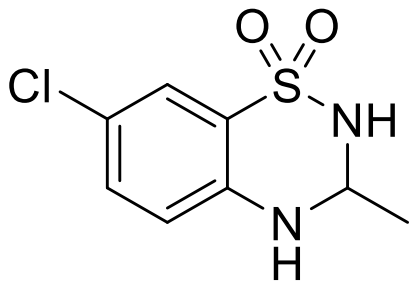
Product data sheet

MedKoo Cat#: 530569 Name: IDRA-21 CAS: 22503-72-6 Chemical Formula: $C_8H_9ClN_2O_2S$ Exact Mass: 232.0073 Molecular Weight: 232.682	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
IDRA-21 is a positive AMPA receptor modulator. IDRA-21 inhibits synaptic and extrasynaptic NMDA receptor mediated events in cultured cerebellar granule cells. IDRA 21 enhances ischemic hippocampal neuron injury.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	148.5	638.21
Ethanol	14.0	60.17

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.30 mL	21.49 mL	42.98 mL
5 mM	0.86 mL	4.30 mL	8.60 mL
10 mM	0.43 mL	2.15 mL	4.30 mL
50 mM	0.09 mL	0.43 mL	0.86 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Impagnatiello F, Oberto A, Longone P, Costa E, Guidotti A. 7-Chloro-3-methyl-3,4-dihydro-2H-1,2,4-benzothiadiazine S,S-dioxide: a partial modulator of AMPA receptor desensitization devoid of neurotoxicity. Proc Natl Acad Sci U S A. 1997 Jun 24;94(13):7053-8. doi: 10.1073/pnas.94.13.7053. PMID: 9192690; PMCID: PMC21283.

In vivo study

1. Malkova L, Kozikowski AP, Gale K. The effects of huperzine A and IDRA 21 on visual recognition memory in young macaques. Neuropharmacology. 2011 Jun;60(7-8):1262-8. doi: 10.1016/j.neuropharm.2010.12.018. Epub 2010 Dec 23. PMID: 21185313; PMCID: PMC3073152.
2. Buccafusco JJ, Weiser T, Winter K, Klinder K, Terry AV. The effects of IDRA 21, a positive modulator of the AMPA receptor, on delayed matching performance by young and aged rhesus monkeys. Neuropharmacology. 2004 Jan;46(1):10-22. doi: 10.1016/j.neuropharm.2003.07.002. PMID: 14654093.

7. Bioactivity
Biological target:

IDRA 21 is a positive and orally active modulator of the AMPA receptor. IDRA 21 facilitates excitatory neurotransmission via GluR1/2 receptors. IDRA 21 has the potential for the research of cognitive/memory disorders, including those associated with aging.

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In vitro activity

IDRA-21 increases intracellular Na+ transient with a threshold (5 microM) that is approximately 10 times higher and has an intrinsic activity significantly lower than that of cyclothiazide. By virtue of its low intrinsic activity, IDRA-21 elicits a free cytosolic Ca2+ transient increase that is shorter lasting than that elicited by cyclothiazide even when the drug is left in contact with cultured granule cells for several minutes. Additionally, while dose dependently, 5-25 microM cyclothiazide in the presence of AMPA is highly neurotoxic, IDRA-21 (up to 100 microM) is devoid of neurotoxicity.

Reference: Proc Natl Acad Sci U S A. 1997 Jun 24;94(13):7053-8. https://pubmed.ncbi.nlm.nih.gov/9192690/

In vivo activity

The average performance across subjects increased from 71% to 78%. Thus, in normal young subjects pretreatment with IDRA 21 significantly improved memory on a difficult version of a recognition memory task in young macaques. These results demonstrated that the memory enhancing action of IDRA 21 is not limited to models of drug-induced memory impairments but is also manifest in normal subjects.

Reference: Neuropharmacology. 2011 Jun;60(7-8):1262-8. https://pubmed.ncbi.nlm.nih.gov/21185313/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.