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Data Sheet

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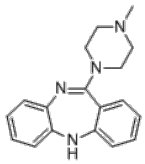
Product Name	:	Deschloroclozapine
Cat. No.	:	PC-20104
CAS No.	:	1977-07-7
Molecular Formula	:	$C_{18}H_{20}N_4$
Molecular Weight	:	292.39
Target	:	mAChR
Solubility	:	10 mM in DMSO



Biological Activity

Deschloroclozapine (DCZ) is a high-affinity and selective agonist for muscarinic-based DREADDs, shows nanomolar affinity for [3H]QNB-labeled hM3Dq and hM4Di with Ki of 6.3 and 4.2 nM, respectively.
DCZ shows negligible affinities for a large number of GPCRs, ion channels and transporters (Ki values of >100 nM) and relatively low affinities for a few endogenous receptors, including muscarinic acetylcholine (hM1Ki=83 nM, hM5Ki =55 nM) and serotonin receptors (5-HT2AKi = 87 nM).
DCZ selectively bound to and occupied DREADDs in both mice and monkeys.
Systemic delivery of low doses of DCZ (1 or 3 µg per kg) enhanced neuronal activity via hM3Dq within minutes in mice and monkeys.
Intramuscular injections of DCZ (100 µg per kg) reversibly induced spatial working memory deficits in monkeys expressing hM4Di in the prefrontal cortex.
DCZ represents a potent, selective, metabolically stable and fast-acting DREADD agonist with utility in both mice and nonhuman primates for a variety of applications.

References

Nagai Y, et al. Deschloroclozapine, a potent and selective chemogenetic actuator enables rapid neuronal and behavioral modulations in mice and monkeys. Nat. Neurosci. 2020;23:1157–1167.

Miyakawa N, et al. Nat Commun. 2023 Feb 28;14(1):971.

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