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DATASHEET

IEM-1460

Product overview

Name	IEM-1460
Cat No	HB0338
Biological action	Blocker
Purity	>98%
Description	Competitive, selective, GluA2 (GluR2)-lacking AMPA receptor blocker

Biological Data

Biological description

Competitive, selective, voltage-dependent open-channel Ca^{2+} permeable GluA2 (GluR2)-lacking AMPA receptor blocker (IC_{50} values are 2.6 and 1102 µM at GluA2-lacking and GluA2-containing AMPARs respectively).

IEM-1460 can be utilized as an indicator of the distribution of AMPA receptor subtypes among populations of brain cells.

IEM-1460 can also be used to selectively target GABAergic interneurons, as several subpopulations of these neurons express a significant proportion of GluA2-lacking Ca^{2+}-permeable AMPARs.

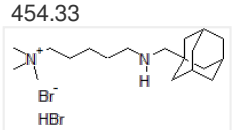
Blocks synaptic excitation of fast-spiking interneurons and blocks NMDAR-mediated currents.

Also shows anticonvulsant properties.

Solubility & Handling

Solubility overview	Soluble in water (100mM) or DMSO (100mM)
Storage instructions	Room temperature (desiccate)
Storage of solutions	Prepare and use solutions on the same day if possible. Store solutions at -20°C for up to one month if storage is required. Equilibrate to RT and ensure the solution is precipitate free before use.
Shipping Conditions	Stable for ambient temperature shipping. Follow storage instructions on receipt.
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name	*N,N,N*-Trimethyl-5-[(tricyclo[3.3.1.1^{3,7}]dec-1-ylmethyl)amino]-1-pentanaminium bromide hydrobromide
Molecular Weight	454.33
Chemical structure	
Molecular Formula	$C_{19}H_{37}BrN_2.HBr$
CAS Number	121034-89-7
PubChem identifier	6604954
SMILES	[Br-].Br.C[N+](C)(C)CCCCCNCC13CC2CC(CC(C1)C2)C3
InChiKey	CQTDZUSQSTUZDA-UHFFFAOYSA-M

References

The open channel blocking drug, IEM-1460, reveals functionally distinct alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionate receptors in rat brain neurons.

Samoilova et al (1999) Neuroscience 94(1)
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Characterization of AMPA receptor populations in rat brain cells by the use of subunit-specific open channel blocking drug, IEM-1460.

Buldakova et al (1999) Brain Res 846(1)
PubMedID 10536213

Two mechanisms of action of the adamantane derivative IEM-1460 at human AMPA-type glutamate receptors.

Schlesinger et al (2005) Br J Pharmacol 145(5)
PubMedID 15834439

Selective inhibition of striatal fast-spiking interneurons causes dyskinesias.

Gittis et al (2011) J Neurosci 31(44)
PubMedID 22049415