

Product Information

Calcium Ionophore A23187

Catalog Numbers **C7522**, **C5149**, **C9275**, **C9400**, **B7272**

Calcium Ionophore A23187 is an antibiotic that possesses weak *in vitro* activity against gram positive organisms. It greatly increases the ability of divalent ions to cross biological membranes, giving it properties as an ionophore¹, and specifically forms stable 2:1 complexes with divalent cations, rendering these ions soluble in ordinary organic solvents.² Since Calcium Ionophore A23187 is highly selective for Ca²⁺, it is commonly used to increase intracellular Ca²⁺ levels in intact cells^{3,4}. In cell culture it stimulates nitric oxide production by calmodulin-dependent constitutive nitric oxide synthase⁵. It also acts as an uncoupler of

oxidative phosphorylation and an inhibitor of mitochondrial ATPase activity⁶. Calcium Ionophore A23187 potentiates responses to NMDA but not quisqualate⁹. It induces apoptosis in mouse lymphoma cell line (S49)⁷ but also has been shown to block apoptosis in other systems, such as when interleukin-3 is withdrawn from IL-3-dependent cells⁸. It can lower the fractal dimension of cellular plasma membrane, leading to cell apoptosis of SK-BR-3 human breast cancer,¹¹ and can significantly and rapidly raise the intracellular mobile Zn²⁺ content, leading to apoptosis of C6 glioma cells.¹²

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Name	Calcium Ionophore A23187	Calcium Ionophore A23187 mixed calcium magnesium salt	Calcium Ionophore A23187 hemicalcium salt	Calcium Ionophore A23187 hemimagnesium salt	4-Bromo-calcium Ionophore A23187
Synonyms	A23187; Antibiotic A23187; Calcium Ionophore; Calcium Ionophore III; Calcimycin;				4-Bromo-calcimycin
CAS RN	52665-69-7		59450-89-4	72124-77-7	76455-48-6
Empirical Formula	C ₂₉ H ₃₇ N ₃ O ₆	C ₂₉ H ₃₇ N ₃ O ₆ Free acid	C ₂₉ H ₃₆ Ca _{0.5} N ₃ O ₆	C ₂₉ H ₃₆ Mg _{0.5} N ₃ O ₆	C ₂₉ H ₃₆ BrN ₃ O ₆
Mol. Wt.	523.62	523.62 Free acid	542.65	534.77	602.52
Solubility	DMSO – 50 mg/ml by heating or sonication Ethanol, ethyl acetate, methanol, chloroform 20 mg/ml Aqueous solutions can be made by diluting DMSO solutions in H ₂ O	DMSO (10 mg/ml) Chloroform:methanol 1:1 (10 mg/ml) Methanol.	DMSO (10 mg/ml) Chloroform and Acetone (10 mg/ml).	DMSO (10 mg/ml) Chloroform and Acetone (10 mg/ml).	DMSO 20 mg/ml Ethanol 10 mg/ml Chloroform, DMF and Methanol.
Storage Powder	2-8 °C Desiccate, protect from light	2-8 °C Desiccate, protect from light	2-8 °C Desiccate, protect from light	2-8 °C Desiccate, protect from light	2-8 °C Desiccate, protect from light
Stability Powder	5 years	5 years	5 years.	5 years	5 years
Solution Stability	≥3 months at –20 °C in DMSO, protected from light.	Should be stored in aliquots at –20 °C			
Notes		Approx. 1:1 molar ratio of Ca:Mg Actual content given on label.			Non-fluorescent analog; used for calibration of cytoplasmic free Ca ²⁺ by fluorescent probes. ¹⁰

Precautions and Disclaimer

These products are for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

References

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