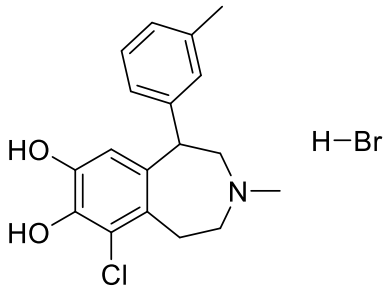
Product data sheet

MedKoo Cat#: 532747 Name: SKF-83959 HBr CAS#: 67287-95-0 (HBr) Chemical Formula: $C_{18}H_{21}BrClNO_2$ Molecular Weight: 398.73	
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:
SKF-83959 HBr is a dopamine D1-like receptor partial agonist. SKF-83959 HBr may act as an antagonist in vivo, producing anti-Parkinsonian effects and antagonizing the behavioral effects of cocaine.

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	15.89	50

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.51 mL	12.54 mL	25.08 mL
5 mM	0.50 mL	2.51 mL	5.02 mL
10 mM	0.25 mL	1.25 mL	2.51 mL
50 mM	0.05 mL	0.25 mL	0.50 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. Lee SM, Kant A, Blake D, Murthy V, Boyd K, Wyrick SJ, Mailman RB. SKF-83959 is not a highly-biased functionally selective D1 dopamine receptor ligand with activity at phospholipase C. Neuropharmacology. 2014 Nov;86:145-54. doi: 10.1016/j.neuropharm.2014.05.042. Epub 2014 Jun 12. PMID: 24929112; PMCID: PMC4188748.
2. Andringa G, Drukarch B, Leysen JE, Cools AR, Stoof JC. The alleged dopamine D1 receptor agonist SKF 83959 is a dopamine D1 receptor antagonist in primate cells and interacts with other receptors. Eur J Pharmacol. 1999 Jan 1;364(1):33-41. doi: 10.1016/s0014-2999(98)00825-5. PMID: 9920182.

In vivo study

1. Perreault ML, Fan T, Banasikowski TJ, Grace AA, George SR. The atypical dopamine receptor agonist SKF 83959 enhances hippocampal and prefrontal cortical neuronal network activity in a rat model of cognitive dysfunction. Eur J Neurosci. 2017 Aug;46(4):2015-2025. doi: 10.1111/ejn.13635. Epub 2017 Aug 1. PMID: 28677227.
2. Tomiyama K, Song L, Kobayashi M, Kinsella A, Kanematsu T, Hirata M, Koshikawa N, Waddington JL. Orofacial movements in phospholipase C-related catalytically inactive protein-1/2 double knockout mice: Effect of the GABAergic agent diazepam and the D(1) dopamine receptor agonist SKF 83959. Synapse. 2010 Sep;64(9):714-20. doi: 10.1002/syn.20798. PMID: 20340178.

7. Bioactivity
Biological target:

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SKF-83959 HBr is a dopamine D1-like receptor partial agonist (Ki values are 1.18, 7.56, 920 and 399 nM for rat D1, D5, D2 and D3 receptors respectively). SKF-83959 HBr has been shown to potentiate agonist binding of the σ1 receptor.

In vitro activity

This pharmacological characterization study demonstrates that SKF-83959 is not a highly-biased, functionally selective D1 ligand. Its reported behavioral effects are attributed to its partial D1 agonism in conventional signaling pathways, resembling the well-known partial agonist SKF38393. SKF-83959 exhibits partial agonism (not antagonism) at adenylate cyclase and D1-mediated β-arrestin recruitment, but does not affect phospholipase C signaling in heterologous systems.

Reference: Neuropharmacology. 2014 Nov;86:145-54. https://pubmed.ncbi.nlm.nih.gov/24929112/

In vivo activity

This study indicates that SKF-83959 might have complex effects on the brain and that its specific mechanisms and potential applications in cognitive disorders must be further investigated. In a rat model of schizophrenia, repeated SKF-83959 treatment increased signal amplitude and enhanced the spectral power of low frequency delta and theta oscillations in the hippocampus. In MAM rats, SKF-83959 inhibited spatial learning and induced a significant increase in thigmotactic behaviour.

Reference: Eur J Neurosci. 2017 Aug;46(4):2015-2025. https://pubmed.ncbi.nlm.nih.gov/28677227/