

Small Molecules

Doxycycline

Antibiotic; Used in Tet-inducible gene expression systems

Catalog # 72742

1 g



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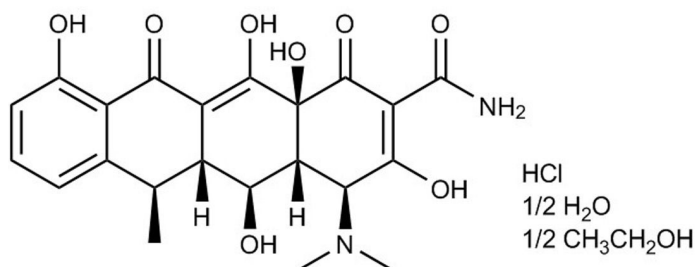
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Product Description

Doxycycline (hyclate) is a tetracycline-like antibiotic (Hicks et al.; Nau et al.; Solís García del Pozo & Solera; Steinhardt et al.). In genetic engineering, doxycycline is used as the regulator for inducible gene expression systems, whereby expression depends on either the presence (Tet-On) or absence (Tet-Off) of doxycycline (Gould et al.; Li et al.). Also, doxycycline inhibits certain matrix metalloproteinases (MMP), such as MMP-8 ($K_i = 36 \mu\text{M}$; Griffin et al.; Smith et al.). It only poorly inhibits MMP-1 and MMP-13 ($K_i > 100 \mu\text{M}$; Smith et al.).

Molecular Name:	Doxycycline (Hyclate)
Alternative Names:	WC 2031
CAS Number:	24390-14-5
Chemical Formula:	$\text{C}_{22}\text{H}_{24}\text{N}_2\text{O}_8 \cdot \text{HCl} \cdot 0.5\text{H}_2\text{O} \cdot 0.5\text{C}_2\text{H}_6\text{O}$
Molecular Weight:	512.9 g/mol
Purity:	$\geq 98\%$
Chemical Name:	(4S,4aR,5S,5aR,6R,12aR)4(dimethylamino)-1,5,10,11,12a-pentahydroxy-6-methyl-3,12-dioxo-4a,5,5a,6-tetrahydro-4H-tetracene-2-carboxamide;ethanol;hydrate;hydrochloride

Structure:



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· PBS (pH 7.2) $\leq 5.8 \text{ mM}$ · DMSO $\leq 1.9 \text{ mM}$ For example, to prepare a 2 mM stock solution in PBS, resuspend 100 mg in 97.5 mL of PBS (pH 7.2).

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CELL LINE DEVELOPMENT

· Used as the regulator for inducible gene expression in lentiviral infection and transgenic mouse models using the Tet-On or Tet-Off systems (Brambrink et al.; Carey et al.; Haenebalcke et al.; Hanna et al.; Hockemeyer et al.; Maherali et al.; Markoulaki et al.; Stadtfeld et al. 2008, 2010; Wernig et al.).

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