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DATASHEET

AMN 082 dihydrochloride

Product overview

Name	AMN 082 dihydrochloride
Cat No	HB0113
Biological action	Agonist
Purity	>98%
Description	Selective $mGlu_7$ agonist

Images

Biological Data

Biological description

AMN 082 dihydrochloride is a selective $mGlu_7$ positive allosteric agonist. It is orally active and blood-brain barrier permeable.

AMN 082 binds at the $mGlu_7$ allosteric site and at ≤10 µM fails to show appreciable activating or inhibitory effects at other mGluR subtypes and selected iGluRs.

Uses

AMN 082 effects may differ depending on brain region. For example, AMN082 decreases GABA and increases glutamate levels in the nucleus accumbens and amygdala and decreases glutamate and GABA release in the periaqueductal gray (PAG).

It potently inhibits accumulation of cAMP and stimulates GTPγS binding (EC_{50} = 64 - 290 nM) with agonist efficacies comparable with those of L-AP4. AMN082 also increase splasma corticosterone and ACTH levels.

AMN082 reduces fear acquisition and LTP in the amygdala but improves fear extinction. AMN 082 also produces anxiogenic- and anxiolytic-like effects, can facilitate nociception, shows anti-depressant-like activity, reduces ethanol and cocaine intake and facilitates extinction of aversive memories.

Application notes

In vitro use – guidelines

Non-specific actions may be observed at concentrations of 3-10 µM and above.

Therefore, for researchers wishing to investigate selective $mGlu_7$ actions, it is recommended that this product is not used above concentrations of 1µM.

In vivo use – guidelines

Guidelines for maximally tolerated doses in vivo are: 6 mg/kg p.o. in mice and 20 mg/kg p.o. in rats

- Those doses result in $mGlu_7$-dependent physiological effects, e.g. modulation of stress-hormones.
- However, non-selective effects have been observed at higher doses (2-3 times higher than those stated above).
- Examples of such non-selective effects include head twists and tremor observed in $mGlu_7$+/+ (wild-types) and $mGlu_7$-/- mice (knock-outs).
- The product can be orally administered (p.o.) in a methylcellulose suspension. For further details contact Dr. John F. Cryan at University College Cork. There is currently no data available on maximally tolerated doses for i.v., i.c.v., or i.p. routes of administration.

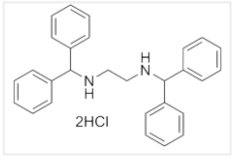
Use of knock-outs for validation of data

- Dr. Peter J. Flor and his colleagues recommend that the physiological and pharmacological effects of AMN082 should ideally be confirmed by evaluation in $mGlu_7$+/+ (wild-types) versus $mGlu_7$-/- mice (KO).
- Effects of AMN082 that are seen in $mGlu_7$+/+ (wild-types) but not in $mGlu_7$-/- mice (KO) are most likely $mGlu_7$+/+ -mediated.
- For details on obtaining $mGlu_7$+/+ (wild-types) and $mGlu_7$-/- mice (KO) please contact Dr. Peter J. Flor or Dr. Herman van der Putten.

Solubility & Handling

Storage instructions	+4°C (desiccate)
Solubility overview	Soluble in DMSO (100mM) or water (2mM, gentle warming). Stock solutions (up to 10 mM) can be prepared in DMSO or methanol.
Handling	• If possible, make up solutions and use immediately. • If storage of solutions is required, you should aliquot out the solution into tightly sealed vials and store at -20°C and store these for up to one month. • Allow the product to equilibrate to RT for at least one hour before opening and using. • Always check that your product is completely dissolved before use. The solution should be precipitate-free, clear and colourless. • Once removed from -20°C, and brought to room temperature, it is recommended that the solution is used immediately.
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'-Bis*(diphenylmethyl)-1,2-ethanediamine dihydrochloride
Molecular Weight	465.45
Chemical structure	
Molecular Formula	$C_{28}H_{28}N_2.2HCl$
CAS Number	97075-46-2
PubChem identifier	11698390
SMILES	C1=CC=C(C=C1)C(C2=CC=CC=C2)NCCNC(C3=CC=CC=C3)C4=CC=CC=C4.Cl.Cl
Source	Synthetic
InChi	InChI=1S/C28H28N2.2ClH/c1-5-13-23(14-6-1)27(24-15-7-2-8-16-24)29-21-22-30-28(25-17-9-3-10-18-25)26-19-11-4-12-20-26;;/h1-20,27-30H,21-22H2;2*1H
InChiKey	YRQCDCNQANSUPB-UHFFFAOYSA-N
Appearance	White solid

References

Activation of the mGlu7 receptor elicits antidepressant-like effects in mice.

Palucha A *et al* (2007) Psychopharmacology (Berl) 194(4)

PubMedID 17622518

A selective metabotropic glutamate receptor 7 agonist: activation of receptor signaling via an allosteric site modulates stress parameters in vivo.

Mitsukawa K *et al* (2005) Proc Natl Acad Sci U S A 102(51)
PubMedID 16339898

Metabotropic glutamate 7 receptor subtype modulates motor symptoms in rodent models of Parkinson's disease.

Greco B *et al* (2010) J Pharmacol Exp Ther 332(3)
PubMedID 19940105