

Product Data Sheet

Product Name: Vortioxetine-d8

Cat. No.: GC48255

Chemical Properties

Cas. No. 2140316-62-5

SMILES CC1=CC(C)=CC=C1SC2=C(N3C([2H])([2H])C([2H])([2H])NC([2H])([2H])C3([2H])([2H])C=CC=C2

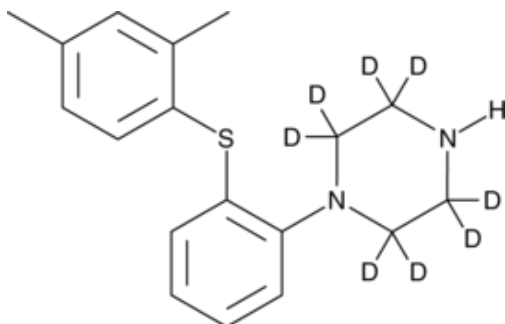
Formula C₁₈H₁₄D₈N₂S M.Wt 306.5

Solubility Chloroform: soluble Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Vortioxetine-d₈ is intended for use as an internal standard for the quantification of vortioxetine by GC- or LC-MS. Vortioxetine is a multimodal serotonergic agent that acts as a serotonin reuptake inhibitor ($K_i = 1.6$ nM) and binds to the 5-HT_{1A}, 5-HT_{1B}, 5-HT_{3A}, and 5-HT₇ receptors (K_i s = 15, 33, 3.7, and 19 nM, respectively).¹ It also binds to the β_1 -adrenergic receptor ($K_i = 46$ nM). It acts as an antagonist at 5-HT_{3A} and 5-HT₇, a partial agonist at 5-HT_{1B}, and a full agonist at 5-HT_{1A} receptors. Vortioxetine is selective for the serotonin transporter (SERT) over the dopamine and norepinephrine transporters (IC_{50} s = 5.3, 890, and 140 nM, respectively). It has affinity for histamine H₂, melanocortin 4, β_2 -adrenergic, 5-HT_{2C}, and 5-HT₆ receptors with K_i values greater than 180 nM, but

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it is selective over the majority of targets in a panel of 75 ion channels, G protein-coupled receptors, enzymes, and transporters. Vortioxetine (5 or 10 mg/kg per day) increases 5-HT levels *in vivo* in rat brain and decreases occupancy at SERT. At acute and chronic doses of 5 mg/kg, but not 10 mg/kg, it increases the time mice spend in the center of the open field test, increases mobility in the forced swim test, and decreases the latency to feed in the novelty suppressed feeding test.² It also increases proliferation and survival of adult-born granule cells in the hippocampus. Formulations containing vortioxetine have been used in the treatment of major depressive disorder.

1. Bang-Andersen, B., Ruhland, T., Jørgensen, M., et al. Discovery of 1-[2-(2,4-dimethylphenylsulfanyl)phenyl]piperazine (Lu AA21004): A novel multimodal compound for the treatment of major depressive disorder. *J. Med. Chem.* 54(9)3206-3221(2011)
2. Guilloux, J.P., Mendez-David, I., Pehrson, A., et al. Antidepressant and anxiolytic potential of the multimodal antidepressant vortioxetine (Lu AA21004) assessed by behavioural and neurogenesis outcomes in mice. *Neuropharmacology* 73 147-159(2013)

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