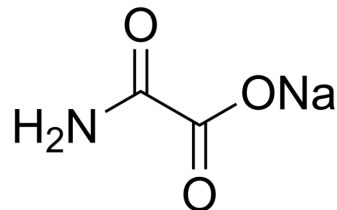


Oxamic acid sodium

| | |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Cat. No.: | HY-W013032A |
| CAS No.: | 565-73-1 |
| Molecular Formula: | C ₂ H ₂ NNaO ₃ |
| Molecular Weight: | 111.03 |
| Target: | Lactate Dehydrogenase; Apoptosis |
| Pathway: | Metabolic Enzyme/Protease; Apoptosis |
| Storage: | 4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture) |



SOLVENT & SOLUBILITY

| | | | | |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------|-------------|-------------|
| In Vitro | H ₂ O : 12.5 mg/mL (112.58 mM; Need ultrasonic) | | | |
| | DMSO : 3.23 mg/mL (29.09 mM; ultrasonic and warming and adjust pH to 5 with HCl and heat to 60°C) | | | |
| | | Solvent | Mass | |
| | | Concentration | | |
| | Preparing Stock Solutions | | 1 mg | 5 mg |
| | 1 mM | 9.0066 mL | 45.0329 mL | 90.0658 mL |
| | 5 mM | 1.8013 mL | 9.0066 mL | 18.0132 mL |
| | 10 mM | 0.9007 mL | 4.5033 mL | 9.0066 mL |
| Please refer to the solubility information to select the appropriate solvent. | | | | |
| In Vivo | 1. Add each solvent one by one: Saline Solubility: 100 mg/mL (900.66 mM); Clear solution; Need ultrasonic | | | |

BIOLOGICAL ACTIVITY

| | | |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Description | Oxamic acid (oxamate) sodium salt is a lactate dehydrogenase-A (LDH-A) inhibitor. Oxamic acid sodium salt shows anti-tumor activity, and anti-proliferative activity against cancer cells, and can induce apoptosis ^{[1][2][3]} . | |
| In Vitro | <p>Oxamic acid suppresses the proliferation, migration and invasion of both A2780 and SKOV3 cells^[1].</p> <p>Oxamic acid (10 μM; 24-72 h) inhibits cell proliferation in a dose- and time-dependent manner in both NPC cancer cells^[2].</p> <p>Oxamic acid (0-100 mM; 24 h) induces cell cycle arrest in the G2/M phase in CNE-1 and CNE-2 cells^[2].</p> <p>Oxamic acid (0-100 mM; 48 h) induces apoptosis via caspase-3 activation and the mitochondrial pathway in NPC cells^[2].</p> <p>Oxamic acid (0-100 mM; 24 h) increases ROS levels in NPC cells^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay^[2]</p> | |
| | Cell Line: | CNE-1 and CNE-2 cells |

| | | |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Concentration: | 10 μ M |
| | Incubation Time: | 24-72 hours |
| | Result: | Showed IC ₅₀ s of 74.6, 32.4 and 17.8 mM and 62.3, 44.5, 31.6 mM at 24, 48 and 72 h in the CNE-1 and CNE-2 cancer cells, respectively. |
| | Apoptosis Analysis ^[2] | |
| | Cell Line: | NPC cells |
| | Concentration: | 0, 20, 50 and 100 mM |
| | Incubation Time: | 48 hours |
| | Result: | Showed the increasement of early and late apoptotic cells in a dose-dependent manner. Increased the expression of pro-apoptotic Bax and cleaved-caspase-3, while reduced the anti-apoptotic signals of Bcl-2 and pro-caspase-3. |
| | Cell Cycle Analysis ^[2] | |
| | Cell Line: | CNE-1 and CNE-2 cells |
| | Concentration: | 0, 20, 50 and 100 mM |
| | Incubation Time: | 24 hours |
| | Result: | Showed a dose-dependent increase in the numbers of CNE-1 and CNE-2 cells in the G2/M phase. |
| In Vivo | Oxamic acid (intraperitoneal injection; 750 mg/kg; once daily; 3 w) treatment improves the efficacy of tumor inhibition in vivo when combined with irradiation treatment ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only. | |
| | Animal Model: | Female Balb/c nude mice injected with CNE-1 cells ^[2] |
| | Dosage: | 750 mg/kg |
| | Administration: | Intraperitoneal injection; 750 mg/kg; once daily; 3 weeks |
| | Result: | Inhibited the tumor growth when compared to either oxamate alone or irradiation alone. |

CUSTOMER VALIDATION

- Theranostics. 2023 Jul 3;13(11):3856-3871.
- J Ginseng Res. 2023 Dec 27.
- Research Square Preprint. 2023 Sep 15.

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REFERENCES

[1]. Xiang J, et al. LDH-A inhibitors as remedies to enhance the anticancer effects of PARP inhibitors in ovarian cancer cells. *Aging (Albany NY)*. 2021 Dec 16;13(24):25920-25930.

[2]. Zhai X, et al. Inhibition of LDH-A by oxamate induces G2/M arrest, apoptosis and increases radiosensitivity in nasopharyngeal carcinoma cells. *Oncol Rep*. 2013 Dec;30(6):2983-91.

[3]. Muramatsu H, et al. Targeting lactate dehydrogenase-A promotes docetaxel-induced cytotoxicity predominantly in castration-resistant prostate cancer cells. *Oncol Rep*. 2019 Jul;42(1):224-230.

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

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