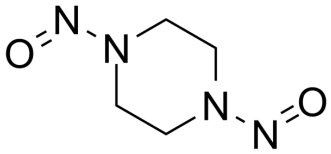
N,N'-Dinitrosopiperazine

Cat. No.:	HY-136433
CAS No.:	140-79-4
Molecular Formula:	$C_4H_8N_4O_2$
Molecular Weight:	144.13
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

N,N'-Dinitrosopiperazine (1,4-Dinitrosopiperazine; DNP) is a carcinogen with specificity for nasopharyngeal epithelium and facilitates NPC metastasis. N,N'-Dinitrosopiperazine regulates multiple signaling pathways through protein phosphorylation, including LYRIC at serine 568[1].

In Vitro

N,N'-Dinitrosopiperazine (0.5-100 μM; 48 hours) has no inhibitory effects on the labeled 6-10B cells, and LDH activity is not significantly altered by DNP treatment in the 0.5-8 μM concentration range. However, it is cytotoxic from the concentration 10 μM[1].

N,N'-Dinitrosopiperazine (2-8 μM; 24 hours) induces 6-10B cell invasion and motility in a dose-dependent manner. At 6 μM, when compares to the control group, DNP increases cell invasion at 421.7% and cell motility is increased by 328.2%[1].

N,N'-Dinitrosopiperazine (6 μM; 24 hours) increases the expression of phospho-LYRIC s568 and LYRIC expression in CNE1 cells[1].

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

Cell Viability Assay[1]

Cell Line:	The labeled 6-10B cells
Concentration:	0.5, 1, 2, 4, 6, 8, 10, 20, 40, 80, or 100 μM
Incubation Time:	48 hours
Result:	Had no inhibitory effects at the concentration 0-8 μM.

Western Blot Analysis[1]

Cell Line:	The NPC cell line CNE1
Concentration:	6 μM
Incubation Time:	24 hours
Result:	Increased phospho-LYRIC s568 and LYRIC expression.

In Vivo

N,N'-Dinitrosopiperazine (injected into the tail veins; 40 mg/kg; 30 days) inhibits cell motility and invasion, and facilitates NPC metastasis in vivo. From a IHC result, Phospho-LYRIC expression is higher in the metastatic tumors of DNP-treated mice than in those of the untreated control mice[1].

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Animal Model:	BABL/c nude mice injected with labeled 6-10B cell suspensions (1×10^4 cells) with or without DNP(40 mg/kg)[1]
Dosage:	40 mg/kg
Administration:	Injected into the tail veins; 30 days
Result:	Induced LYRIC phosphorylation at serine 568 associated with NPC metastasis in vivo.

REFERENCES

[1]. Damao Huang, et al. Identification of Novel Signaling Components in N,N'-dinitrosopiperazine-mediated Metastasis of Nasopharyngeal Carcinoma by Quantitative Phosphoproteomics. BMC Cancer. 2014 Apr 5;14:243.

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

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