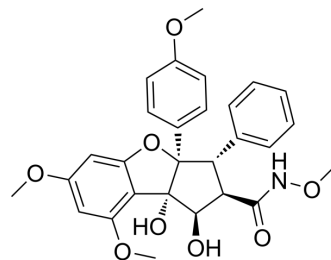


## CR-1-31-B

<b>Cat. No.:</b>	HY-136453		
<b>CAS No.:</b>	1352914-52-3		
<b>Molecular Formula:</b>	C <sub>28</sub> H <sub>29</sub> NO <sub>8</sub>		
<b>Molecular Weight:</b>	508		
<b>Target:</b>	Eukaryotic Initiation Factor (eIF); Apoptosis		
<b>Pathway:</b>	Cell Cycle/DNA Damage; Apoptosis		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 230 mg/mL (452.76 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
<b>Preparing Stock Solutions</b>	<b>1 mM</b>	1.9685 mL	9.8425 mL	19.6850 mL
	<b>5 mM</b>	0.3937 mL	1.9685 mL	3.9370 mL
	<b>10 mM</b>	0.1969 mL	0.9843 mL	1.9685 mL
Please refer to the solubility information to select the appropriate solvent.				
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 5.75 mg/mL (11.32 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 5.75 mg/mL (11.32 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 5.75 mg/mL (11.32 mM); Clear solution</li> </ol>			

### BIOLOGICAL ACTIVITY

<b>Description</b>	CR-1-31-B is a synthetic rocaglate and a potent eIF4A inhibitor. CR-1-31-B exhibits powerful inhibitory effects over eIF4A by perturbing the interaction between eIF4A and RNA, sequentially impeding initiation during protein synthesis. CR-1-31-B perturbs association of Plasmodium falciparum eIF4A (PfeIF4A) with RNA. CR-1-31-B induces apoptosis of neuroblastoma and gallbladder cancer cells <sup>[1][2][3][4]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	eIF4

## In Vitro

CR-1-31-B (100 nM; 24 hours) inhibits MUC1-C translation in MCF-10A cells (EGF-stimulated)<sup>[1]</sup>.

CR-1-31-B (10 and 100 nM) decreases MUC1-C abundance in MDA-MB-468 breast cancer cells<sup>[1]</sup>.

CR-1-31B sensitizes gallbladder cancer cells to TRAIL-mediated apoptosis through the translational downregulation of c-FLIP<sup>[2]</sup>.

Neuroblastoma (NB) cell lines exhibit decreased viability, increased apoptosis rates as well as changes in cell cycle distribution when treated with the synthetic rocaglate CR-1-31-B (24-72 hours), which clamps eIF4A and eIF4F onto mRNA, resulting in a translational block<sup>[4]</sup>.

CR-1-31-B (100 nM; 5 hours) treatment increases reverse glutamine metabolism in pancreatic cancer cells<sup>[5]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

### Western Blot Analysis<sup>[1]</sup>

Cell Line:	MCF-10A cells (EGF-stimulated)
Concentration:	100 nM
Incubation Time:	24 hours
Result:	Blocked increases in MUC1-C abundance.

### Cell Viability Assay<sup>[4]</sup>

Cell Line:	SH-SY5Y cells and Kelly cells
Concentration:	0.1-100 nM
Incubation Time:	24-72 hours
Result:	A significant decrease in SH-SY5Y viability was observed at 10 nM for all time points. Significantly decreased the viability of Kelly cells at 5 nM. The calculated IC <sub>50</sub> at 48 h was 20 nM for SH-SY5Y and 4 nM for Kelly cells.

### Apoptosis Analysis<sup>[4]</sup>

Cell Line:	SH-SY5Y and Kelly cells
Concentration:	SH-SY5Y cells were treated with 10, 20, and 50 nM and Kelly cells with 1, 5, and 10 nM
Incubation Time:	24-72 hours
Result:	Triggered apoptosis.

## In Vivo

CR-1-31-B (2 mg/kg in 60  $\mu$ L olive oil; IP; once every 2 days for 28 days) reduces the growth and initiates TRAIL-induced apoptosis in a BALB/c nude mice model of gallbladder cancer cells (GBC)<sup>[2]</sup>.

CR-1-31-B (0.2 mg/kg; IP; daily for 7 days; murine orthotopic transplant model of pancreatic ductal adenocarcinoma) effectively inhibits protein synthesis and growth of pancreatic tumours<sup>[5]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- J Exp Clin Cancer Res. 2022 Dec 9;41(1):340.
- iScience. 2023 Nov 16.
- Int J Mol Sci. 2023, 24(3), 2055.
- Research Square Preprint. 2022 Jun.

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## REFERENCES

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- [1]. Jin C, Rajabi H, Rodrigo CM, Porco JA Jr, Kufe D. Targeting the eIF4A RNA helicase blocks translation of the MUC1-C oncoprotein. *Oncogene*. 2013;32(17):2179-2188.
- [2]. Cao Y, et al. Targeting eIF4A using rocaglate CR 1 31B sensitizes gallbladder cancer cells to TRAIL mediated apoptosis through the translational downregulation of cFLIP. *Oncol Rep*. 2021;45(1):230-238.
- [3]. Langlais D, et al. Rocaglates as dual-targeting agents for experimental cerebral malaria. *Proc Natl Acad Sci U S A*. 2018;115(10):E2366-E2375.
- [4]. Skofler C, et al. Eukaryotic Translation Initiation Factor 4A1: A Potential Novel Target in Neuroblastoma. *Cells*. 2021;10(2):301. Published 2021 Feb 2.
- [5]. Chan K, et al. eIF4A supports an oncogenic translation program in pancreatic ductal adenocarcinoma. *Nat Commun*. 2019;10(1):5151. Published 2019 Nov 13.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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