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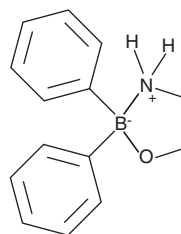
PRODUCT INFORMATION



2-Aminoethyl diphenylborinate

Item No. 64970

CAS Registry No.: 524-95-8
Formal Name: B,B-diphenyl-borinic acid, 2-aminoethyl ester
Synonyms: 2-Aminoethoxydiphenyl borate, 2-APB, NSC 17107
MF: C₁₄H₁₆BNO
FW: 225.1
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥1 year



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

Laboratory Procedures

2-Aminoethyl diphenylborinate (2-APB) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-APB in the solvent of choice, which should be purged with an inert gas. 2-APB is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 2-APB in ethanol is approximately 5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2-APB can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2-APB in PBS (pH 7.2) is approximately 0.05 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2-APB is a modulator of intracellular calcium levels and transient receptor potential (TRP) channels.^{1,2} It inhibits calcium release induced by inositol-1,4,5-triphosphate (IP₃) in rat cerebellar microsomes (IC₅₀ = 42 μM) without affecting IP₃ binding to its receptor.¹ 2-APB inhibits store-operated calcium entry (SOCE) in DT40 cells (IC₅₀ = 4.8 μM), as well as inhibits TRP canonical 6 (TRPC6) and TRP melastatin 8 (TRPM8) and activates TRP vanilloid 1 (TRPV1), TRPV2, and TRPV3 *in vitro*.^{2,3} It also inhibits calcium transients induced by the sarcoplasmic/endoplasmic reticulum Ca²⁺-ATPase (SERCA) inhibitor thapsigargin (Item No. 10522) in DDT1 MF-2 cells when used at a concentration of 75 μM.¹ 2-APB inhibits differentiation of primary mouse brown adipocytes when used at concentrations ranging from 30 to 300 μM and reduces adipocyte triglyceride levels at 100 μM.⁴ It also increases the expression of *Ucp1* and *Pparg* in primary mouse brown adipocytes. 2-APB (10 mg/kg) reduces protein levels of TRP melastatin 2 (TRPM2) in the rat hippocampus and improves learning and memory deficits induced by amyloid-β (25-35) in rats.⁵

References

1. Maruyama, T., Kanaji, T., Nakade, S., *et al. J. Biochem.* **122**(3), 498-505 (1997).
2. Hu, H.-Z., Gu, Q., Wang, C., *et al. J. Biol. Chem.* **279**(34), 35741-35748 (2004).
3. Goto, J.-I., Suzuki, A.Z., Ozaki, S., *et al. Cell Calcium* **47**(1), 1-10 (2010).
4. Sun, W., Uchida, K., Takahashi, N., *et al. Pflugers Arch.* **468**(9), 1527-1540 (2016).
5. Thapak, P., Khare, P., Bishnoi, M., *et al. Cell. Mol. Neurobiol.* (2020).

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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