Doxycycline 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 (Ki = 36 µM; Griffin et al.; Smith et al.). It only poorly inhibits MMP-1 and MMP-13 (Ki > 100 µM; Smith et al.). This product is supplied as the hyclate salt of the molecule.

**Structure:**

![Structure of Doxycycline](image)

**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) ≤ 2.9 mM
- DMSO ≤ 1.0 mM

For example, to prepare a 2 mM stock solution in PBS, resuspend 1 g in 490 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.).

References

Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).