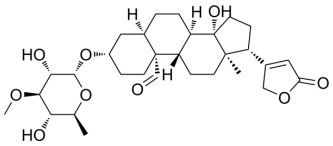
Peruvoside

Cat. No.:	HY-108016
CAS No.:	1182-87-2
Molecular Formula:	$C_{30}H_{44}O_9$
Molecular Weight:	548.66
Target:	Src; PI3K; JNK; STAT; EGFR; Apoptosis; Autophagy
Pathway:	Protein Tyrosine Kinase/RTK; PI3K/Akt/mTOR; MAPK/ERK Pathway; JAK/STAT Signaling; Stem Cell/Wnt; Apoptosis; Autophagy
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Peruvoside is a potent inhibitor of Src, PI3K, JNK, STAT, and EGFR. Peruvoside induces apoptosis and autophagy and possesses a broad spectrum of anticancer activity in breast, lung, liver cancers and leukemia. Peruvoside is a broad-spectrum and potent antiviral activity against positive-sense RNA viruses. Peruvoside sensitizes Gefitinib (HY-50895)-resistant tumour cells (A549, PC9/gef and H1975) to Gefitinib[1][2][3][4].

In Vitro

Peruvoside (50-1000 nM, 24 h) inhibits the viability and proliferation in PC9, PC9/gef, H3255, and H1975 cell lines[1].
Peruvoside (0.005-0.5 μM, 72 h) sensitizes A549, PC9/gef and H1975 to Gefitinib when in combination with Gefitinib (0.01~0.5 μM)[1].
Peruvoside (0-100 μM, 24 h) induces cell cycle arrest and apoptosis in MCF-7, HpG2, and A549 cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	PC9, PC9/gef, H3255, and H1975 cell lines
Concentration:	0, 0.01, 0.05, 0.1, 0.5, 1 μM
Incubation Time:	24, 48, 72, 96 h.
Result:	Inhibited the viabilities of TKI-sensitive and TKI-resistant cell lines at all tested time points. Inhibited the EGFR-mutant lung cancer cell viability and proliferation with 24 h IC_{50}s of 48 nM, 74 nM, 67 nM, 143 nM, 277 nM and 428 nM for A549, PC9, PC9/gef, H3255, H1975 and BEAS-2B cells, respectively. Significantly inhibited the proliferation of A549 (48, 72, and 96 h) and H3255 (24, 48, 72, and 96 h) lungcancer cells.

Cell Viability Assay[1]

Cell Line:	A549, PC9/gef and H1975 cell lines
Concentration:	0.005, 0.0075, 0.01, 0.025, 0.05, 0.5 μM (in combination with 0.01, 0.05, 0.1, 0.25, 0.5 μM Gefitinib)
Incubation Time:	72 h.

Result:	Had synergistic effects on A549 cells at the combination of 0.005, 0.075, or 0.01 μM and a low dose of gefitinib (0.01 or 0.05 μM). Increased the sensitivity of PC9/gef and H1975 cells to Gefitinib at 0.025 or 0.05 μM.

Apoptosis Analysis[2]

Cell Line:	MCF-7, A549 and HepG2 cell lines
Concentration:	0-100 μM
Incubation Time:	24 h
Result:	Induced cell cycle arrest and apoptosis with lethal concentrations of IC50 for (MCF-7 - 100 nM), (A549 – 100 nM) and (HepG2 - 100 nM), respec-tively. Arrested cell cycle at G0/G1 in MCF-7, A549 and HepG2 cells. Significantly decreased the transcription of Chk1, Chk2, CDK6 and Cyclin D1 cell cycle genes in MCF-7, A549, and HepG2 cells.

In Vivo

Peruvoside (0.1 mg/kg for i.p; once daily for 28 days) suppresses the tumour growth in lung cancer mice model[1].
Peruvoside (0.59 mg/kg for i.p; once daily for 7 days) reduces mortality in EV-A71-infected mice model[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Lung cancer mouse model[1]
Dosage:	0.1 mg/kg
Administration:	Intraperitoneal injection (i.p.); Once daily for 28 days
Result:	Reduced the tumour size to 129.9 mm^3, which was significantly smaller than the control group (348 mm^3). Significantly decreased levels of phosphorylated Src Y419 in tumourtissues compared with control tissues.

Animal Model:	EV-A71-infected mice model[4]
Dosage:	0.59 mg/kg
Administration:	Intraperitoneal injection (i.p.); Once daily for 7 days
Result:	Substantially reduced clinical scores based on physical symptoms of body weight, activity,breathing, movement, and dehydration. Showed about 6 log reduction in viral titre with 99.9% efficacy in inhibiting virus.

REFERENCES

[1]. Lai Y, et al. Peruvoside is a novel Src inhibitor that suppresses NSCLC cell growth and motility by downregulating multiple Src-EGFR-related pathways. Am J Cancer Res. 2022 Jun 15;12(6):2576-2593.

[2]. Reddy D, et al. Peruvoside targets apoptosis and autophagy through MAPK Wnt/β-catenin and PI3K/AKT/mTOR signaling pathways in human cancers. Life Sci. 2020 Jan 15;241:117147. doi: 10.1016/j.lfs.2019.117147. Epub 2019 Dec 9. PMID: 31830480.

[3]. Feng Q, et al. Peruvoside, a Cardiac Glycoside, Induces Primitive Myeloid Leukemia Cell Death. Molecules. 2016 Apr 22;21(4):534.

[4]. Wu KX, et al. The host-targeting compound peruvoside has a broad-spectrum antiviral activity against positive-sense RNA viruses. Acta Pharm Sin B. 2023 May;13(5):2039-2055.

Caution: Product has not been fully validated for medical applications. For research use only.

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