Print Date: Dec 6th 2018

Certificate of Analysis

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Product Name: **TPEN** **Catalog No.: 4309** **Batch No.: 2**

CAS Number: 16858-02-9

IUPAC Name: *N*,*N*,*N*',*N*'-*Tetrakis*(2-pyridylmethyl)ethylenediamine

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{26}H_{28}N_6$

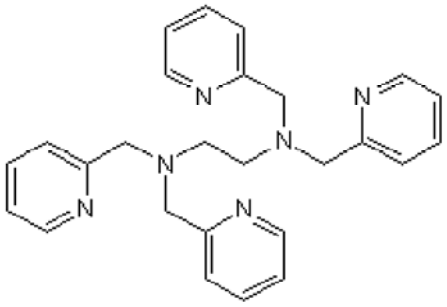
Batch Molecular Weight: 424.54

Physical Appearance: Beige solid

Solubility: DMSO to 25 mM
ethanol to 100 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 98.8% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	73.56	6.65	19.8
Found	73.54	6.6	19.65

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Product Information

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Description:

Heavy metal chelator. Reacts with both Zn-proteome and Zn-metallothionein (MT) in LLC-PK_1 cells; acts as an intracellular chelator of proteomic Zn^{2+}. Activity decreases intracellular zinc levels, and induces apoptosis in HeLa and cultured human retinal pigment epithelium (RPE) cells. Also inhibits RNA binding protein Lin28 (IC_{50} = 2.5 µM). Cell permeable.

Physical and Chemical Properties:

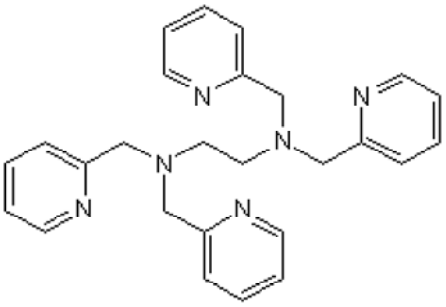
Batch Molecular Formula: $C_{26}H_{28}N_6$

Batch Molecular Weight: 424.54

Physical Appearance: Beige solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

DMSO to 25 mM
ethanol to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Wang *et al* (2018) Small-molecule inhibitors disrupt let-7 oligouridylation and release the selective blockade of let-7 processing by LIN28. Cell Rep. ***23*** 3091. PMID: 29874593 .

Matias *et al* (2010) Validation of TPEN as a zinc chelator in fluorescence probing of calcium in cells with the indicator Fura-2. J.Fluoresc. ***20*** 377. PMID: 19821015.

Rana *et al* (2008) Zinc binding ligands and cellular zinc trafficking: apo-metallothionein, glutathione, TPEN, proteomic zinc, and Zn-Sp1. J.Inorg.Biochem. ***102*** 489. PMID: 18171589.

Chimienti *et al* (2001) Role of cellular zinc in programmed cell death: temporal relationship between zinc depletion, activation of caspases, and cleavage of Sp family transcription factors. Biochem.Pharmacol. ***62*** 51. PMID: 11377396.

Hyun *et al* (2001) Depletion of intracellular zinc and copper with TPEN results in apoptosis of cultured human retinal pigment epithelial cells. Invest.Opthalmol.Vis.Sci. ***42*** 460.

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