

PRODUCT INFORMATION



Actinonin

Item No. 16605

CAS Registry No.: 13434-13-4
Formal Name: (2R)-N⁴-hydroxy-N¹-[(1S)-1-[[[(2S)-2-(hydroxymethyl)-1-pyrrolidinyl] carbonyl]-2-methylpropyl]-2-pentylbutanediamide

Synonyms: (-)-Actinonin, Ro 06-1467

MF: C₁₉H₃₅N₃O₅

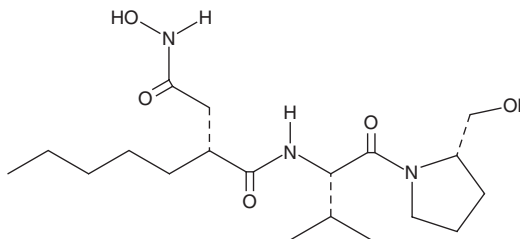
FW: 385.5

Purity: ≥98%

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Actinonin is supplied as a crystalline solid. A stock solution may be made by dissolving the actinonin in the solvent of choice, which should be purged with an inert gas. Actinonin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of actinonin in these solvents is approximately 30 mg/ml.

Description

Actinonin is a peptidomimetic antibiotic produced by *Actinomyces* that inhibits aminopeptidases. It inhibits the following matrix metalloproteinases (MMPs): MMP-1 ($K_i = 300$ nM), MMP-3 ($K_i = 1,700$ nM), MMP-8 ($K_i = 130$ nM), and MMP-9 ($K_i = 330$ nM).¹ Actinonin acts as an herbicide by targeting plastid peptide deformylase, an enzyme required for N-terminal processing of plastid-encoded proteins.² Actinonin has also been identified as an effective inhibitor of human meprin α ($K_i = 20$ nM), a zinc endopeptidase that cleaves matrix proteins.³ More recently actinonin has been shown to inhibit tumor cell invasion and matrix degradation and to induce apoptosis in animal models by targeting human mitochondrial peptide deformylase.⁴

References

1. Wahl, R.C., Pulvino, T.A., Mathiowetz, A.M., *et al.* Hydroxamate inhibitors of human gelatinase B (92 kDa). *Bioorg. Med. Chem. Lett.* **5(4)**, 349-352 (1995).
2. Duke, S.O. and Dayan, F.E. Modes of action of microbially-produced phytotoxins. *Toxins (Basel)* **3(8)**, 1038-1064 (2011).
3. Kruse, M.-N., Becker, C., Lottaz, D., *et al.* Human meprin α and β homo-oligomers: Cleavage of basement membrane proteins and sensitivity to metalloprotease inhibitors. *Biochem. J.* **378(1)**, 383-389 (2004).
4. Lee, M.D., She, Y., Soskis, M.J., *et al.* Human mitochondrial peptide deformylase, a new anticancer target of actinonin-based antibiotics. *J. Clin. Invest.* **114(8)**, 1107-1116 (2004).

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.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM