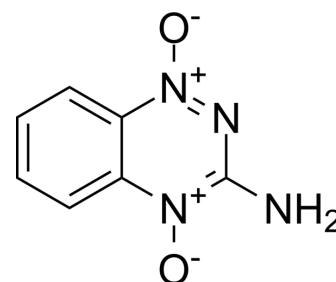


## Tirapazamine

|                           |   |       |          |
|---------------------------|---|-------|----------|
| <b>Cat. No.:</b>          | HY-13767  |       |          |
| <b>CAS No.:</b>           | 27314-97-2  |       |          |
| <b>Molecular Formula:</b> | C <sub>7</sub> H <sub>6</sub> N <sub>4</sub> O <sub>2</sub> |       |          |
| <b>Molecular Weight:</b>  | 178.15  |       |          |
| <b>Target:</b>            | DNA/RNA Synthesis   |       |          |
| <b>Pathway:</b>           | Cell Cycle/DNA Damage                                       |       |          |
| <b>Storage:</b>           | Powder  | -20°C | 3 years  |
|                           |   | 4°C   | 2 years  |
|                           | In solvent  | -80°C | 6 months |
|                           |   | -20°C | 1 month  |



### SOLVENT & SOLUBILITY

|   |  |                          |              |            |            |
|---|--|--------------------------|--------------|------------|------------|
| <b>In Vitro</b>   | DMSO : 62.5 mg/mL (350.83 mM; Need ultrasonic)   |                          |              |            |            |
|   |  | Solvent<br>Concentration | Mass<br>1 mg | 5 mg       | 10 mg      |
|   | <b>Preparing Stock Solutions</b>   | 1 mM                     | 5.6132 mL    | 28.0662 mL | 56.1325 mL |
|   |  | 5 mM                     | 1.1226 mL    | 5.6132 mL  | 11.2265 mL |
| 10 mM   |  | 0.5613 mL                | 2.8066 mL    | 5.6132 mL  |            |
| Please refer to the solubility information to select the appropriate solvent. |  |                          |              |            |            |
| <b>In Vivo</b>  | <ol style="list-style-type: none"> <li>Add each solvent one by one: 50% PEG300 &gt;&gt; 50% saline<br/>Solubility: 10 mg/mL (56.13 mM); Suspended solution; Need ultrasonic</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil<br/>Solubility: 2.5 mg/mL (14.03 mM); Suspended solution; Need ultrasonic</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline<br/>Solubility: ≥ 2.08 mg/mL (11.68 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline)<br/>Solubility: ≥ 2.08 mg/mL (11.68 mM); Clear solution</li> </ol> |                          |              |            |            |

### BIOLOGICAL ACTIVITY

|                    |  |
|--------------------|--|
| <b>Description</b> | Tirapazamine (SR259075) is an anticancer agent that shows selective cytotoxicity for hypoxic cells in solid tumors, thereby inducing single-and double-strand breaks in DNA, base damage, and cell death. Tirapazamine is an anticancer and bioreductive agent. Tirapazamine (SR259075) can enhance the cytotoxic effects of ionizing radiation in hypoxic cells <sup>[1][2]</sup> . |
| <b>In Vitro</b>    | Tirapazamine (SR259075) is the optimal drug for combination therapy using Pba <sup>[1]</sup> .   |

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

#### Cell Viability Assay<sup>[1]</sup>

|                  |   |
|------------------|---|
| Cell Line:       | SCC7 cells  |
| Concentration:   | 1mg   |
| Incubation Time: | 24 h  |
| Result:          | Showed synergism with Pba at ED50, ED90 and ED95. |

#### In Vivo

Tirapazamine (SR259075) (1mg; intravenously injected; twice at a 24-h interval) shows a synergetic effect to kill tumor cells because TPZ was activated under the hypoxic conditions that originated from the PDT with Pba and laser irradiation<sup>[1]</sup>.

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

|                 |  |
|-----------------|--|
| Animal Model:   | C3H/HeN mice <sup>[1]</sup> .  |
| Dosage:         | 1mg  |
| Administration: | Tirapazamine (1mg; intravenously injected; twice at a 24-h interval) |
| Result:         | Suppressed the tumors of mice by using laser irradiation.            |

## CUSTOMER VALIDATION

- Biomaterials. 2022 Sep 27;290:121821.
- J Control Release. 2022 Sep 22;351:151-163.
- Acta Biomater. 2023 Apr 21;S1742-7061(23)00220-9.
- Front Bioeng Biotechnol. 2022 Feb 21;10:796820.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.

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## REFERENCES

- [1]. Lee, Donghyun, et al. Optimized Combination of Photodynamic Therapy and Chemotherapy Using Gelatin Nanoparticles Containing Tirapazamine and Pheophorbide a. ACS applied materials & interfaces vol. 13,9 (2021): 10812-10821.
- [2]. Romero, José, et al. Electronic structure and reactivity of tirapazamine as a radiosensitizer. Journal of molecular modeling vol. 27,6 177. 22 May. 2021.
- [3]. Cai TY, et al. Tirapazamine sensitizes hepatocellular carcinoma cells to topoisomerase I inhibitors via cooperative modulation of hypoxia-inducible factor-1 $\alpha$ . Mol Cancer Ther. 2014 Mar;13(3):630-42.
- [4]. Sliwinska J, et al. Tirapazamine-doxorubicin interaction referring to heart oxidative stress and Ca<sup>2+</sup> balance protein levels. Oxid Med Cell Longev. 2012;2012:890826.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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