Small Molecules

Brefeldin A

Protein trafficking inhibitor; Inhibits Sec7-containing guanine-exchange factor (GEF)

Catalog # 73012 10 mg
73014 25 mg

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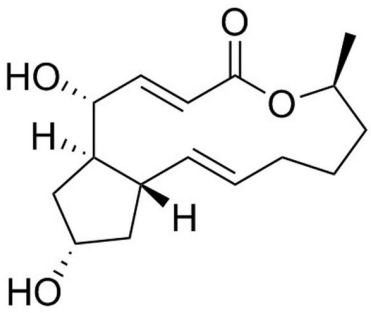
Product Description

Brefeldin A is a fungal lactone antibiotic produced by many species, including Eupenicillium brefeldianum (Klausner et al.). It reversibly interferes with protein trafficking and secretion mediated by the Golgi apparatus and endoplasmic reticulum by indirect inhibition of ADP-ribosylation factor (ARF; Klausner et al.; Helms & Rothman; Robinson et al.; Morinaga et al.; Moss & Vaughan; Nebenführ et al.; Ktistakis et al.). Brefeldin A binds to Sec7-containing guanine-exchange factor (GEF) at the ARF-GDP-Sec7 interface, preventing the conformational change required to release GDP and activate ARF (Mossessova et al.).

Molecular Name:	Brefeldin A
Alternative Names:	Ascotoxin; BFA; Cyanein; Decumbin; Nectrolide; NSC 56310; NSC 89671; NSC 107456; NSC 244390; Synergisidin
CAS Number:	20350-15-6
Chemical Formula:	$C_{16}H_{24}O_4$
Molecular Weight:	280.4 g/mol
Purity:	≥ 98%
Chemical Name:	(1R,2E,6S,10E,11aS,13S,14aR)-1,6,7,8,9,11a,12,13,14,14a-decahydro-1,13-dihydroxy-6-methyl-4H-cyclopent[f]oxacyclotridecin-4-one
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 1.5 mM · Absolute ethanol ≤ 3 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 10 mg in 35.7 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CELL LINE DEVELOPMENT
· Improves clustered regularly interspaced palindromic repeats (CRISPR)-mediated homology-directed repair in mouse embryonic stem cells (Yu et al.).
CANCER RESEARCH
· Induces apoptosis in human leukemia (HL60, K562) and colon carcinoma (HT-29) cell lines (Shao et al.).
· Reduces survival, induces apoptosis, and inhibits clonogenic activity of COLO 205 colorectal cancer stem cell line (Tseng et al.).

References

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Tseng C-N et al. (2013) Brefeldin a effectively inhibits cancer stem cell-like properties and MMP-9 activity in human colorectal cancer Colo 205 cells. Molecules 18(9): 10242–53.
Yu C et al. (2015) Small molecules enhance CRISPR genome editing in pluripotent stem cells. Cell Stem Cell 16(2): 142–7.

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