Epothilone D

**Product Data Sheet**

**Cat. No.:** HY-15278  
**CAS No.:** 189453-10-9  
**Molecular Formula:** C₂₇H₄₁NO₅S  
**Molecular Weight:** 491.68  
**Target:** Microtubule/Tubulin  
**Pathway:** Cell Cycle/DNA Damage; Cytoskeleton  
**Storage:** Powder -20°C 3 years; In solvent -80°C 6 months; -20°C 1 month

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### SOLVENT & SOLUBILITY

**In Vitro**

DMSO: ≥ 100 mg/mL (203.38 mM)

*"≥" means soluble, but saturation unknown.*

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 mM</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>2.0338 mL</td>
<td>10.1692 mL</td>
<td>20.3384 mL</td>
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<tr>
<td></td>
<td></td>
<td>5 mM</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>0.4068 mL</td>
<td>2.0338 mL</td>
<td>4.0677 mL</td>
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<tr>
<td></td>
<td></td>
<td>10 mM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2034 mL</td>
<td>1.0169 mL</td>
<td>2.0338 mL</td>
</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
   Solubility: ≥ 2.5 mg/mL (5.08 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (5.08 mM); Clear solution

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### BIOLOGICAL ACTIVITY

**Description**

Epothilone D (KOS 862) is a potent microtubule stabilizer.

**IC₅₀ & Target**

Microtubule/Tubulin[¹]

**In Vitro**

Epothilone D (KOS-862) is a more potent microtubule stabilizer in vitro than epothilone A or B. In vitro, Epothilone D has shown potent cytotoxicity in a panel of human tumor cell lines, with similar potency to paclitaxel. Epothilone D also shows a definite advantage over paclitaxel in drug-resistant cell lines, and retained its cytotoxicity against a multidrug resistant cell line over-expressing P-glycoprotein[¹]. Epothilone D (EpoD) is a microtubules (MTs)-stabilizing agent[²].

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[¹] MedChemExpress.com

[²] MedChemExpress.com
In Vivo

To evaluate whether Epothilone D (EpoD) improves MT and axonal function in PS19 mice, groups of 3-month old male PS19 mice received weekly i.p. injections of vehicle or Epothilone D (EpoD) (1 mg/kg or 3 mg/kg) for a total of 3 months. In addition, 3-month old non-Tg littermates received 3 mg/kg Epothilone D (EpoD) or vehicle. The 3 mg/kg Epothilone D (EpoD) dose corresponds to ~10-fold less than that used in a Phase II clinical study, which should minimize side-effects such as neutropenia that are observed with MT-stabilizing drugs in human subjects. PS19 and WT mice that receive Epothilone D (EpoD) show no signs of drug intolerance. Indeed, all drug-treated mice exhibited weight gain that is indistinguishable from vehicle-treated animals. Likewise, relative organ weights are similar in vehicle- and Epothilone D (EpoD)-treated mice. The motor performance of Epothilone D (EpoD)-treated mice, assessed using a standard rotarod test, is not significantly different from vehicle-treated cohorts. Finally, although there is minor group-to-group variability, there are no significant differences in white blood cell counts or neutrophil content between any of the treatment cohorts. Thus, the low doses of Epothilone D (EpoD) utilized in these studies appeared to be well tolerated[2].

PROTOCOL

Animal Administration[2]

Mice[2]

Groups of mice (n=3) receive intraperitoneal (i.p.) injections of 3.7 mg/kg of Epothilone D (epoD) dissolved in 100% DMSO, followed by euthanization using approved at times ranging from 0.25 h to 24 h. In another study, groups of mice (n=3) receive injections of 3 mg/kg of epoD in 100% DMSO followed by euthanization 4, 6 and 10 days later. The Epothilone D (epoD) levels in brain and blood samples are determined using LC-MS/MS protocols. Groups (n=10-13) of 3-month old PS19 tau Tg mice or 3-month old non-Tg littermates are administered weekly i.p. injections of 1 mg/kg epoD, 3 mg/kg of Epothilone D (epoD) or vehicle (DMSO), for a total of 3 months. Animals are monitored for signs of abnormal behavior or distress, and are weighed weekly. After final dosing, the mice undergo motor function and cognitive testing. After euthanization, brains and optic nerve (ON) are recovered for immunohistochemical analyses. A subset of mice from each group also undergo necropsy evaluation with organ weights recorded.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

Chemical Biology. Harvard University. 2019 May.

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REFERENCES
