥98% (HPLC), powder

Synonym(s):

5-Aminoimidazole-4-carboxamide 1-β-D-ribofuranoside, Acadesine, N¹-(β-D-Ribofuranosyl)-5-aminoimidazole-4-carboxamide

Empirical Formula (Hill Notation):

C₉H₁₄N₄O₅

CAS Number: **2627-69-2**

Molecular Weight: 258.23

EC Number: **220-097-5**

MDL number: **MFCD00869751**

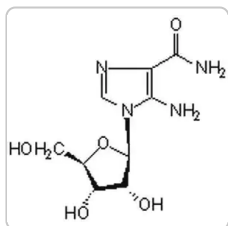
PubChem Substance ID: **24724407**

SKU	Pack Size	Availability	Price	Quantity	
A9978-5MG	5 MG	✓ Only 1 left in stock (more on the way) Details...	€89.10	<input type="text" value="1"/>	i
A9978-25MG	25 MG	✓ Only 2 left in stock (more on the way) Details...	€295.00	<input type="text" value="1"/>	i

[Request a Bulk Order](#)

[Add to Cart](#)

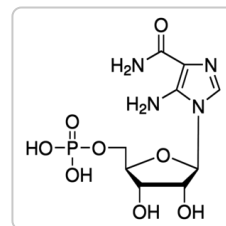
RECOMMENDED PRODUCTS



Sigma-Aldrich

123040**AICA-Riboside - CAS 2627-69-2 - Calbiochem**

AICA-Riboside, CAS 2627-69-2, is a cell-permeable nucleoside compound whose phosphorylated metabolite activates AMP...

[View Price and Availability](#)

Sigma-Aldrich

A1393**5-Aminoimidazole-4-carboxamide-1-β-D-ribofuranosyl 5'-monophosphate**

≥93%

[View Price and Availability](#)

PROPERTIES

Quality Level **100**

assay ≥98% (HPLC)

form powder

color tan

mp 214-215 °C

solubility H₂O: >7 mg/mL

shipped in dry ice

storage temp.

-20°C

SMILES string

NC(=O)c1ncn([C@@H]2O[C@H](CO)[C@@H](O)[C@H]2O)c1N

InChI

1S/C9H14N4O5/c10-7-4(8(11)17)12-2-13(7)9-6(16)5(15)3(1-14)18-9/h2-3,5-6,9,14-16H,1,10H2,(H2,11,17)/t3-5,6,9-/m1/s1

InChI key

RTRQQBHATOEIAF-UUOKFMHZSA-N

Looking for similar products? Visit [Product Comparison Guide](#)

DESCRIPTION

General description

Adenosine monophosphate protein kinase (AMPK) activator 5-aminoimidazole-4-carboxamide ribonucleotide (AICAR) modulates cellular energy. It regulates lipid and glucose metabolism, pro-inflammatory responses, cytokine production, cell proliferation and apoptosis. AICAR improves ischemia or reperfusion injury and kidney fibrosis in rats. It provides protection against acute tubular necrosis.

Application

AICAR has been used to provide protection against cisplatin-induced acute kidney injury through the JAK (tyrosine-protein kinase)/STAT (signal transducer and activator of transcription)/SOCS (suppressor of cytokine signaling) pathway. It also has been used in the assay of FapR (malonyl-CoA responsive bacterial transcriptional factor)-NLuc (nanoLuciferase) biosensor activity.

Packaging

5, 25 mg in glass bottle

Biochem/physiol Actions

AICAR is a cell permeable activator of AMP-activated protein kinase (AMPK), a metabolic master regulator that is activated in times of reduced energy availability (high cellular AMP:ATP ratios) and serves to inhibit anabolic processes. *In vivo*, pharmacologic activation of AMPK with AICAR mimics exercise and triggers insulin-independent glucose uptake by skeletal muscle.

Features and Benefits

This compound is a featured product for Kinase Phosphatase Biology research. [Click here](#) to discover more featured Kinase Phosphatase Biology products. Learn more about bioactive small molecules for other areas of research at sigma.com/discover-bsm.

SAFETY INFORMATION

Storage Class Code

11 - Combustible Solids

WGK

WGK 3

Personal Protective Equipment

dust mask type N95 (US),

[Eyeshields](#), [Gloves](#)

DOCUMENTATION

Certificate of Analysis

Enter Lot Number to search for Certificate of Analysis (COA).

Lot Number

e.g. 023J5431

[How to enter Lot Number \(COA\)](#)

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Certificate of Origin

Enter Lot Number to search for Certificate of Origin (COO).

Lot Number

e.g. 023J5431

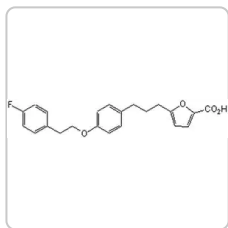
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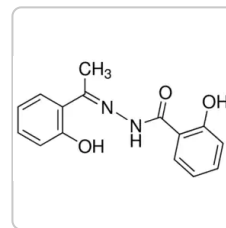


Sigma-Aldrich

171256

AMPK Activator - CAS 849727-81-7 - Calbiochem

The AMPK Activator, also referenced under CAS 849727-81-7, modulates the biological activity of AMPK. This small...



Sigma-Aldrich

SML2017

Compound C108

≥98% (HPLC)

[View Price and Availability](#)[View Price and Availability](#)

FREQUENTLY ASKED QUESTIONS

Which document(s) contains shelf-life or expiration date information for a given product?

If available for a given product, the recommended re-test date or the expiration date can be found on the Certificate of Analysis.

How do I get lot-specific information or a Certificate of Analysis?

The lot specific COA document can be found by entering the lot number above under the "Documents" section.

How do I find price and availability?

There are several ways to find pricing and availability for our products. Once you log onto our website, you will find the price and availability displayed on the product detail page. You can contact any of our Customer Sales and Service offices to receive a quote. USA customers: 1-800-325-3010 or view [local office numbers](#).

What is the Department of Transportation shipping information for this product?

Transportation information can be found in Section 14 of the product's (M)SDS. To access the shipping information for this material, use the link on the product detail page for the product.

How can I store a solution of AICAR, Product A9978?

We do not test solution stability for this product. In general, drug solutions are best prepared immediately before use. We recommend storing at -20°C in single use aliquots.

What can I use to solubilize AICAR, Product A9978?

We list the solubility in water on the lot specific Certificate of Analysis. We typically test the solubility of AICAR in water (7 mg/mL).

What is the appearance of Product A9978, AICAR?

Product No. A9978, AICAR, is a powder. The color of the powder will be described on the lot specific Certificate of Analysis.

My question is not addressed here, how can I contact Technical Service for assistance?

Ask a Scientist [here](#).

PEER REVIEWED PAPERS

Activation of cardiac AMPK-FGF21 feed-forward loop in acute myocardial infarction: Role of adrenergic overdrive and lipolysis byproducts.

Hiroaki Sunaga et al.

Scientific reports, 9(1), 11841-11841 (2019-08-16)

Fibroblast growth factor 21 (FGF21) is a metabolic hormone having anti-oxidative and anti-hypertrophic effects. However, the regulation of FGF21 expression during acute myocardial infarction (AMI) remains unclear. We tested blood samples from 50 patients with AMI and 43 patients with

Membrane raft-mediated regulation of glucose signaling pathway leading to acrosome reaction in chicken sperm†.

Ai Ushiyama et al.

Biology of reproduction, 100(6), 1482-1491 (2019-02-06)

Despite knowledge that glucose metabolism is essential for the regulation of signaling cascades in the sperm that are pre-assembled into specific areas and function at multistage for fertilization, the physiological roles of glucose in avian sperm are poorly understood. Accumulated

AICAR, an AMPK activator, protects against cisplatin-induced acute kidney injury through the JAK/STAT/SOCS pathway

Tsogbadrakh B, et al.

Biochemical and Biophysical Research Communications (2019)

Genetically-encoded FapR-NLuc as a biosensor to determine malonyl-CoA in situ at subcellular scales

Du Y, et al.

Bioconjugate Chemistry (2019)

Replication fork reversal triggers fork degradation in BRCA2-defective cells.

Sofija Mijic et al.*Nature communications, 8(1), 859-859 (2017-10-19)*

Besides its role in homologous recombination, the tumor suppressor BRCA2 protects stalled replication forks from nucleolytic degradation. Defective fork stability contributes to chemotherapeutic sensitivity of BRCA2-defective tumors by yet-elusive mechanisms. Using DNA fiber spreading and direct visualization of replication intermediates

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PROTOCOLS AND ARTICLES

Articles

[Oncogenes and Tumor Suppressors Reprogram Metabolism](#)

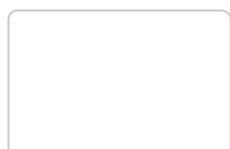
We present an article about how proliferating cells require the biosynthesis of structural components for biomass production and for genomic replication.

Related Content

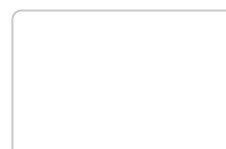
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AA0100**Ammonia Assay Kit**

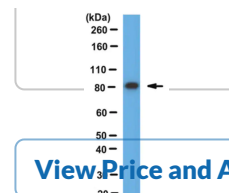
Sigma-Aldrich

ABD122**Anti-Dishevelled Antibody**

serum from rabbit



sufficient for 100 assays

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