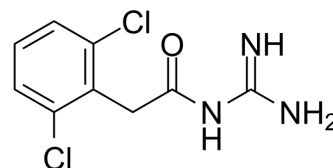


Guanfacine

Cat. No.:	HY-17416A
CAS No.:	29110-47-2
Molecular Formula:	C ₉ H ₉ Cl ₂ N ₃ O
Molecular Weight:	246.09
Target:	Adrenergic Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Guanfacine is an orally active noradrenergic α 2A agonist and has high selective for the α 2A receptor subtype. Guanfacine has effects in producing hypotension and sedation. Guanfacine can be used for the research of a variety of prefrontal cortex (PFC) cognitive disorders, including tourette's syndrome and attention deficit hyperactivity disorder (ADHD) ^{[1][2][3]} .
In Vitro	Guanfacine increases the delay-related neuronal firing needed for working memory on dIPFC neurons at the cellular level ^{[1][3]} . Guanfacine improves PFC cognitive function by inhibiting the production of cAMP, closing HCN channels, and strengthening the PFC networks ^{[1][3]} . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Guanfacine enhances PFC working memory function in aged monkeys and improves impulse control in monkeys performing a delayed discounting task ^{[1][3]} . Guanfacine improves cognitive performance when infused directly into the rat or monkey PFC ^{[1][3]} . Guanfacine blocks 2A receptors in the monkey dIPFC markedly impairs working memory, behavioral inhibition and greatly reduces persistent neuronal firing ^{[1][3]} . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Amy F T Arnsten, et al. Guanfacine for the treatment of cognitive disorders: a century of discoveries at Yale. *Yale J Biol Med.* 2012 Mar;85(1):45-58. Epub 2012 Mar 29.
- [2]. P. A. Van Zwieten, et al. The pharmacology of centrally acting antihypertensive drugs. *Br J Clin Pharmacol.* 1983; 15(Suppl 4): 455S-462S.
- [3]. Min Wang, et al. Alpha2A-adrenoceptors strengthen working memory networks by inhibiting cAMP-HCN channel signaling in prefrontal cortex. *Cell.* 2007 Apr 20;129(2):397-410.

Caution: Product has not been fully validated for medical applications. For research use only.

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