Product Data Sheet

Product Name: Ro 08-2750
Cat. No.: GC17622

Chemical Properties

Cas. No.	37854-59-4		
Chemical Name	7,10-dimethyl-2,4-dioxo-2,3,4,10-tetrahydrobenzo[g]pteridine-8-carbaldehyde		
SMILES	O=C1NC(N=C2N(C)C3=CC(C=O)=C(C)C=C3N=C21)=O		
Formula	$C_{13}H_{10}N_4O_3$	M.Wt	270.24
Solubility	DMSO : 4 mg/mL (14.80 mM; ultrasonic and warming and heat to 80°C)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Ro 08-2750		

Protocol

Cell experiment [1]:

Cell lines	MDA-MB-468 cells

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Preparation Method	MDA-MB-468 cells were cultured in DMEM medium supplemented with 10% fetal bovine serum, 1% penicillin/streptomycin, and 20mM HEPES at 37℃, 5% CO_2, and 90% humidity. 4000 MDA-MB-468 cells were seeded in 96-well plates. Subsequently, cells were treated with Ro 08-2750 at different concentrations (0.1, 1, 5, 10, 15, 20, and 25μM). After 96 hours, the supernatant was discarded, the MTT solution was added, and after 24 hours of incubation, the well plates were analyzed using a microplate reader to measure the absorbance at 570nm.
Reaction Conditions	0.1, 1, 5, 10, 15, 20, and 25μM; 96h
Applications	Ro 08-2750 treatment inhibited the viability of MDA-MB-468 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models	Female BALB/c nude mice
Preparation Method	Four-week-old female BALB/c nude mice were raised under SPF (specific pathogen-free) conditions, with a temperature of 22-25℃ and humidity of 40-50%. Logarithmic growth phase cells were counted under aseptic conditions. HeLa cells (1×10^6) were suspended in 100μl of phosphate-buffered saline (PBS), and then injected subcutaneously into the anterior back of BALB/c nude mice. On the 10th day after tumor cell implantation (when the tumor volume reached approximately $50mm^3$), the tumor-bearing mice were randomly grouped. The mice were intraperitoneally injected with Ro 08-2750 at a dose of 13.75mg/kg, and the injection was administered every 2 days for a total of 2 weeks. The tumor size was measured with a vernier caliper every 2 days.

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Dosage form	13.75mg/kg; every 2 days for 2 weeks; i.p.
Applications	Ro 08-2750 treatment significantly inhibited tumor formation in mice without affecting body weight.

References:
[1] Brücksken K A, Sicking M, Korsching E, et al. Musashi inhibitor Ro 08–2750 attenuates triple-negative breast cancer cell proliferation and migration and acts as a novel chemo-and radiosensitizer[J]. Biomedicine & pharmacotherapy, 2025, 186: 118002.
[2] Wang L, Li J, Wang R, et al. NGF signaling interacts with the Hippo/YAP pathway to regulate cervical cancer progression[J]. Frontiers in oncology, 2021, 11: 688794.

Background

Ro 08-2750 is a competitive inhibitor of Musashi (MSI)–RNA interactions, with an IC_{50}

value of 2.7±0.4μM [1]. Ro 08-2750-mediated inhibition of MSI can reduce aldosterone production, with an IC_{50} value of 1.50± 0.154μM[2]. Ro 08-2750 has been widely applied in disease models to regulate the expression and activity of nerve growth factors[3].

In vitro, Ro 08-2750 treatment for 96 hours significantly inhibited the viability of MDA-MB-468 cells, SUM149PT cells, UIVC-IDC-2 cells and UIVC-IDC-4 cells with IC_{50} values of 6.3μM, 12.8μM, 12.8μM, and 14μM, respectively[4]. Treatment with 10μM Ro 08-2750 for 7 days significantly inhibited the expression of osteogenic-related genes and protein markers in dental pulp stem cells[5]. The 2nM Ro 08-2750 treatment for 24 hours on MDA-MB-231 cells significantly inhibited the expression of $p75^{NTR}$ protein[6].

In vivo, Ro 08-2750 treatment via intraperitoneal injection (13.75mg/kg) once every two days for two consecutive weeks significantly inhibited the growth of xenograft tumors in the cervical cancer mouse model and significantly increased the levels of p-LATS1 and p-YAP proteins in the tumor tissues[7]. By intraperitoneal injection at a dose of 7.0mg/kg twice a week for 21 days, Ro 08-2750 significantly inhibited the tumor burden in a chronic lymphocytic leukemia (CLL) mouse model[8].

References:
[1] Minuesa G, Albanese S K, Xie W, et al. Small-molecule targeting of MUSASHI RNA-binding activity in acute myeloid leukemia[J]. Nature communications, 2019, 10(1): 2691.
[2] Walters K, Sajek M P, Murphy E, et al. Small-molecule Ro-08-2750 interacts with many RNA-binding proteins and elicits MUSASHI2-independent phenotypes[J]. Rna, 2023, 29(10): 1458-1470.
[3] Kao T H, Peng Y J, Salter D M, et al. Nerve growth factor increases MMP9 activity in annulus fibrosus cells by upregulating lipocalin 2 expression[J]. European Spine Journal, 2015, 24(9): 1959-1968.
[4] Brücksken K A, Sicking M, Korsching E, et al. Musashi inhibitor Ro 08–2750 attenuates triple-negative breast cancer cell proliferation and migration and acts as a novel chemo- and radiosensitizer[J]. Biomedicine & pharmacotherapy, 2025, 186: 118002.
[5] Cheng C, Tang S, Cui S, et al. Nerve growth factor promote osteogenic differentiation of dental pulp stem cells through MEK/ERK signalling pathways[J]. Journal of Cellular and

Molecular Medicine, 2024, 28(4): e18143.
[6] Chakravarthy R, Mnich K, Gorman A M. Nerve growth factor (NGF)-mediated regulation of p75NTR expression contributes to chemotherapeutic resistance in triple negative breast cancer cells[J]. Biochemical and biophysical research communications, 2016, 478(4): 1541-1547.
[7] Wang L, Li J, Wang R, et al. NGF signaling interacts with the Hippo/YAP pathway to regulate cervical cancer progression[J]. Frontiers in oncology, 2021, 11: 688794.
[8] Palacios F, Yan X J, Ferrer G, et al. Musashi 2 influences chronic lymphocytic leukemia cell survival and growth making it a potential therapeutic target[J]. Leukemia, 2021, 35(4): 1037-1052.