

Ciprofloxacin Hydrochloride

Catalog No: ASA-2048 | CAS: 86393-32-0 | Purity ≥ 99% | Research Use Only

Broad-spectrum fluoroquinolone antibiotic — for in vitro and in vivo research applications

1. Product Overview

Ciprofloxacin Hydrochloride (ASA-2048) is a synthetic broad-spectrum antibiotic of the second-generation fluoroquinolone class. It acts by inhibiting bacterial DNA gyrase (topoisomerase II) and topoisomerase IV, enzymes essential for DNA replication, transcription, repair, and recombination, leading to rapid bactericidal activity. Ciprofloxacin is effective against a wide range of gram-negative and many gram-positive bacteria, making it a widely used research tool in bacteriology, pharmacology, and antimicrobial resistance studies. This product is supplied at ≥ 99% purity (HPLC) and is intended exclusively for in vitro and in vivo research use. It is not for human or veterinary therapeutic use.

2. Chemical & Physical Properties

Property	Value
Chemical Name	1-Cyclopropyl-6-fluoro-1,4-dihydro-4-oxo-7-(1-piperazinyl)-3-quinolinecarboxylic acid hydrochloride
Catalog Number	ASA-2048
CAS Number	86393-32-0
Molecular Formula	C ₁₆ H ₁₅ FN ₃ O ₃ ·HCl
Molecular Weight	367.81 g/mol
Class	Fluoroquinolone (2nd generation)
Grade	Research Use Only
Form	White to slightly yellow crystalline powder
Solubility	Soluble in water and dilute acid; slightly soluble in ethanol
Purity	≥ 99% (HPLC)
Mechanism of Action	Inhibition of bacterial DNA gyrase (topoisomerase II) and topoisomerase IV
Spectrum	Broad-spectrum — gram-negative and gram-positive bacteria
Storage	Refrigerator (2–8°C) — away from moisture and heat

3. Key Features

- Broad-spectrum activity — effective against a wide range of gram-negative and gram-positive bacteria
- High purity ≥ 99% (HPLC) — ensures reliable and reproducible research results
- Well-characterised mechanism — dual inhibition of DNA gyrase and topoisomerase IV
- Versatile research tool — suitable for in vitro MIC testing, in vivo infection models, and resistance studies

- Consistent batch-to-batch quality — thoroughly tested and released with COA

4. Research Applications

Application Area	Details
Antimicrobial Resistance	Studies on bacterial resistance mechanisms including plasmid-mediated resistance, QRDR mutations, and efflux pump upregulation
Pharmacokinetics / PD	Pharmacokinetic and pharmacodynamic modelling, AUC/MIC target attainment studies
Antibacterial Efficacy	Minimum inhibitory concentration (MIC) determination, time-kill kinetics, and biofilm inhibition assays
Microbiological Assays	Disk diffusion, broth microdilution, and agar dilution susceptibility testing
Molecular Biology	Studies on DNA gyrase inhibition, DNA damage response, and SOS pathway induction

5. Preparation of Stock Solutions

1	Dissolve in sterile water or 0.1 N HCl to prepare a concentrated stock solution (e.g. 10 mg/mL).
2	Filter-sterilise through a 0.22 µm membrane filter before use in cell culture or microbiological assays.
3	Dilute to working concentration in appropriate buffer or culture medium immediately before use.
4	Store prepared stock solutions at -20°C in aliquots. Avoid repeated freeze-thaw cycles.

6. Storage & Stability

Condition	Recommendation
Solid powder	Refrigerator (2–8°C) — away from moisture and heat
Light sensitivity	Protect from direct light
Stock solutions	-20°C in aliquots — avoid repeated freeze-thaw cycles
Shelf life	Refer to product label

DISCLAIMER

The information provided in this document is based on data considered accurate at the time of issue. AuSaMicS Pty Ltd has taken reasonable care in its preparation but does not warrant completeness or accuracy for all applications. This product is intended exclusively for laboratory research use by qualified professionals — not for human or veterinary therapeutic use, food, feed, or pharmaceutical manufacturing. Users are responsible for validating the product for their specific application and for compliance with all applicable local, state, and federal regulations. AuSaMicS Pty Ltd's liability is limited to the purchase price of the product. This document is subject to change without notice — refer to ausamics.com.au for the current version.



Technical Data Sheet

TDS-ASA-2048

www.ausamics.com.au

www.ausamics.com.au | support@ausamics.com | +61 412 520 598