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DATASHEET

Calyculin A

Product overview

Name	Calyculin A
Cat No	HB0161
Alternative names	CA
Biological action	Inhibitor
Purity	>98%
Description	Potent, selective protein phosphatase 1 / 2A inhibitor

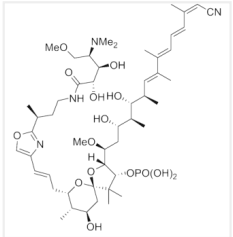
Biological Data

Biological description	Potent and selective protein phosphatase 1 and 2A catalytic subunit inhibitor (IC_{50} values are 2 and 0.5 - 1 nM respectively). Inhibits smooth muscle myosin B phosphatase catalytic subunit (IC_{50} = 0.7 nM). Thought to act a as a calcium channel blocker, blocks intracellular calcium increase and prevents cell cycle progression. Shows Alzheimer's disease-like actions; causes tau protein hyperphosphorylation and impairs spacial memory retention.

Solubility & Handling

Storage instructions	-20°C (desiccate)
Solubility overview	Soluble in DMSO (50mM)
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name	*N*-[(3*S*)-[4-(1*E*)-3-[(2*R*,3*R*,4*R*,7*S*,8*S*, 9*R*)-2-[(1*S*,3*S*,4*S*,5*R*,7*E*,9*E*,11*E*,13*Z*)-14-Cyano-3,5-di hydroxy-1-methoxy-4,6,8,9,13-pentamethyl-7,9,11,13-tetradecatetraenyl]-9-hydroxy-4,4,8-trimethyl-3-(phosphonooxy)-1,6-dioxaspi ro[4.5]dec-7-yl]-1-propenyl]-2-oxazoly]butyl]-4-deoxy-4-(dimethylamino)-5-*O*-methyl-L-ribonamide
Molecular Weight	1009.18
Chemical structure	
Molecular Formula	$C_{50}H_{81}N_4O_{15}P$
CAS Number	101932-71-2
PubChem identifier	5311365
SMILES	C[C@H]1[C@@H](C[C@@]2(C([C@H]([C@H](O2)[C@H](C[C@@H]([C@H](C)[C@@H]([C@H](C)/C=C(\C)/C(=C/C=C/C(=C\C#N)/C)/C)O)O)OC)OP(=O)(O)O)(C)C)O[C@H]1C/C=C/C3=COC(=N3)[C@@H](C)CCNC(=O)[C@H]([C@H]([C@H](COC)N(C)C)O)O)O
InChi	InChI=1S/C50H81N4O15P/c1-29(20-22-51)16-14-17-30(2)32(4)24-33(5)42(57)35(7)38(55)25-41(65 -13)45-46(69-70(61,62)63)49(8,9)50(68-45)26-39(56)34(6)40(67-50)19-15-18-36-27-66-48(53-36)3 1(3)21-23-52-47(60)44(59)43(58)37(28-64-12)54(10)11/h14-18,20,24,27,31,33-

InChiKey	FKAWLXNLHHIHLA-YCBIHMBMSA-N
MDL number	MFCD06795864

References

Calyculin A and okadaic acid: inhibitors of protein phosphatase activity.

Ishihara H *et al* (1989) Biochem Biophys Res Commun 159(3)
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Calyculin A from Discodermia calyx is a dual action toxin that blocks calcium influx and inhibits protein Ser/Thr phosphatases.

Holy M *et al* (2012) Toxins (Basel) 4(10)
PubMedID 23162706

Melatonin ameliorates Alzheimer-like pathological changes and spatial memory retention impairment induced by calyculin A.

Yang X *et al* (2011) J Psychopharmacol 25(8)
PubMedID 20542922