Product Data Sheet

Product Name: DD04107
Cat. No.: GC81401

Chemical Properties

Cas. No.	1202877-06-2		
Formula	$C_{48}H_{88}N_{14}O_{12}S$	M.Wt	1085.36
Solubility	H_2O: ≥ 100 mg/mL (92.14 mM)	Storage	Sealed storage, away from moisture
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.		

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

Structure

Background

DD04107 is a neuronal exocytosis inhibitor with a rat Syt1-C2B domain binding K d of 2.4 μM. DD04107 interferes with synaptobrevin-syntaxin-SNAP-25 complex formation and Syt1-SNARE complex interaction to block α-calcitonin gene-related peptide (α-CGRP) exocytotic release from primary sensory neurons. DD04107 blocks inflammatory ion channel recruitment to nociceptor plasma membranes. DD04107 can be used for the research of chronic inflammatory pain, neuropathic pain, osteosarcoma pain, chemotherapy-induced peripheral neuropathy, diabetic neuropathy, inflammatory pain [1] [2].

In Vivo, DD04107 (5 mg/kg; i.m.; single dose) displays potent in vivo anti-inflammatory and antihyperalgesic activity against carrageenan-induced inflammatory pain in Wistar rats[1]. DD04107

(1 mg/kg; i.m.; single dose) exhibits long-lasting (≥5 days) antihyperalgesic and antiallodynic activity against CFA-induced chronic inflammatory pain in Wistar rats[1]. DD04107 (0.1-0.5 mg/kg; s.c.; single dose) delivers long-lasting (up to 10 days) dose-dependent antihyperalgesic activity against vincristine-induced neuropathic pain in Sprague-Dawley rats[1]. DD04107 (0.5 mg/kg; s.c.; single dose) provides long-lasting (up to 12 days) antiallodynic activity against paclitaxel-induced neuropathic pain in Sprague-Dawley rats[1]. DD04107 (0.5-5 mg/kg; s.c.; single dose) exhibits dose-dependent antiallodynic activity lasting up to 24 hours against streptozotocin-induced diabetic neuropathic pain in CD1 mice[1]. DD04107 (0.1-3.0 mg/kg; s.c.; single dose) delivers potent, long-lasting (up to 7-8 days) dose-dependent antihyperalgesic and antiallodynic activity against osteosarcoma-induced bone cancer pain in C3H/He mice[1]. DD04107 (5 mg/kg; s.c.; single dose) produces antinociceptive activity in healthy Sprague-Dawley rats that is not mediated by opioid receptors[1].

In Vitro, DD04107 (5-50 μM; 1 h pretreatment) dose-dependently inhibits capsaicin-induced α-CGRP release from neonatal Wistar rat dorsal root ganglion primary sensory neurons in culture, with significant inhibition observed at 5 μM and stronger inhibition at 50 μM[1]. DD04107 (10 μM) does not exhibit significant binding affinity for most tested neuronal receptors, with only weak interactions (IC_{50} > 10 μM) observed for a small subset of receptors [1]. DD04107 (0.5-5 μM) does not inhibit hERG channel activity at 0.5 μM and 5 μM in human embryonic kidney 293 cells expressing hERG channels[1]. DD04107 (10 μM; 1 h) inhibits capsaicin-induced α-CGRP exocytosis from primary sensory nociceptor neurons isolated from neonatal Wistar rat dorsal root ganglia by 47%[2]. DD04107 binds selectively to the rat Syt1-C2B domain with a KD of 2.4 μM, and does not interact with the rat Syt7-C2B domain[2].

References:
[1]. Ponsati B, et al. An inhibitor of neuronal exocytosis (DD04107) displays long-lasting in vivo activity against chronic inflammatory and neuropathic pain. J Pharmacol Exp Ther. 2012;341(3):634-645.
[2]. Butrón D, et al. DD04107-Derived neuronal exocytosis inhibitor peptides: Evidences for synaptotagmin-1 as a putative target. Bioorg Chem. 2021;115:105231.