**Tadalafil**

**Cat. No.:** HY-90009A  
**CAS No.:** 171596-29-5  
**Molecular Formula:** C₂₂H₁₉N₃O₄  
**Molecular Weight:** 389.4  
**Target:** Phosphodiesterase (PDE); Apoptosis  
**Pathway:** Metabolic Enzyme/Protease; Apoptosis  
**Storage:**  
- Powder  
  - -20°C: 3 years  
  - 4°C: 2 years  
- In solvent  
  - -80°C: 1 year  
  - -20°C: 6 months

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**SOLVENT & SOLUBILITY**

**In Vitro**

DMSO: ≥ 52 mg/mL (133.54 mM)  
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass</th>
</tr>
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<tbody>
<tr>
<td>Preparing Stock Solutions</td>
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<tr>
<td><strong>Concentration</strong></td>
<td><strong>1 mg</strong></td>
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<tr>
<td>1 mM</td>
<td>2.5681 mL</td>
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<tr>
<td>5 mM</td>
<td>0.5136 mL</td>
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<tr>
<td>10 mM</td>
<td>0.2568 mL</td>
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</tbody>
</table>

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (6.42 mM); Clear solution

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**BIOLOGICAL ACTIVITY**

**Description**

Tadalafil (IC-351) is a PDE5 inhibitor with an IC₅₀ value of 1.8 nM.

**IC₅₀ & Target**

PDE5

**In Vitro**

Biochemical potencies (affinities) of these compounds for PDE5 determined by IC(50), K(D) (isotherm), K(D) (dissociation rate), and K(D) ((1/2) EC(50)), respectively, were the following: sildenafil (3.7 +/- 1.4, 4.8 +/- 0.80, 3.7 +/- 0.29, and 11.7 +/- 0.70 nM), tadalafil (1.8 +/- 0.40, 2.4 +/- 0.60, 1.9 +/- 0.37, and 2.7 +/- 0.25 nM); and vardenafil (0.091 +/- 0.031, 0.38 +/- 0.07, 0.27 +/- 0.01, and 0.42 +/- 0.10 nM). Thus, absolute potency values were similar for each inhibitor, and relative potencies were vardenafil >> tadalafil > sildenafil.

0.5 ml tadalafil solutions with different concentrations were added (0.2, 0.1, 0.05 and 0.025 μg ml⁻¹, respectively) into semen samples. In both groups, samples treated with 0.2 μg ml⁻¹ tadalafil had significant increase in sperm motility after 2 h
incubation[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

<table>
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<th>In Vivo</th>
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<td>The Tadalafil-treated group showed enhanced erectile function (intracavernosal pressure/mean arterial pressure) at 0.3, 0.5, 1, 3, and 5 Hz compared with diabetic group values at the respective frequencies that approached control values[3]. Oral administration of tadalafil (20 mg) or sildenafil (100 mg) was given. In both groups, computer-assisted semen analysis parameters showed no significant difference. After the administration of tadalafil (2 h) and sildenafil (1 h), there was no significant difference observed in premature acrosome reaction incidence rate[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</td>
</tr>
</tbody>
</table>

CUSTOMER VALIDATION

- Cancer Metab. 2022 Dec;10(1):22.
- Int J Mol Sci. 2022 Apr 27;23(9):4806.
- Biochem Biophys Res Commun. 2021 Feb 12;547:9-14.

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REFERENCES

