Product Datasheet

JNJ-18038683

Catalog No. **BP-00010** · CAS **851376-05-1** · Form **free base** · Physical state **solid** · Color **White to off-white** · Version **1.0** · Revision **2026-09-24**

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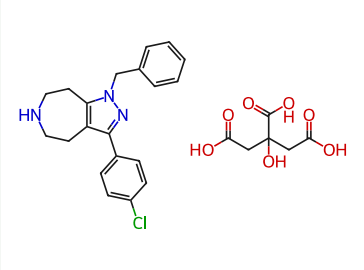
Target	Research area
5-HT Receptor	**Neurological Disease**

Molecular formula	$C_{26}H_{28}ClN_3O_7$
Molecular weight	**529.9690**

STRUCTURE



DESCRIPTION

JNJ-18038683 is a 5-Hydroxytryptamine Type 7 (5-HT7) receptor antagonist, with pKis of 8.19, 8.20 for rat and human 5-HT7 in HEK293 cells, respectively.

BIOLOGICAL ACTIVITY

In Vitro

JNJ-18038683 displaced, with high affinity, specific [3H]5-CT binding sites from rat and human 5-HT7 receptor express in HEK293 cells (pKi=8.19±0.02 and 8.20±0.01, respectively). Similar values are obtained on the native 5-HT7 in membranes from rat thalamus (pKi=8.50±0.20). Hill slope values are close to unity, suggesting one-site competitive binding. Antagonist potency of JNJ-18038683 is determined by the measurement of adenylate cyclase activity in HEK293 cells expressing the human or rat 5-HT7 receptor. 5-HT stimulates adenylyl cyclase activity in rat and human 5-HT7/HEK293 cells with a pEC50 of 8.09 and 8.12, respectively. JNJ-18038683 produces a concentration-dependent decrease of 5-HT (100 nM)-stimulated adenylyl cyclase. The pKB values determined for JNJ-18038683 are in good agreement with the corresponding Ki values determined from [3H]5-CT binding studies.

In Vivo

JNJ-18038683 dose-dependently suppresses REM sleep mainly during the first 4 h after the treatment. The duration of REM sleep is significantly decreased from the dose of 1 mg/kg onward ($P<0.05$) during the first 4 h after oral administration. Concomitantly, the REM sleep latency tends to be prolonged in a dose-related manner with a significant increase in REM latency occurring only at the highest dose tested (10 mg/kg; $P<0.05$). These alterations in REM sleep seem to be state-specific. A separate study is conducted to determine whether repeated administration of JNJ-18038683 for 7 days would result in an adaptation of the EEG sleep response in particular on REM sleep in rats during the course of the treatment and after its discontinuation. JNJ-18038683 is administered for 7 consecutive days (1 mg/kg s.c. per day) at 2 h into the light phase. On the first day of treatment, JNJ-18038683 produces a significant decrease in the time spent in REM sleep during the first 8 h after the injection and a

prolongation of the REM sleep latency. The REM sleep latency is increased during the 7-day repeated treatment and is normalized on the first recovery day after cessation of treatment. The significant decrease in REM sleep time is maintained during the 7-day repeated treatment, with a rebound occurring on the first recovery day after treatment discontinuation. The NREM sleep latency and the total NREM sleep time are not affected during the entire treatment.

SOLUBILITY

Soluble in DMSO : 200 mg/mL

REFERENCES

[1]. Bonaventure P, et al. Translational evaluation of JNJ-18038683, a 5-hydroxytryptamine type 7 receptor antagonist, on rapid eye movement sleep and in major depressive disorder. J Pharmacol Exp Ther. 2012 Aug;342(2):429-40.