

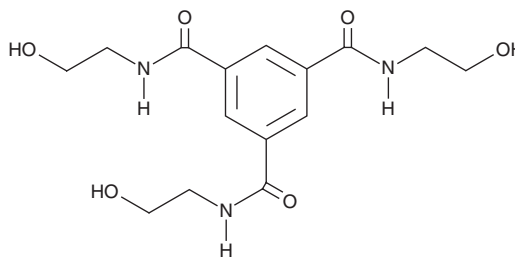
PRODUCT INFORMATION



LM22A-4

Item No. 22082

CAS Registry No.: 37988-18-4
Formal Name: N¹,N³,N⁵-tris(2-hydroxyethyl)-1,3,5-benzenetricarboxamide
MF: C₁₅H₂₁N₃O₆
FW: 339.3
Purity: ≥98%
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

LM22A-4 is supplied as a crystalline solid. A stock solution may be made by dissolving the LM22A-4 in the solvent of choice. LM22A-4 is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of LM22A-4 in these solvents is approximately 30 and 10 mg/ml, respectively.

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 LM22A-4 can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of LM22A-4 in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

LM22A-4 is a brain-derived neurotrophic factor (BDNF) mimetic and agonist of the receptor tropomyosin-related kinase B (TrkB; IC₅₀ = 47 nM in a fluorescence anisotropy assay).¹ It selectively inhibits BDNF binding to 3T3 cells expressing TrkB over those expressing TrkA, TrkC, or p75^{NTR}. *In vitro*, LM22A-4 increases survival of hippocampal neurons via activation of TrkB as well as Akt and ERK downstream pro-survival signaling pathways. *In vivo*, LM22A-4 increases dwell time in an accelerating rotarod task, indicating improved motor learning in a rat model of traumatic brain injury. LM22A-4 restores TrkB phosphorylation in the medulla and pons and breathing frequency to wild-type levels in a mouse model of Rett syndrome when administered at a dose of 50 mg/kg.² It reduces neurite degeneration, formation of intranuclear huntingtin aggregates, and improves downward climbing and grip strength in mouse models of Huntington's disease.³ LM22A-4 (0.22 mg/kg) also improves limb swing speed and accelerates return to normal gait accuracy in a mouse model of hypoxic-ischemic stroke.⁴

References

1. Massa, S.M., Yang, T., Xie, Y., et al. *J. Clin. Invest.* **120**(5), 1774-1785 (2010).
2. Schmid, D.A., Yang, T., Ogier, M., et al. *J. Neurosci.* **32**(5), 1803-1810 (2012).
3. Simmons, D.A., Belichenko, N.P., Yang, T., et al. *J. Neurosci.* **33**(48), 18712-18727 (2013).
4. Han, J., Pollak, J., Yang, T., et al. *Stroke* **43**(7), 1918-1924 (2012).

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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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM