

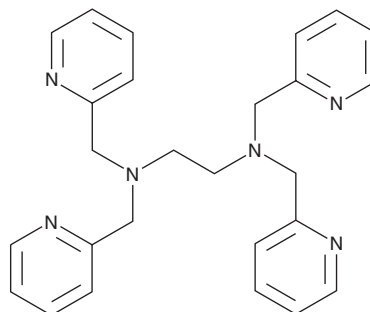
PRODUCT INFORMATION



TPEN

Item No. 13340

CAS Registry No.: 16858-02-9
Formal Name: N,N,N',N'-tetrakis(2-pyridinylmethyl)-1,2-ethanediamine
Synonym: TPEDA
MF: C₂₆H₂₈N₆
FW: 424.6
Purity: ≥95%
UV/Vis.: λ_{max}: 262 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

TPEN is supplied as a crystalline solid. A stock solution may be made by dissolving the TPEN in the solvent of choice, which should be purged with an inert gas. TPEN is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of TPEN in these solvents is approximately 20, 0.15, and 1 mg/ml, respectively.

TPEN is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, TPEN should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. TPEN has a solubility of approximately 0.1 mg/ml in a 1:10 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

As a cofactor of more than 300 enzymes, zinc is integral for a wide variety of cellular processes that affect most biological functions.¹ Most notably, its bioavailability is important to the regulation of apoptosis, cell proliferation, and differentiation. TPEN is a cell permeant metal ion chelator that is used in zinc treatment studies to limit intra- and extracellular concentrations of the mineral.² At a concentration as low as 6 μM, TPEN-induced zinc depletion decreases X-linked inhibitor of apoptosis (XIAP) levels in human PC-3 prostate cancer cells and promotes caspase-3 and -9 activation.³ At 25 μM, TPEN attenuates hypoxic pulmonary vasoconstriction in rodent isolated perfused lung.⁴

References

1. Beyersmann, D. and Haase, H. Functions of zinc in signaling, proliferation and differentiation of mammalian cells. *BioMetals* **14(3-4)**, 331-341 (2001).
2. Cho, Y.E., Lomeda, R.A.R., Ryu, S.H., et al. Cellular Zn depletion by metal ion chelators (TPEN, DTPA and chelex resin) and its application to osteoblastic MC3T3-E1 cells. *Nutr. Res. Pract.* **1(1)**, 29-35 (2007).
3. Makhov, P., Golovine, K., Uzoo, R.G., et al. Zinc chelation induces rapid depletion of the X-linked inhibitor of apoptosis (XIAP) and sensitizes prostate cancer cells to TRAIL-mediated apoptosis. *Cell Death Differ.* **15(11)**, 1745-1751 (2008).
4. Bernal, P.J., Leelavanichkul, K., Bauer, E., et al. Nitric oxide mediated zinc release contributes to hypoxic regulation of pulmonary vascular tone. *Circ. Res.* **102(12)**, 1575-1583 (2008).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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