FT-972971

Kinases inhibitors

Inhibitors based on specificity for different kinases :

Kinase target	Kinase inhibitors avaialble (inquire)
PKA inhibitors :	H-89, HA-1004, H-7, H-8, HA-100, PKI, staurosporine
PKG inhibitors :	H-7, H-8, HA-1004, H-89, staurosporine
PKC inhibitors :	bisindolylmaleimide IX, chelerythrine, edelfosine, edelfosina, ET18OCH3, H-7, HA-100, H89, HA-1004, Ro 31-8220, rottlerin, staurosporine, quercetin
ABL inhibitors :	PP1
Adenosine kinase inhibitors :	5-Iodotubercidin
Akt/PKB inhibitors :	Triciribine (TCN, Tricyclic Nucleoside, NSC-154020, API-2)
AMPK inhibitors :	indirubin-3'-oxime, 5-Iodotubercidin, H-89
BCR-ABL :	adaphostin, Tyrphostin AG 957
BTK inhibitors :	LFM-A13
CaMKII inhibitors :	KN-62, W-7, HA-1004, HA-1077, staurosporine
CDK1, CDK2, CDK5 inhibitors :	aloisine, aloisine A, alsterpaullone, indirubin-3'-oxime, kenpaullone, olomoucine, purvalanol A, roscovitine
CHK1 inhibitors :	H-89
CK1 inhibitors :	DRB
CK2 inhibitors :	TBB, DRB
EGF-R kinase inhibitors :	erbstatin analog, gefitinib, PD 153035, Tyrphostin AG 490, Tyrphostin AG 825, PP1, PP2
ERK 1/2 inhibitors :	ERK inhibitor
ERK kinase inhibitors :	PD 98059, SL327, olomoucine, 5-Iodotubercidin
FYN inhibitors :	PP1, PP2, SU6656
GSK3 inhibitors :	aloisine, aloisine A, indirubin-3'-oxime, kenpaullone
HCK inhibitors :	PP2
HER2 inhibitors :	Tyrphostin AG 825
IGF1-R PTK inhibitor :	picropodophyllin, Tyrphostin AG 1024
JAK inhibitors :	Tyrphostin AG 490, LFM-A13
JNK inhibitors :	aloisine A, SP600125
KIT inhibitors :	PP1
LCK inhibitors :	aminogenistein, PP1, PP2, indirubin-3'-oxime, kenpaullone
LYN inhibitors :	SU6656, staurosporine
MAPKAP-K1b inhibitors :	HA-1077
MAPK inhibitors :	SB202190, SB203580
MAPKK inhibitors :	arctigenin, PD 98059, SL327, U0126
MEK inhibitors :	PD 98059, SL327, U0126
MKK inhibitors :	arctigenin, PD 98059, SL327, U0126
MLCK inhibitors :	ML-9, W-7, HA-100, HA-1004, H-7, H-8, HA-1077, staurosporine
MSK1 inhibitors :	H-89, ML-9, HA-1077
P38 MAPK inhibitors :	SB202190, SB203580
PDGF-R kinase inhibitors :	DMPQ
PDK1 inhibitors :	SB203580, NU6102
PI3K inhibitors :	LY294002, wortmannin, quercetin
PRK2 inhibitors :	HA-1077
RHO kinase inhibitors :	HA-1077, hydroxyfasudil
ROCK inhibitors :	Y-27632, H-89, ML-9, HA-1077
S6K1 inhibitors :	rapamycin, sirolimus, H-89, ML-9, HA-1077, staurosporine
SAPK inhibitors :	PD 169316, SB202190, SB203580
SGK inhibitors :	indirubin-3'-oxime, H-89
SRC familiy PTK inhibitors :	PP1, PP2, SU6656, staurosporine
SYK inhibitors :	piceatannol, staurosporine

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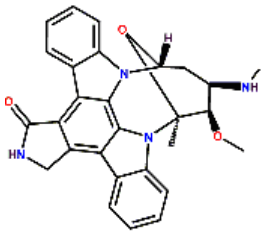
TOR inhibitors :	rapamycin, sirolimus
PTK inhibitors :	aminogenistein, DMPQ, erbstatin analog, gefitinib, LFM-A13, PD 153035, piceatannol, PP1, PP2, quercetin, SU 4312, SU6656, Tyrphostin AG 490, Tyrphostin AG 825, Tyrphostin AG 957
VEGF-R kinase inhibitors :	SU 4312
YES inhibitors :	SU6656
ZAP70 inhibitors :	piceatannol

Products Description

Product name cat.number	**MW** g·mol^{-1} (salt)	CAS		
Staurosporine (M) 74146E, 1mg 74146F, 5 mg	466.54	62996-74-1		Inhibitor of Protein Kinase (broad specificity: PKC, PKA, PKB…)
Chelerythrine Chloride (M) 972971, 1g	383.83			
Bisindolylmaleimide IX (M) S31322, 1mg S31323, 5mg	553.66			
DRB (M) 53944A	319.2 (553.66)	53-85-0		specific inhibitor of casein kinase (CH2 and CK1)
Edelfosine, ET18OCH3 (L) CJ6031, 300mg	523.7			
H-7 (M) KV3842, 25mg	291.4 (+73/HCl)	108930-17-2		inhibitor of PKC, PKA and PKG and MLCK
H-8 (M) KV3851, 10mg	265.3 (+73/HCl)	84478-11-5		inhibitor of PKG and PKA and MLCK
H-89 (M) CQ7251, mg	446.4 (+73/HCl)	130964-39-5		potent and inhibitor of PKA, PKG ...
HA-100 (M) KV3871, 10mg	d (+73/HCl)			inhibitor of MLCK, PKA and PKC
HA-1004 (M) , mg	293.3 (+73/HCl)	92564-34-6		inhibitor of PKG and PKA and at higher ...
HA-1077 (M) KV3891, 10mg	291.4 (+73/HCl)	203911-27-7		Inhibitor of ROCKII, Rho kinase, PRK2 and MSK1
HydroxFasudil (M) KV3900, 5mg	343.8	155558-32-0		Rho kinase inhibitor.
5-IodoTubercidin (M) KV3920, 5µmol	392.2	24386-93-4		specific inhibitor of ERK2 and adenosine kinase

Storage: +4°C (or –20°C for long term) (L)
Protect from light and moisture

Technical and scientific information

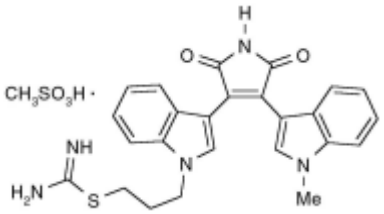


Staurosporine #74146

Synonyms: antibiotic AM-2282, Staurosporine from Streptomyces staurosporeus
See the technical sheet

Bisindolylmaleimide IX #S3132

Product name: Bisindolylmaleimide IX, Methanesulfonate Salt
Synonyms: Ro 31-8220, Ro31-8220, Ro 318220, Ro318220, BIM IX, BIM-9, Bis IX
Appearance: Orange to red microcrystalline solid. Solubility: Soluble in DMSO, ethanol and water.



Bisindolylmaleimide IX (Ro 31-8220) is a selective and ATP-competitive PKC inhibitor with an IC50 of 10 nM, whereas the IC50 for the inhibition of PKA is 900 nM [Davis et al. 1992]. The IC50 values for the inhibition of the group A PKCs range from 5-27 nM and that for PKCε is 24 nM [Wilkinson et al. 1993]. Ro 31-8220 inhibits growth factor-stimulated expression of MKP-1 and c-Fos but strongly stimulated c-Jun expression, even in the absence of growth factors. Ro 31-8220 strongly stimulates the stress-activated protein kinase JNK1 in a PKC-independent manner [Beltman et al. 1996].

References:

Davis PD, Elliott LH, Harris W, Hill CH, Hurst SA, Keech E, Kumar MK, Lawton G, Nixon JS, Wilkinson SE (1992) "Inhibitors of protein kinase C. 2. Substituted bisindolylmaleimides with improved potency and selectivity" J. Med. Chem. 35(6):994-1001

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Keller HU, Niggli V (1993) "The PKC-inhibitor Ro 31-8220 selectively suppresses PMA- and diacylglycerol-induced fluid pinocytosis and actin polymerization in PMNs" Biochem. Biophys. Res. Commun. 194 (3): 1111-6

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Chelerythrine #97297

Product name: Chelerythrine chloride
Chemical name: 1,2-Dimethoxy-N-methyl(1,3)benzodioxolo(5,6-c) phenanthridinium chloride, CAS: 3895-92-9
Molecular weight 383.8 g/mol. Purity: >98%. Appearance: Yellow to orange solid.
Solubility: soluble in DMSO and water. Rather insoluble in aqueous media that contain substantial saline concentrations.

Chelerythrine Chloride is a potent and selective protein kinase C inhibitor (PKC, IC50 = 0.66 µM).

References:

FT-972971

Herbert JM, Augereau JM, Gleye J, Maffrand JP (1990) “Chelerythrine is a potent and specific inhibitor of protein kinase C” Biochem. Biophys. Res. Commun. 172(3):993-9
Liu Y, Cohen MV, Downey JM (1994) "Chelerythrine, a highly selective protein kinase C inhibitor, blocks the anti-infarct effect of ischemic preconditioning in rabbit hearts" Cardiovasc. Drugs Ther. 8(6):881-2
Serrano PA, Rodriguez WA, Pope B, Bennett EL, Rosenzweig MR (1995) "Protein kinase C inhibitor chelerythrine disrupts memory formation in chicks" Behav. Neurosci. 109(2):278-84
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Sacchetti B, Bielavska E (1998) "Chelerythrine, a specific PKC inhibitor, blocks acquisition but not consolidation and retrieval of conditioned taste aversion in rat" Brain Res. 799(1):84-90
Lundmark JL, Ramasamy R, Vulliet PR, Schaefer S (1999) "Chelerythrine increases Na-K-ATPase activity and limits ischemic injury in isolated rat hearts" Am. J. Physiol. 277(3 Pt 2):H999-H1006
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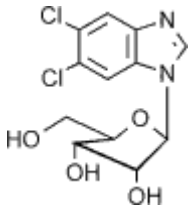
DRB #53944



Product name: 5,6-Dichlorobenzimidazole riboside (DRB)
Synonyms: 5,6-Dichloro-1-b-D-ribofuranosyl benzimidazole; CAS [53-85-0]
Molecular weight 319.2 g/mol. Chemical formula C12H12Cl2N2O4.
Purity: >98% (HPLC). Appearance: White solid.
Solubility: soluble in DMSO or ethanol (may require warming for complete dissolution).

DRB is a specific inhibitor of casein kinase 2 (CK2, IC50 = 6 µM) and casein kinase 1 (CK1, IC50 = 14 µM). It is also a specific inhibitor for RNA polymerase II transcription in vivo and in vitro whereat the effect on RNA polymerase II-specific transcription seems to be mediated by its inhibition of nuclear casein kinase 2. DRB is a competitive inhibitor in respect to its phosphate donor substrates ATP and GTP.

References:

Zandomeni R, Weinmann R. (1984) "Inhibitory effect of 5,6-dichloro 1-beta-D ribofuranosyl benzimidazole on a protein kinase." J. Biol. Chem. 259(23):14804-11.
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Chodosh LA, Fire A, Samuels M, Sharp PA. (1989) "5,6-Dichloro 1-beta-D ribofuranosyl benzimidazole inhibits transcription elongation by RNA polymerase II in vitro.” J. Biol. Chem. 264(4):2250-7
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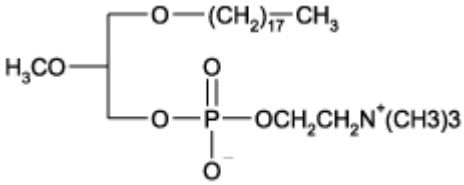
Johnston IM, Allison SJ, Morton JP, Schramm L, Scott PH, White RJ (2002) "CK2 forms a stable complex with TFIIIB and activates RNA polymerase III transcription in human cells" Mol. Cell. Biol. 22(11):3757-68
Uhle S, Medalia O, Dubiel W et al. (2003) "Protein kinase CK2 and protein kinase D are associated with the COP9 signalosome" EMBO J. 22(6):1302-12

Edelfosine, ET18OCH3 #CJ603



Product name: edelfosine
Synonyms: edelfosin, edelfosinum, edelfosina, ET18OCH3
Chemical name: rac-2-methyl-1-octadecyl-glycero-(3)-phosphocholine
Chemical formula C27H58NO6P. Molecular weight 523.7 g/mol.
Purity: >99.1% (GMP quality). Appearance: white, odourless powder.
Solubility: soluble in chloroform, ethanol and water.
The substance may be carcinogenic or teratogenic.

Edelfosine or ET18OCH3 is a synthetic analog of lysophosphatidylcholine. It is a strong inhibitor of the PI3K pathway (anti-tumor lipid) and selectively inhibits protein kinase C (PKC) and phosphatidylinositol specific phospholipase C (PI PLC). Edelfosine induces expression of c-fos, c-jun and transcription factor AP-1, induces apoptosis in human promyelocytic and promonocytic leukemic cells and decreases multi drug resistance (MDR) when combined with other MDR modifiers and pH-lowering agents such as verapamil, tamoxifen or cyclosporin A.

References:

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Powis, G., et al. (1992). Selective inhibition of phosphatidylinositol phospholipase C by cytotoxic ether lipid analogues., Cancer Res. 52: 2835-2840.
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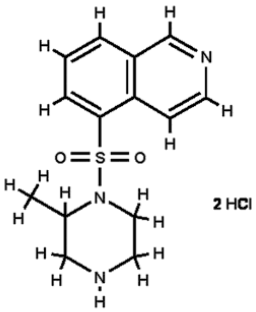

H-7, #KV384

Product names: H-7. dihydrochloride
Syn.: H7, H 7, i-(5-Isoquinolinesulfonyl)-2-methylpiperazine . 2HCl
CAS number: 108930-17-2; Chemical formula: C14H17N3O2S . 2 HCl;
Molecular weight: 291.4 + 73.0 g/mol
Purity: > 97%; Appearance: powder; Solubility: soluble in water

H-7 is an inhibitor of protein kinase C (PKC), cAMP- and cGMP-dependent protein kinase (PKA and PKG) and also inhibits myosin light chain kinase (MLCK). It induces apoptotic DNA fragmentation and cell death and inhibits telomerase activity in treated NPC-076 cells. Molecular weight 291.4 + 73.0 g/mol. Solubility: soluble in water. Formula C14H17N3O2S . 2 HCl.

References:

Hidaka H, Inagaki M, Kawamoto S, Sasaki Y. (1984) "Isoquinolinesulfonamides, novel and potent inhibitors of cyclic nucleotide dependent protein kinase and protein kinase C." Biochemistry. 23(21):5036-41.
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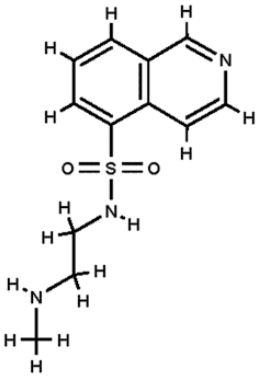
Schachtele C, Seifert R, Osswald H (1988) "Stimulus-dependent inhibition of platelet aggregation by the protein kinase C inhibitors polymyxin B, H-7 and staurosporine" Biochem. Biophys. Res. Commun. 151(1):542-7
Engh RA, Girod A, Kinzel V, Huber R, Bossemeyer D. (1996) "Crystal structures of catalytic subunit of cAMP-dependent protein kinase in complex with isoquinolinesulfonyl protein kinase inhibitors H7, H8, and H89. Structural implications for selectivity." J. Biol. Chem. 271(42):26157-64.
Ku WC, Cheng AJ, Wang TC (1997) "Inhibition of telomerase activity by PKC inhibitors in human nasopharyngeal cancer cells in culture" Biochem. Biophys. Res. Commun. 241(3):730-6

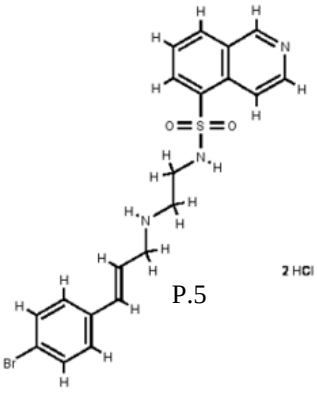


H-8, #KV385

Product name: H-8 . dihydrochloride, H8, H 8
N-[2-(Methylamino)ethyl]-5-isoquinolinesulfonamide . 2 HCl; CAS: 84478-11-5
Molecular weight 265.3 + 73.0 g/mol. Formula C12H15N3O2S . 2HCl.
Purity: > 98% Appearance: powder. Solubility: soluble in water and DMSO.
Potent inhibitor of cGMP-dependent protein kinase (PKG, IC50 ~500nM) and cAMP-dependent protein kinase (PKA, IC50 ~1200nM). Also inhibits myosin light chain kinase (MLCK).

References:

Hidaka H, Inagaki M, Kawamoto S, Sasaki Y. (1984) "Isoquinolinesulfonamides, novel and potent inhibitors of cyclic nucleotide dependent protein kinase and protein kinase C." Biochemistry. 23(21):5036-41.
Hagiwara M, Inagaki M, Hidaka H. (1987) "Specific binding of a novel compound, N-[2-(methylamino)ethyl]-5-isoquinolinesulfonamide (H-8) to the active site of cAMP-dependent protein kinase." Mol Pharmacol. 31(5):523-8
Engh RA, Girod A, Kinzel V, Huber R, Bossemeyer D. (1996) "Crystal structures of catalytic subunit of cAMP-dependent protein kinase in complex with isoquinolinesulfonyl protein kinase inhibitors H7, H8, and H89. Structural implications for selectivity." J. Biol. Chem. 271(42):26157-64.



H-89, #CQ7251

Product name: H-89 . dihydrochloride, H89, H 89
N-[2-(p-Bromocinnamylamino)ethyl]-5-isoquinolinesulfonamide . 2HCl; CAS: 130964-39-5
Molecular weight 446.4 + 73.0 g/mol. Formula C20H20BrN3O2S . 2HCl
Solubility: soluble in 100% ethanol, DMSO and water.

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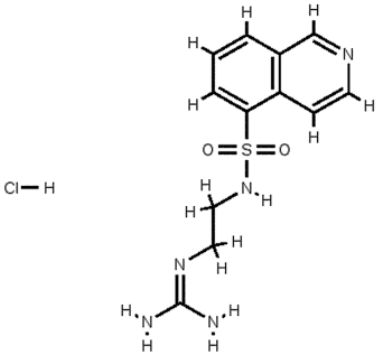
Cell permeable potent and selective inhibitor of cAMP-dependent protein kinase (PKA, IC50 ~50 nM), cGMP-dependent protein kinase (PKG) and protein kinase Cμ (PKCμ). In contrast, most other protein kinase C (PKC) isotypes are much more weakly inhibited. Also inhibits ROCKII, Ca2+/calmodulin dependent protein kinase II (CaMKII), casein kinase I (CKI) and myosin light chain kinase (MLCK). Induces apoptosis. l

References:

Chijiwa T, Mishima A, Hagiwara M, Sano M, Hayashi K, Inoue T, Naito K, Toshioka T, Hidaka H. (1990) "Inhibition of forskolin-induced neurite outgrowth and protein phosphorylation by a newly synthesized selective inhibitor of cyclic AMP dependent protein kinase, N-[2-(p-bromocinnamylamino) ethyl]- 5-isoquinoline sulfonamide (H-89), of PC12D pheochromocytoma cells." J. Biol. Chem. 265(9):5267-72

Geilen CC, Wieprecht M, Wieder T, Reutter W. "A selective inhibitor of cyclic AMP-dependent protein kinase, N-[2-bromocinnamyl (amino)ethyl] 5-isoquinoline sulfonamide (H-89), inhibits phosphatidylcholine biosynthesis in HeLa cells" (1992) FEBS Lett. 309(3):381-4.



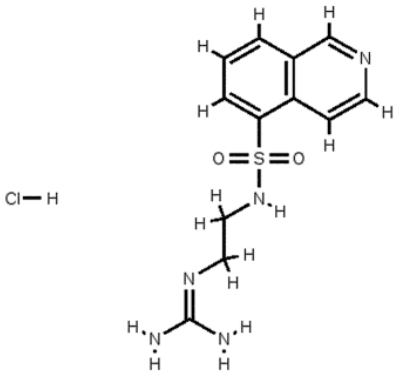
HA-100 , #KV3871

Product name: HA-100 . dihydrochloride, HA100, HA 100
Syn.: 1-(5-Isoquinolinesulfonyl)-piperazine dihydrochloride; CAS number: 105628-72-6
Molecular weight 277.3 + 73.0 =350.27 g/mol. Formula C13H15N3O2S . 2HCl. Form solid.
Purity: > 97%. Form: solid. Solubility: soluble in water.

Inhibitor of myosin light chain kinase (MLCK), cAMP-dependent protein kinase (PKA) and protein kinase C (PKC)

References:

Ref.: Hagiwara M, Inagaki M, Watanabe M, Ito M, Onoda K, Tanaka T, Hidaka H. (1987) "Selective modulation of calcium-dependent myosin phosphorylation by novel protein kinase inhibitors, isoquinolinesulfonamide derivatives" Mol Pharmacol. (1):7-12



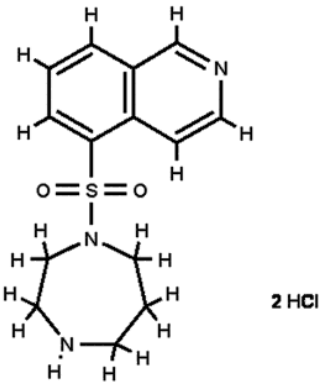
HA-1004, #KV3881

Product name: HA-1004 . dihydrochloride, HA1004, HA 1004
N-(2'-Guanidinoethyl)-5-isoquinolinesulfonamide dihydrochloride; CAS number: 92564-34-6
Molecular weight 293.3 + 73.0 g/mol. Formula C12H15N5O2S . 2HCl. Form solid.
Purity: > 99%; Form: solid; Solubility: soluble in water.

Inhibitor of cAMP- and cGMP-dependent kinases (PKA/PKG, IC50 ~1-2uM). Also inhibits CaMKII, PKC and MLCK at higher concentrations. Intracellular Ca2+ antagonist with no effect on cardiac function. Causes selective pulmonary vasodilation during pulmonary hypertension.

References:

Crowley MR, Fineman JR, Soifer SJ. (1994) "HA1004, an intracellular calcium antagonist, selectively attenuates pulmonary hypertension in newborn lambs." J. Cardiovasc. Pharmacol. (5):806-13



HA-1077, fasudil, #KV389

Product name: HA-1077 . dihydrochloride, fasudil, HA1077, HA 1077, AT877
1-(5-Isoquinolinesulfonyl)-1H-hexahydro-1,4-diazepine dihydrochloride; CAS number: 203911-27-7
Molecular weight 291.4 + 73.0 g/mol. Purity: >98%. Formula C14H17N3O2S . 2HCl. Form solid.
Purity: >98%; Form: solid; Solubility: soluble in water.

Inhibitor of ROCKII, Rho kinase, PRK2 and MSK1, also inhibits PKA, PKG, S6K1 and MAPKAP-K1b, myosin light chain kinase (MLCK) and Ca2+/calmodulin dependent protein kinase II (CaMKII). Cell permeable Ca2+ antagonist with antivasospastic properties.

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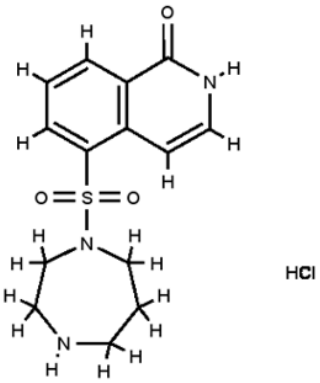

Hydroxyfasudil , #KV3900

Product name: Hydroxyfasudil
1-(1-Hydroxy-5-isoquinolinesulfonyl)homopiperazine hydrochloride; CAS number: 155558-32-0
Molecular weight 343.8 g/mol. Formula C14H17N3O3S . HCl.
Purity: >98%. Form solid. Solubility: soluble in water.Rho kinase inhibitor.

Active metabolite of fasudil (HA-1077). Exists in two tautomers. Hydroxyfasudil relaxes the rabbit basilar artery mainly by disinhibiting myosin light chain phosphatase through the inhibition of rho-associated kinase. The hydroxyfasudil-sensitive Rho-kinase-mediated pathway appears to mediate enhanced myosin light chain phosphorylations and plays a central role in the pathogenesis of coronary artery spasm.

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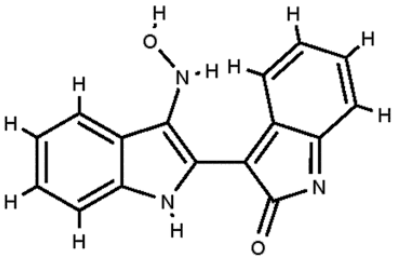

Iodotubercidin, #KV392

Product name: Iodotubercidin, 5-Iodotubercidin
Chemical name: 4-Amino-5-iodo-7-(beta-D-ribofuranosyl) pyrrolo[2,3-d]-pyrimidine; CAS number: 24386-93-4
Alternate names: 5-I-dTu, 7-Deaza-7-iodoadenosine
Molecular weight 392.2 g/mol.Formula C11H13IN4O4.
Appearance: light brown solid. Purity: >98% (HPLC). Solubility: soluble in DMSO. Handling: Protect from light.

5-Iodotubercidin is a potent and specific inhibitor of ERK2 (Ki ~0.5 uM) and adenosine kinase (Ki ~30 nM). It has also been reported to abolish the accumulation of AICAR-5'-monophosphate (ZMP) and thus inhibits the activation of AMPK.

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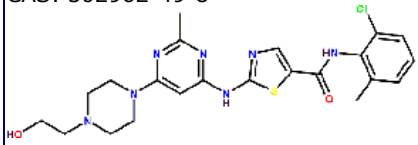
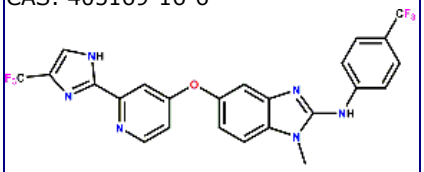
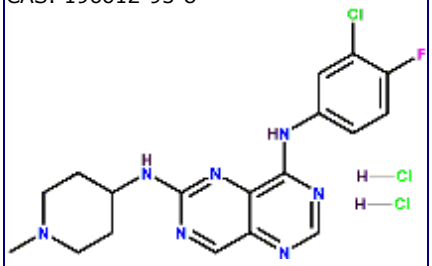
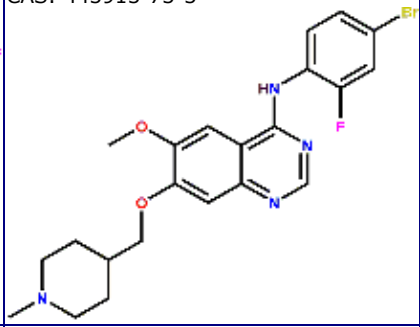
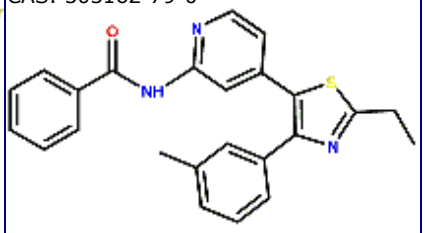
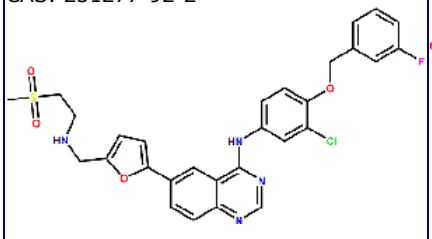
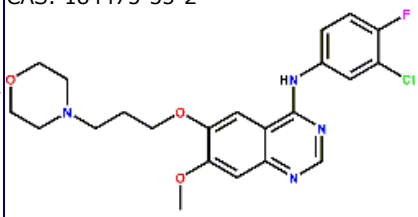
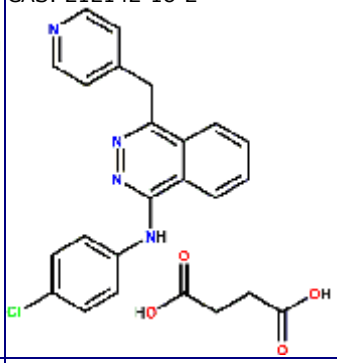
Other inhibitors:

Other Kinase Inhibitors - AOC	(inquire)	
	#CJ5841, BMS-354825 (Dasatinib) CAS: 302962-49-8 	#CJ5851, CHIR-265 CAS: 405169-16-6 
#CJ5861, BIBX-1382 di HCl (Falnidamol) CAS: 196612-93-8 	#CJ5871, ZD-6474 (Zactima) CAS: 443913-73-3 	#CJ5881, TAK-715 (P38 MAPK Kinase Inihibitor) CAS: 303162-79-0 
#CJ5891, GW-2016 (Lapatinib; Tykerb) CAS: 231277-92-2 	#CJ5901, Iressa (Geftinib HCl) CAS: 184475-35-2 	#CJ5911, PTK-787 (Vatanalib Succinate) CAS: 212142-18-2 
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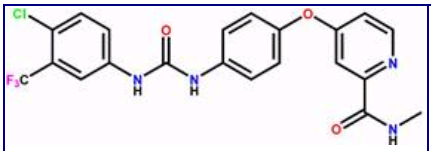

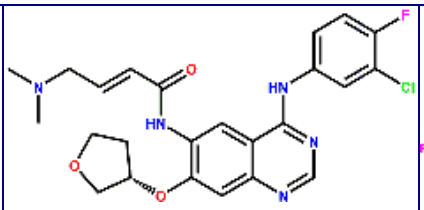

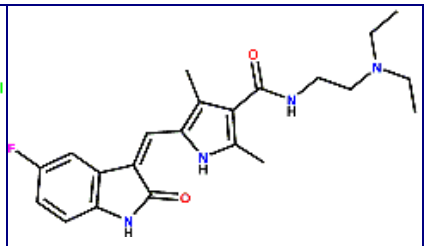

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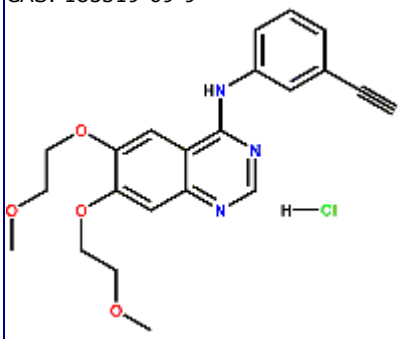

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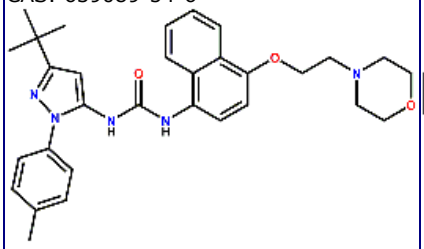

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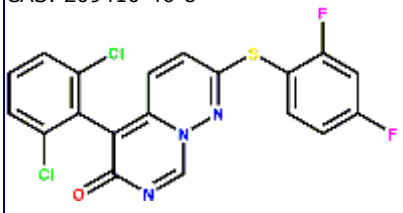

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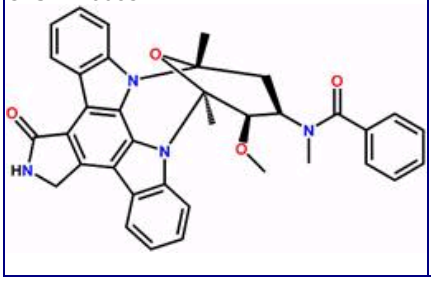

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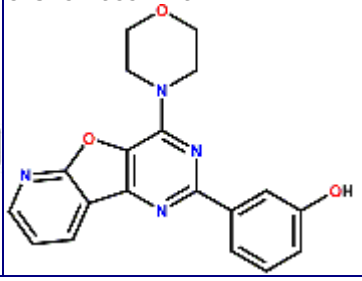

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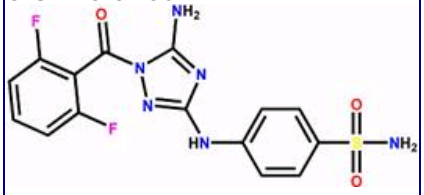

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