

Product data sheet



MedKoo Cat#: 532365 Name: NS1738 CAS: 501684-93-1 Chemical Formula: C ₁₄ H ₉ Cl ₂ F ₃ N ₂ O ₂ Exact Mass: 363.9993 Molecular Weight: 365.1332	
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:

NS1738 is a $\alpha 7$ positive allosteric modulator.

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
DMF	25.0	68.47
DMSO	58.63	160.56
DMSO:PBS (pH 7.2) (1:3)	0.25	0.68
Ethanol	39.84	109.10

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.74 mL	13.69 mL	27.39 mL
5 mM	0.55 mL	2.74 mL	5.48 mL
10 mM	0.27 mL	1.37 mL	2.74 mL
50 mM	0.06 mL	0.27 mL	0.55 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

- Bertrand D, Bertrand S, Cassar S, Gubbins E, Li J, Gopalakrishnan M. Positive allosteric modulation of the $\alpha 7$ nicotinic acetylcholine receptor: ligand interactions with distinct binding sites and evidence for a prominent role of the M2-M3 segment. *Mol Pharmacol*. 2008 Nov;74(5):1407-16. doi: 10.1124/mol.107.042820. Epub 2008 Aug 4. PMID: 18678621.
- Timmermann DB, Grønlien JH, Kohlhaas KL, Nielsen EØ, Dam E, Jørgensen TD, Ahring PK, Peters D, Holst D, Christensen JK, Malysz J, Briggs CA, Gopalakrishnan M, Olsen GM. An allosteric modulator of the $\alpha 7$ nicotinic acetylcholine receptor possessing cognition-enhancing properties in vivo. *J Pharmacol Exp Ther*. 2007 Oct;323(1):294-307. doi: 10.1124/jpet.107.120436. Epub 2007 Jul 11. Erratum in: *J Pharmacol Exp Ther*. 2009 Dec;331(3):1146. Christensen, Jeppe K [corrected to Christensen, Jeppe K]. PMID: 17625074.

In vivo study

- Freitas K, Carroll FI, Damaj MI. The antinociceptive effects of nicotinic receptors $\alpha 7$ -positive allosteric modulators in murine acute and tonic pain models. *J Pharmacol Exp Ther*. 2013 Jan;344(1):264-75. doi: 10.1124/jpet.112.197871. Epub 2012 Oct 31. PMID: 23115222; PMCID: PMC3533419.

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2. Timmermann DB, Grønlien JH, Kohlhaas KL, Nielsen EØ, Dam E, Jørgensen TD, Ahring PK, Peters D, Holst D, Christensen JK, Malysz J, Briggs CA, Gopalakrishnan M, Olsen GM. An allosteric modulator of the alpha7 nicotinic acetylcholine receptor possessing cognition-enhancing properties in vivo. *J Pharmacol Exp Ther.* 2007 Oct;323(1):294-307. doi: 10.1124/jpet.107.120436. Epub 2007 Jul 11. Erratum in: *J Pharmacol Exp Ther.* 2009 Dec;331(3):1146. Christensen, Jeppe K [corrected to Christensen, Jeppe K]. PMID: 17625074.

7. Bioactivity

Biological target:

NS 1738 (NSC 213859) is a novel positive allosteric modulator of the $\alpha 7$ nAChR.

In vitro activity

This strategy revealed that the extracellular N-terminal domain of alpha7 plays a critical role in allosteric modulation by NS-1738. In addition, alpha7-5HT(3) chimeras harboring the M2-M3 segment showed that spontaneous activity in response to NS-1738, which confirmed the critical contribution of this small extracellular segment in the receptor gating. In contrast to NS-1738, positive allosteric modulation by PNU-120596 could not be restored in the alpha7-5HT(3) chimeras but was selectively observed in the reverse 5HT(3)-alpha7 chimera.

Reference: *Mol Pharmacol.* 2008 Nov;74(5):1407-16. <https://pubmed.ncbi.nlm.nih.gov/18678621/>

In vivo activity

NS1738 was modestly brain-penetrant, and it was demonstrated to counteract a (-)-scopolamine-induced deficit in acquisition of a water-maze learning task in rats. Moreover, NS1738 improved performance in the rat social recognition test to the same extent as (-)-nicotine, demonstrating that NS1738 is capable of producing cognitive enhancement in vivo.

Reference: *J Pharmacol Exp Ther.* 2007 Oct;323(1):294-307. <https://pubmed.ncbi.nlm.nih.gov/17625074/>

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.