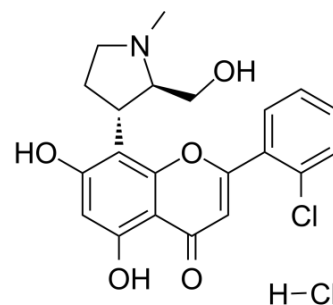


Rivaciclib hydrochloride

Cat. No.:	HY-16559
CAS No.:	920113-03-7
Molecular Formula:	C ₂₁ H ₂₁ Cl ₂ NO ₅
Molecular Weight:	438.3
Target:	CDK
Pathway:	Cell Cycle/DNA Damage
Storage:	Please store the product under the recommended conditions in the COA.



BIOLOGICAL ACTIVITY

Description	Rivaciclib hydrochloride (P276-00) is a potent cyclin-dependent kinase (CDK) inhibitor, which inhibits CDK9-cyclinT1 , CDK4-cyclin D1 , and CDK1-cyclinB with IC₅₀s of 20 nM, 63 nM, and 79 nM, respectively ^{[1][2]} . Rivaciclib hydrochloride (P276-00) shows antitumor activity on cisplatin-resistant cells ^[3] .													
IC₅₀ & Target	CDK9- Cyclin T1 0.020 μM (IC ₅₀)	cdk4-cyclin D1 0.063 μM (IC ₅₀)	CDK1-Cyclin B 0.079 μM (IC ₅₀)	cdk2-cyclin A 0.224 μM (IC ₅₀)										
	cdk2-cyclin E 2.500 μM (IC ₅₀)	cdk6-cyclin D3 0.396 μM (IC ₅₀)	CDK9-cyclin H 2.900 μM (IC ₅₀)											
In Vitro	<p>Rivaciclib hydrochloride (1.5-5 μM; 72 hours) shows no detectable cells in G1 and G2 in promyelocytic leukemia cells and arrest of cells in G1 in synchronized human non-small cell lung carcinoma (H-460) and human normal lung fibroblast (WI-38) cells^[3].</p> <p>Rivaciclib hydrochloride (3-24 hours; 1.5 μM) reduces cyclin D1, Cdk4, and Rb levels in H-460 cells. Rb (retinoblastoma) phosphorylation at Ser⁷⁸⁰ decrease at 3 h^[2].</p> <p>Rivaciclib hydrochloride shows activity in human cancer cell lines, such as colon carcinoma, osteosarcoma, cervical carcinoma, and bladder carcinoma cells^[2].</p> <p>Cell Cycle Analysis^[3]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>Promyelocytic leukemia cells (HL-60 cells), non-small cell carcinoma (H-460) cells, human normal lung fibroblast (WI-38) cells</td> </tr> <tr> <td>Concentration:</td> <td>1.5, 5 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>72 hours</td> </tr> <tr> <td>Result:</td> <td>Showed apoptosis at the end of 24 h and no detectable cells were present in G1 and G2 in HL-60 cells. Caused an exclusive G1 arrest of synchronous population of cancerous cells H-460 cells and normal cells WI-38.</td> </tr> </table> <p>Western Blot Analysis^[2]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>H-460 cells; MCF-7 cells</td> </tr> </table>				Cell Line:	Promyelocytic leukemia cells (HL-60 cells), non-small cell carcinoma (H-460) cells, human normal lung fibroblast (WI-38) cells	Concentration:	1.5, 5 μM	Incubation Time:	72 hours	Result:	Showed apoptosis at the end of 24 h and no detectable cells were present in G1 and G2 in HL-60 cells. Caused an exclusive G1 arrest of synchronous population of cancerous cells H-460 cells and normal cells WI-38.	Cell Line:	H-460 cells; MCF-7 cells
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Cell Line:	H-460 cells; MCF-7 cells													

Concentration:	1.5 μ M
Incubation Time:	3, 6, 9, 12, 24 hours
Result:	Reduced cyclin D1, Cdk4, and Rb levels in H-460 cells. Rb (retinoblastoma) phosphorylation at Ser ⁷⁸⁰ decrease at 3 h. Decreased protein levels of cyclin D1 and Cdk4 levels starting at 6 and 9 h in MCF-7 cells, respectively, and accompanied by a decrease in phosphorylation of Rb at Ser ⁷⁸⁰ from 6 h onward, followed by reduced Rb levels at 24 h.

In Vivo

Rivaciclib hydrochloride (administered i.p.; 35 kg/mg daily for 10 days, in human xenograft mode with severe combined immunodeficient mice) shows significant inhibition in the growth of human colon carcinoma HCT-116 xenograft^[3].

Rivaciclib hydrochloride (administered via i.p.; 50 mg/kg once daily; 30 mg/kg twice daily for 18 treatments, in human xenograft mode with severe combined immunodeficient mice) significantly inhibited growth^[3].

Animal Model:	Human xenograft mode with HCT-116 tumor model (severe combined immunodeficient mice) ^[3]
Dosage:	35 mg/kg
Administration:	Administered i.p.; daily for 10 days
Result:	Given 35 mg/kg showed significant inhibition in the growth.
Animal Model:	Human xenograft model with H-460 tumor xenograft (severe combined immunodeficient mice) ^[3]
Dosage:	50 mg/kg; 30 mg/kg
Administration:	Administered i.p.; 50 mg/kg once daily for 20 days; Administered i.p.; 30 mg/kg twice daily for 18 treatments
Result:	Given 50 mg/kg and 30 mg/kg twice daily significantly inhibited growth.

REFERENCES

- [1]. Roskoski R Jr, Cyclin-dependent protein kinase inhibitors including palbociclib as anticancer drugs. *Pharmacol Res.* 2016 May;107:249-275.
- [2]. Joshi KS, et al. In vitro antitumor properties of a novel cyclin-dependent kinase inhibitor, P276-00. *Mol Cancer Ther.* 2007 Mar;6(3):918-25.
- [3]. Joshi KS, et al. P276-00, a novel cyclin-dependent inhibitor induces G1-G2 arrest, shows antitumor activity on cisplatin-resistant cells and significant in vivo efficacy in tumor models. *Mol Cancer Ther.* 2007 Mar;6(3):926-34.

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

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