3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone (800) 325-5832 (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Nystatin
Product Number **N 3503**
Storage Temperature -0 °C

Product Description

CAS Number: 1400-61-9
Melting Point: Gradually decomposes above 160 °C without melting by 250 °C[1]
λ_{max}: 290, 307, and 322 nm (ethanol)[1]
Specific Rotation (at 25 °C)[1]: -10° (glacial acetic acid)
+25° (pyridine)
+12° (DMF)
-7° (0.1 N HCl in methanol)
Molecular Formula of Nystatin A_1[1]: $C_{47}H_{75}NO_{17}$
Molecular Weight of Nystatin A_1[1]: 926.1

Nystatin is a fungistatic and fungicidal polyene antibiotic, which increases the permeability of the cell membrane of sensitive fungi by binding to sterols, chiefly ergosterol.[2] Its main action is against *Candida species*. It is also effective against *Aspergillus*, *Coccidioides immitis*, *Cryptococcus neoformans*, *Histoplasma capsulatum*, *Blastomyces dermatidis*, and other yeasts and fungi.[3] Nystatin has been used to enrich mutants by killing yeast cells.[6] Nystatin has no antibacterial activity.[5] The minimum inhibitory concentration for most sensitive fungi has been reported to range from 1.56 to 6.25 µg/ml.

Nystatin is poorly absorbed from the gastrointestinal tract. It is not absorbed through the skin or mucous membranes when applied topically.

Nystatin is a complex mixture produced by *Streptomyces aureus* and other *Streptomyces* sp., and contains three biologically active components named as A_1, A_2 and A_3.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

Nystatin is soluble at 28 °C in the following: methanol (11.2 mg/ml), ethanol (1.2 mg/ml), carbon tetrachloride (1.23 mg/ml), chloroform (0.48 mg/ml), benzene (0.28 mg/ml), and ethylene glycol (8.75mg/ml).[1]

Nystatin is soluble in DMSO (5 mg/ml), yielding a clear, bright yellow solution. This product is freely soluble in DMF and formamide.[4] A 3% suspension in water has pH 6.5-8.0.[3]

Storage/Stability

Solutions and aqueous suspensions begin to lose activity soon after preparation. Heat, light, and oxygen accelerate decomposition. Aqueous suspensions are stable for 10 minutes when heating to 100 °C at pH 7. Nystatin (in tissue culture media) is stable at 37 °C for three days. It is also stable in moderately alkaline media, but labile at pH 9 and 2. Activity is not diminished by blood or serum.[1,2]

Nystatin, cell culture tested (Product No. N 1638) is a sterile nystatin suspension in Dulbecco's Phosphate Buffered Saline. This product is stored frozen and shipped on dry ice. It has a shelf life of 24 months when stored frozen.

References

1. The Merck Index, 13th ed., Entry# 6770.
2. Brezis, M., et al., Polyene toxicity in renal medulla: injury mediated by transport activity. Science, **224**, 66-68 (1984).
3. Martindale The Extra Pharmacopoeia, 29th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1989), pp. 432-433.
4. Clarke's Isolation & Identification of Drugs, 2nd ed., Moffat, A.C., et al., eds., The Pharmaceutical Press (London, England: 1986), p. 829.
5. Upson's Handbook of Clinical Veterinary Pharmacology, 2nd ed., Udson, D. W., Veterinary Medicine Publishing Co. (Lenexa, KS: 1985), p. 640.
6. Fink, G. R., The Biochemical Genetics of Yeast. Meth. Enzymol., **17-A**, 59-78 (1970).

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