

## Product Information

### Nocodazole

Catalog Number **M1404**  
Storage Temperature 2–8 °C

CAS RN 31430-18-9

Synonyms: Methyl-(5-[2-thienylcarbonyl]-1*H*-benzimidazol-2-yl)carbamate, R17934, NSC 238159<sup>1</sup>

#### Product Description

Molecular Formula: C<sub>14</sub>H<sub>11</sub>N<sub>3</sub>O<sub>3</sub>S  
Molecular weight: 301.32

Nocodazole is an anticancer drug that has been shown to interfere with the structure and function of microtubules in interphase and mitotic cells. Malignant cells may be more susceptible to the antimicrotubular effect of nocodazole than nonmalignant cells. Mammalian cells cultured *in vivo* were treated with 0.04–10 µg/mL doses. Higher concentrations could not be used because of insolubility. High specificity of action may explain low toxicity to bone marrow cells and lack of neurotoxicity.<sup>2</sup>

Nocodazole is thought to bind directly to tubulin causing conformational changes resulting in increased exposure of some sulfhydryl and possibly tyrosine residues.<sup>3</sup>

Nocodazole's apparent synergism with cytosine arabinofuranoside has been demonstrated on L1210 leukemic cells.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

Sigma tests the solubility of nocodazole at 10 mg/mL in DMSO. Warming may be required. For cell culture work, stock solutions are made at 5 mg/mL in DMSO and diluted further in culture media. Doses of 10 µg/mL could not be used because of insolubility.<sup>2</sup> Soluble in formic acid, benzaldehyde, DMSO, and a mixture of chloroform:methanol (2:1). Only slightly soluble in water. A pharmaceutical solution was prepared in PEG 400. Suspensions have been prepared in saline and other aqueous systems.<sup>1</sup> Soluble at 10E-4 M in 1% DMSO in water. However, it will slowly precipitate in the course of 1–2 hours. 12% DMSO will maintain solubility for greater than 2 hours.<sup>3</sup>

This compound is stable in biological media for at least 7 days.<sup>4</sup> Frozen aliquots in DMSO or DMF are quite stable at –20 °C for several months.<sup>3</sup>

#### Storage/Stability

Stored properly at 2–8 °C, as a powder, nocodazole should have a minimum shelf life of two to three years.

#### References

1. Atassi, G., and Tagnon H., Eur. J. Cancer., **11**, 599 (1975).
2. De Bradbender, M. et al., Cancer Research, **36**, 905 (1976).
3. Lee, J. et al., Biochemistry, **19**, 6209 (1980).
4. Supplier Information.
5. Atassi, G. et al., Eur. J. Cancer, **11**, 599 (1975).

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