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ProductInformation

Aniracetam

Product Number **A 9950**
Store at Room Temperature

Product Description

Molecular Formula: $C_{12}H_{13}NO_3$
Molecular Weight: 219.2
CAS Number: 72432-10-1
Melting Point: 121-122 °C[1]
Synonyms: 1-(4-methoxybenzoyl)-2-pyrrolidinone; 1-p-anisoyl-2-pyrrolidinone[1]

Aniracetam is a compound with cognition enhancer properties that is related to piracetam. It is used in neuroscience studie's and in research related to dementia and Alzheimer's disease. A review of the applicability of aniracetam to probing cerebral dysfunctional disorders has been published.[2]

Aniracetam potentiates AMPA receptor mediated ion conductance, as demonstrated in studies on *Xenopus* oocytes and human embryonic kidney 293 cells, by slowing or blocking desensitization.[3] An investigation of rat hippocampal slices has shown that aniracetam prevents kynurenic acid antagonism of NMDA-evoked [^{3}H]noradrenaline release.[4] The use of aniracetam to probe responses at kainate-preferring receptors in dorsal root ganglion neurons and at amino 3-hydroxy-5-methyl-4-isoxazolepropionic acid-preferring receptors in hippocampal neurons has been described.[5] Aniracetam has been used to enhance the cobalt loading of Ca^{2+}-permeable AMPA receptors in cultured embryonic rat motoneurones.[6]

A protocol for the HPLC analysis of aniracetam in plasma has been published.[7]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in chloroform (50 mg/ml), yielding a clear, colorless solution. It is also soluble in ethanol. It is insoluble in water.

References

1. The Merck Index, 12th ed., Entry# 700.
2. Nakamura, K., Aniracetam: its novel therapeutic potential in cerebral dysfunctional disorders based on recent pharmacological discoveries. CNS Drug Rev., **8(1)**, 70-89 (2002).
3. Johansen, T.H., et al., Interactions among GYKI-52466, cyclothiazide, and aniracetam at recombinant AMPA and kainate receptors. Mol. Pharmacol., **48**, 946-955 (1995).
4. Pittaluga, A., et al., Aniracetam, 1-BCP and cyclothiazide differentially modulate the function of NMDA and AMPA receptors mediating enhancement of noradrenaline release in rat hippocampal slices. Naunyn-Schmiedeberg's Arch. Pharmacol., **359**, 272-279 (1999).
5. Wong, L. A., and Mayer, M. L., Differential modulation by cyclothiazide and concanavalin A of desensitization at native alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid- and kainate-preferring glutamate receptors. Mol. Pharmacol., **44(3)**, 504-510 (1993).
6. Launey, T., et al., Developing rat brainstem motoneurones in organotypic culture express calcium permeable AMPA-gated receptors. Brain Res., **781(1-2)**, 148-158 (1998).
7. Guenzi, A., and Zanetti, M., Determination of aniracetam and its main metabolite, N-anisoyl-GABA, in human plasma by high-performance liquid chromatography. J. Chromatogr., **530(2)**, 397-406 (1990).

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