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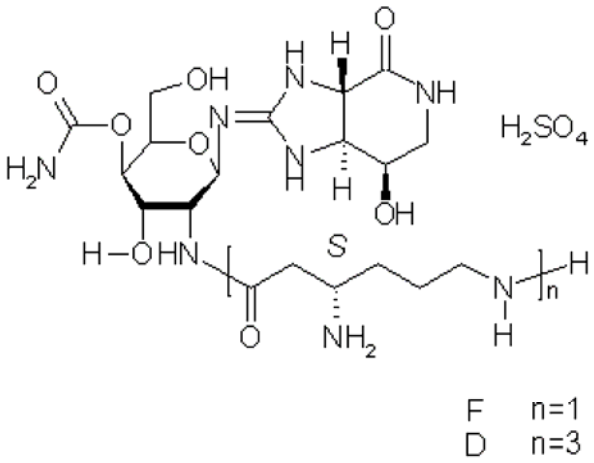
Sigma-Aldrich Chemie GmbH · Industriestrasse 25 · Postfach · CH-9471 Buchs / Switzerland
Tel. +41 / 81 755 25 11 · Fax +41 / 81 756 54 49 · flukatec@sial.com

74667 Nourseothricin sulfate BioChemika

Chemical name: [3aS-[2(R*), 3aα, 7aβ]]-2-[[4-O-(Aminocarbonyl)-2-deoxy-2-[(3,6-diamino-1-oxo-hexyl)-amino]-β-D-gulopyranosyl]amino]-3,3a,5,6,7,7a-hexahydro-7-hydroxy-4H-imidazo[4,5-c]pyridine-4-one dihydrogensulfate

Form: Dihydrogensulfate of the weakly basic antibiotic Nourseothricin consisting of of the components Streptothricin F and D

Structure:



F n=1
D n=3

Characteristics and use: In 1993, Nourseothricin has been introduced as a selection agent for molecular genetic research work. [1].
Nourseothricin is produced in cultures of a strain of Streptomyces noursei. [2]
Characteristic for Nourseothricin are the high stability of its crystalline salts(10 years at 4°C, 2 years at 20°C), its very good solubility in water, its relatively low oral toxicity (mice and other animals, no resorption in the gastrointestinal tract) and its wide range of antibiotic effects against gram-negative and gram-positive bacteria as well as aginst mycobacteria, mycoplasms, protozoa, certain DNA and RNA viruses and plants. The inhibition of the growth processes of yeasts and fungi is weaker. Nevertheless Nourseothricin sulphate is exceptionally suitable for the selection of recombinant yeast strains. [3].
The mechanism of action or Nourseothricin is comparable to that of other aminoglycoside antibiotics: Specific partial steps of protein synthesis are inhibited and miscoding is induced by the antibiotic. The development of resistance is based on monoacetylation of β-amino groups of the β-lysyl moiety of the Streptothricin molecules.
Nourseothricin sulphate is not used for therapeutic purposes. There is no cross resistance with drugs used in human and veterinary medicine. It is therefore very suitable as selection antibiotic in systems using resistance genes nat, sat, stat since resistance dominants, being able to to cause nosocomial infections with medical relevant organisms, are not selected.
The plasmids pHN15 or pYL16, respectively, and Nourseothricin sulphate may be used as a selection system for microbial applications and for modern plant cultivation. The plasmids pHN15 and pYL16 contain the resitance genes nat 1 from Streptomyces nursei. The corresponding resistance genes sat1, sat2, sat3 oroginate from Escherichia coli, stat from Streptomyces lavendulae, encoding a Nourseothricin N-acetyltransferase.
The resistance genes are available as markers for heterologous expressions.
Noureothricin may be used in fermentations of recombinant clones to maintain the permanent propagation of vectors carrying one of the resistance genes. [1, 2]

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Solubility and storage of solutions: By dissolving 1000 mg Nourseothricine in 5 ml distilled water (material is not sterile filtered!) a stock solution of 200 mg/ml is yielded. The stock solution may be stored at +4°C for up to 4 weeks without detectable loss in activity. For longer storage of the solution up to 6 months, freezing at -20°C or lower is required.

Application notes [2]: Working solutions for use in molecular genetic applications are prepared by dilution of the stock solution with distilled water. Prior to use or even earlier, a sterile filtration is required.
Recommended suitable Nourseothricin sulphate concentrations in nutrient media:

Escherichia coli	50 µg/ml
Saccharomyces cerevisiae	100 µg/ml
Ustilago maydis	75 µg/ml
Leishmania sp	>100 µg/ml
Cryptococcus neoformans	100 µg/ml
Arabidopsis thaliana	100 µg/ml

Safety
For R&D use only. Not for drug, household or other uses.
For safe handling kindly refer to our MSDS.
An addition of sodium hydroxide solution (pH > 12) inactivates Noureothricin sulphate within 3 hours by chemical degradation. [2]

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Supplier information

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