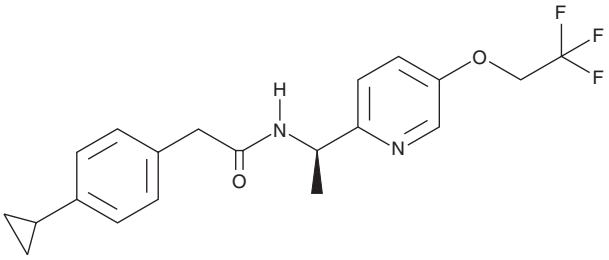
PRODUCT INFORMATION

TTA-A2

Item No. 42236

CAS Registry No.: 953778-63-7
Formal Name: 4-cyclopropyl-N-[(1R)-1-[5-(2,2,2-trifluoroethoxy)-2-pyridinyl]ethyl]-benzeneacetamide
MF: $C_{20}H_{21}F_3N_2O_2$
FW: 378.4
Purity: ≥98%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

TTA-A2 is supplied as a solid. A stock solution may be made by dissolving the TTA-A2 in the solvent of choice, which should be purged with an inert gas. TTA-A2 is soluble (≥10 mg/ml) in DMSO and ethanol.

Description

TTA-A2 is an inhibitor of the T-type voltage-gated calcium (Ca_v) channels (IC_{50}s = 89, 92, and 98 nM for $Ca_v3.1$, $Ca_v3.2$, and $Ca_v3.3$, respectively, in patch-clamp assays at -80 mV).[1] It is selective for these channels over $Ca_v1.2$, $Ca_v2.1$, $Ca_v2.2$, and $Ca_v2.3$ in patch-clamp assays (IC_{50}s = >30 µM for all at -90 mV). TTA-A2 (100 and 200 nM) reduces the viability of spheroid A549 lung cancer cells.[2] It decreases body weight gain and fat mass and increases lean muscle mass in mice fed a high-fat diet when administered at a dose of 10 mg/kg.[3] TTA-A2 (3 mg/kg) inhibits amphetamine- or MK-801-induced locomotor activity in rats.[4] It reduces mean pulmonary arterial pressure and right ventricle hypertrophy in a rat model of hypoxic pulmonary hypertension induced by chronic housing in a hypobaric chamber.[5] TTA-A2 (10 mg/kg) decreases the mean time spent in active wake and rapid eye movement (REM) sleep and increases the mean time spent in delta sleep in wild-type but not *Cacna1g*$^{-/-}$ and *Cacna1i*$^{-/-}$ double knockout mice when administered one hour before the inactive phase.[1]

References

1. Kraus, R.L., Li, Y., Gregan, Y., *et al.* In vitro characterization of T-type calcium channel antagonist TTA-A2 and in vivo effects on arousal in mice. *J. Pharmacol. Exp. Ther.* **335(2),** 409-417 (2010).
2. Kumari, N., Bhargava, A., and Rath, S.N. T-type calcium channel antagonist, TTA-A2 exhibits anti-cancer properties in 3D spheroids of A549, a lung adenocarcinoma cell line. *Life Sci.* **260,** 118291 (2020).
3. Uebele, V.N., Gotter, A.L., Nuss, C.E., *et al.* Antagonism of T-type calcium channels inhibits high-fat diet-induced weight gain in mice. *J. Clin. Invest.* **119(6),** 1659-1667 (2009).
4. Uslaner, J.M., Smith, S.M., Huszar, S.L., *et al.* T-type calcium channel antagonism produces antipsychotic-like effects and reduces stimulant-induced glutamate release in the nucleus accumbens of rats. *Neuropharmacology* **62(3),** 1413-1421 (2012).
5. Chevalier, M., Gilbert, G., Roux, E., *et al.* T-type calcium channels are involved in hypoxic pulmonary hypertension. *Cardiovasc. Res.* **103(4),** 597-606 (2014).

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