bio-techne
TOCRIS

Print Date: Jun 28th 2023

Certificate of Analysis

www.tocris.com

Product Name: **DL-TBOA** **Catalog No.: 1223** **Batch No.: 15**

CAS Number: 205309-81-5

IUPAC Name: DL-*threo*-β-Benzyloxyaspartic acid

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{11}H_{13}NO_5.¼H_2O$

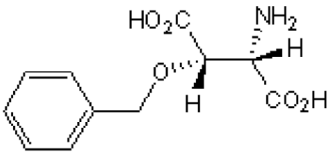
Batch Molecular Weight: 243.73

Physical Appearance: White solid

Solubility: DMSO to 100 mM
water to 5 mM with gentle warming

Storage: Desiccate at -20°C

Batch Molecular Structure:



(and enantiomer)

2. ANALYTICAL DATA

TLC: R_f = 0.45 (Pyridine:Acetic acid:Water:Butanol [3:8:11:33])

HPLC: Shows >99.7% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	54.21	5.58	5.75
Found	54.17	5.82	5.88

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CAS Number: 205309-81-5

IUPAC Name: DL-*threo*-β-Benzyloxyaspartic acid

Description:

DL-TBOA is a competitive, non-transportable blocker of excitatory amino acid transporters (IC_{50} values are 6 µM, 6 µM and 70 µM, for EAAT2, EAAT3 and EAAT1, respectively). DL-TBOA also inhibits EAAT4 and EAAT5 (K_i values are 4.4 µM and 3.2 µM respectively). DL-TBOA displays high selectivity for EAATs over ionotropic and metabotropic glutamate receptors. In [^{3}H]-d-Asp uptake assays in HEK293 cells expressing human EAAT2, EAAT1 and EAAT3, K_i values are 2.2, 2.9, and 9.3 µM, respectively. In a FLIPR Membrane Potential (FMP) assay, K_m values are 0.59, 1.8 and 2.8 µM for human EAAT2, EAAT3 and EAAT1, respectivel... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

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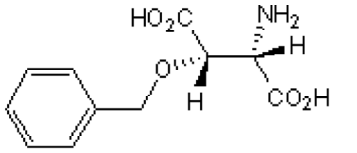
Batch Molecular Weight: 243.73

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



(and enantiomer)

Storage: Desiccate at -20°C

Solubility & Usage Info:

DMSO to 100 mM
water to 5 mM with gentle warming

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. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

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:

Rossi *et al* (2018) Pre- and postsynaptic effects of glutamate in the frog labyrinth. Neuroscience ***385*** 198. PMID: 29913242.

Pedraz-Cuesta *et al* (2015) The glutamate transport inhibitor DL-Threo--Benzyloxyaspartic acid (DL-TBOA) differentially affects SN38- and oxaliplatin-induced death of drug-resistant colorectal cancer cells. BMC Cancer ***15*** 411. PMID: 25981639.

Jensen and Bräuner-Osborne *et al* (2004) Pharmacological characterization of human excitatory amino acid transporters EAAT1, EAAT2 and EAAT3 in a fluorescence-based membrane potential assay. Biochem.Pharmacol. ***67*** 2115. PMID: 15135308.