

Certificate of Analysis

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Product Name: Doxycycline hyclate

Catalog No.: 4090

Batch No.: 5

CAS Number: 24390-14-5

IUPAC Name: (4S,4aR,5S,5aR,6R,12aS)-4-(Dimethylamino)- 3,5,10,12,12a-pentahydroxy- 6-methyl- 1,11-dioxo- 1,4,4a,5,5a,6,11,12a-octahydrotetracene- 2-carboxamide hydrochloride hemiethanolate hemihydrate

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₂₂H₂₄N₂O₈.HCl.0.5C₂H₆O.0.5H₂O

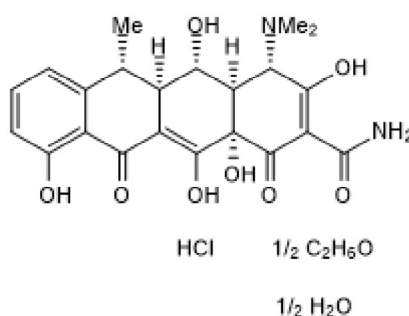
Batch Molecular Weight: 512.94

Physical Appearance: Yellow solid

Solubility: water to 100 mM
DMSO to 100 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 100.0% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: [α]_D = -95.7 (Concentration = 1, Solvent =)

Microanalysis:

Carbon Hydrogen Nitrogen

Theoretical	53.86	5.7	5.46
Found	53.69	5.49	5.47

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Doxycycline hyclate is a broad-spectrum antibiotic and MMP inhibitor; tetracycline derivative. Doxycycline hyclate increases and promotes smooth muscle cell adhesion; inhibits proliferation and migration. Protects the microvasculature by inhibiting plasminogen systems. Doxycycline hyclate is also used as the regulator for inducible gene expression systems which depends on either the presence (TeT-On) or absence (TeT-Off) of Doxycycline. Used in protocols for reprogramming MEFs into skeletal muscle progenitors (see our protocol below). For more information about how Doxycycline hyclate may be used, see our protocols: Reprogramming MEFs i... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

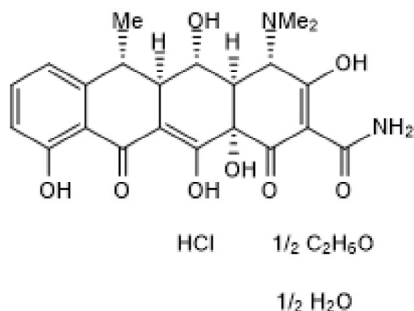
Batch Molecular Formula: $C_{22}H_{24}N_2O_8 \cdot HCl \cdot 0.5C_2H_6O \cdot 0.5H_2O$

Batch Molecular Weight: 512.94

Physical Appearance: Yellow solid

Minimum Purity: ≥92%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

water to 100 mM

DMSO to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Das et al (2016) Tet-On systems for doxycycline-inducible gene expression. *Curr. Gene Ther.* **16** 156. PMID: 27216914.

Wernig et al (2008) A drug-inducible transgenic system for direct reprogramming of multiple somatic cell types. *Nat. Biotechnol.* **26** 916. PMID: 18594521.

Burggraf et al (2007) Doxycycline inhibits MMPs via modulation of plasminogen activators in focal cerebral ischemia. *Neurobiol. Dis.* **25** 506. PMID: 17166729.

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