

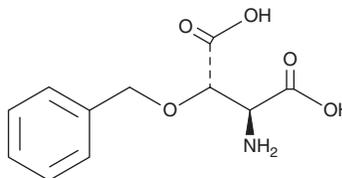
# PRODUCT INFORMATION



## DL-TBOA

Item No. 29632

**CAS Registry No.:** 205309-81-5  
**Formal Name:** *rel*-3R-(phenylmethoxy)-D-aspartic acid  
**Synonym:** DL-*threo*- $\beta$ -Benzyloxyaspartate  
**MF:** C<sub>11</sub>H<sub>13</sub>NO<sub>5</sub>  
**FW:** 239.2  
**Purity:**  $\geq$ 98%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:**  $\geq$ 4 years



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

### Laboratory Procedures

DL-TBOA is supplied as a solid. A stock solution may be made by dissolving the DL-TBOA in the solvent of choice, which should be purged with an inert gas. DL-TBOA is soluble in the organic solvent DMSO. It is also soluble in water. The solubility of DL-TBOA in DMSO and water is approximately 100 and 5 mM (warmed), respectively. We do not recommend storing the aqueous solution for more than one day.

### Description

DL-TBOA is an inhibitor of excitatory amino acid transporters (EAATs), with IC<sub>50</sub> values of 67 and 5.5  $\mu$ M for glutamate uptake in COS-1 cells expressing human EAAT1 and EAAT2, respectively.<sup>1</sup> It inhibits inward currents induced by L-aspartate in EAAT4-expressing *Xenopus* oocytes (K<sub>i</sub> = 4.4  $\mu$ M) and by L-glutamate in EAAT5-expressing oocytes (K<sub>i</sub> = 3.2  $\mu$ M) voltage-clamped at -60 mV.<sup>2</sup> *In vivo*, DL-TBOA (500  $\mu$ M, intrahippocampal perfusion) increases extracellular aspartate, glutamate, and alanine levels in rat hippocampus.<sup>3</sup> Intrahippocampal injection of DL-TBOA increases lesion volume in the rat CA1 region in a dose-dependent manner and induces hyperexcitability, wet-dog shakes, salivation, forelimb myoclonus, limbic seizures, and epileptic EEG discharges at a dose of 25 nmol. DL-TBOA (5 and 10  $\mu$ g, intrathecal) induces antinociception in the second phase of the formalin test in rats when administered 10 minutes prior to formalin.<sup>4</sup>

### References

1. Shimamoto, K., Lebrun, B., Yasuda-Kamatani, Y., *et al.* DL-*threo*- $\beta$ -benzyloxyaspartate, a potent blocker of excitatory amino acid transporters. *Mol. Pharmacol.* **53**(2), 195-201 (1998).
2. Shigeri, Y., Shimamoto, K., Yasuda-Kamatani, Y., *et al.* Effects of *threo*- $\beta$ -hydroxyaspartate derivatives on excitatory amino acid transporters (EAAT4 and EAAT5). *J. Neurochem.* **79**(2), 297-302 (2001).
3. Montiel, T., Camacho, A., Estrada-Sánchez, A.M., *et al.* Differential effects of the substrate inhibitor L-*trans*-pyrrolidine-2,4-dicarboxylate (PDC) and the non-substrate inhibitor DL-*threo*- $\beta$ -benzyloxyaspartate (DL-TBOA) of glutamate transporters on neuronal damage and extracellular amino acid levels in rat brain *in vivo*. *Neuroscience* **133**(3), 667-678 (2005).
4. Yaster, M., Guan, X., Petralia, R.S., *et al.* Effect of inhibition of spinal cord glutamate transporters on inflammatory pain induced by formalin and complete Freund's adjuvant. *Anesthesiology* **114**(2), 412-423 (2011).

#### 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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