Product Datasheet

Nocodazole

Catalog No. **BP-02357** · CAS **31430-18-9** · Form **free base** · Physical state **other** · Color **Light yellow to brown** · Version **1.0** · Revision **2026-09-10**

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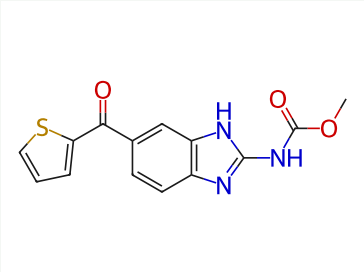
Target	Research area
Bcr-Abl; Autophagy; Microtubule/Tubulin; Apoptosis; Mitosis	**Cancer**

Molecular formula	$C_{14}H_{11}N_3O_3S$
Molecular weight	**301.3200**

STRUCTURE



DESCRIPTION

Nocodazole is a microtubule inhibitor; inhibits mitosis. Also inhibits autophagosome-lysosome fusion.

BIOLOGICAL ACTIVITY

Nocodazole is an anti-microtubule agent for ABL, ABL (E255K) and ABL (T315I) with IC50 of 0.21 μM, 0.53 μM and 0.64 μM, respectively. Nocodazole is a high-affinity ligand for the cancer-related kinases including ABL phosphorylated, c-KIT, BRAF, and MEK with Kd of 0.091 μM, 1.6 μM, 1.8 μM and 1.6 μM, respectively. In addition, the Kd of Nocodazole for ABL (E255K) phosphorylated, ABL (T315I) phosphorylated, BRAF (V600E) and PI3Kγ is 0.12 μM, 0.17 μM, 1.1 μM and 1.5 μM, respectively. Nocodazole induces apoptosis in chronic lymphocytic leukemia cells. Nocodazole inhibits insulin-stimulated glucose transport. Nocodazole decreases apoptosis in some human colon carcinoma cells. Nocodazole impairs the morphology and directionality of migrating medial gan-glionic eminence cells. At high concentrations, nocodazole rapidly depolymerizes microtubules in cells, while low concentrations of nocodazole inhibit microtubule dynamic instability. Mitotic cells incubated with different concentrations of paclitaxel are inhibited from progressing to G1 phase 6 hours after release from the nocodazole block, with a median inhibitory concentration of 4 nM. Nocodazole-pretreated cells exposed to paclitaxel in the absence of nocodazole only form free-floating microtubules, whereas pretreated cells exposed to paclitaxel in the presence of nocodazole-assembled centrosome organize microtubules. Nocodazole disrupts microtubules by binding to β-tubulin. Nocodazole prevents the formation of one of the two interchain disulfide linkages. Nocodazole impairs the transport of vesicles. Nocodazole suppress METH-induced cell death and lysosomal dysfunction. METH-induced cell death is significantly decreased by Nocodazole pretreatment in comparison to METH alone. The tumor volume and tumor weight of the mice treated with Ketoconazole plus Nocodazole are significantly reduced as compared with those treated with Ketoconazole or Nocodazole alone. Combined treatment with Ketoconazole plus Nocodazole strongly enhances apoptosis of COLO 205 tumor xenografts treated with Ketoconazole or Nocodazole alone. The tumor volume and tumor weight of the mice treated with Ketoconazole plus Nocodazole are significantly reduced as compared with those treated with Ketoconazole or Nocodazole alone. Combined treatment with Ketoconazole plus

Nocodazole strongly enhances apoptosis of COLO 205 tumor xenografts treated with Ketoconazole or Nocodazole alone.

SOLUBILITY

Soluble in DMSO

In vitro	DMSO : 16.67 mg/mL

REFERENCES

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[2]. Keliang Xu, et al. Interaction of nocodazole with tubulin isotypes. Drug Development Research 2002

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