

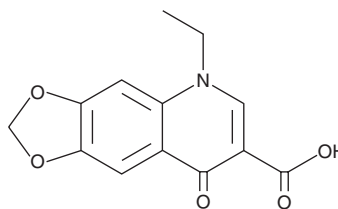
PRODUCT INFORMATION



Oxolinic Acid

Item No. 16789

CAS Registry No.: 14698-29-4
Formal Name: 5-ethyl-5,8-dihydro-8-oxo-1,3-dioxolo[4,5-g]quinoline-7-carboxylic acid
Synonyms: NSC 110364, Urinox
MF: C₁₃H₁₁NO₅
FW: 261.2
Purity: ≥98%
UV/Vis.: λ_{max}: 220, 260, 325, 335 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Oxolinic acid is supplied as a crystalline solid. Oxolinic acid is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of oxolinic acid be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of oxolinic acid in 0.5 M NaOH is approximately 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Bacterial DNA gyrase is a heterodimeric type II topoisomerase that negatively supercoils circular double-stranded DNA.^{1,2} Oxolinic acid is a quinolone antibiotic that inhibits bacterial DNA gyrase, but not eukaryotic topoisomerases, reversibly binding gyrase subunit A in gyrase-DNA complexes, blocking supercoiling activity and inhibiting DNA synthesis at 0.5-5 µg/ml.^{1,3,4} Oxolinic acid also blocks neuronal uptake of dopamine in mammals (IC₅₀ = 4.3 µM), leading to an increase in locomotor activity.⁵

References

1. Drlica, K. and Zhao, X. DNA gyrase, topoisomerase IV, and the 4-quinolones. *Microbiol. Mol. Biol. Rev.* **61(3)**, 377-392 (1997).
2. Collin, F., Karkare, S., and Maxwell, A. Exploiting bacterial DNA gyrase as a drug target: Current state and perspectives. *Appl. Biochem. Biotechnol.* **92(3)**, 479-497 (2011).
3. Hays, J.B. and Boehmer, S. Antagonists of DNA gyrase inhibit repair and recombination of UV-irradiated phage λ. *Proc. Natl. Acad. Sci. USA* **75(9)**, 4125-4129 (1978).
4. Engle, E.C., Manes, S.H., and Drlica, K. Differential effects of antibiotics inhibiting gyrase. *J. Bacteriol.* **149(1)**, 92-98 (1982).
5. Garçã de Mateos-Verchere, J., Vaugeois, J.M., Naudin, B., *et al.* Behavioural and neurochemical evidence that the antimicrobial agent oxolinic acid is a dopamine uptake inhibitor. *Eur. Neuropsychopharmacol.* **8(4)**, 255-259 (1998).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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