## Lumiprobe Corporation

201 International Circle, Suite 135
Hunt Valley, Maryland 21030
USA
Phone: +1 8889736353
Fax: +1 8889736354
Email: order@lumiprobe.com

## DREADD agonist 21 dihydrochloride

http://www.lumiprobe.com/p/dreadd-agonist-21-dihydrochloride
DREADD agonist 21 (Compound 21, C21) is a synthetic compound for selective activation of hM3Dq (excitatory) and hM4Di (inhibitory) DREADDs ( $\underline{D}$ esigner Receptor Exclusively Activated by Designer Drugs) derived from the human muscarinic acetylcholine M3 (hM3) receptor. It does not agonize the hM3 receptor and displays weaker binding affinities for histamine H1, serotonin 5-HT2A, 5-HT2C, and $\alpha 1$ A-adrenergic receptors ( $\mathrm{K}_{\mathrm{i}}=6,66,170$, and 280 nM , respectively) [1].

DREADD agonist 21 is routinely used as a chemogenetic tool for remotely controlling neuronal activity. It displays excellent brain permeability and capability to activate neurons expressing hM3Dq DREADDs and inhibit activity in neurons expressing hM4Di DREADDs in vivo [2].

This product is dihydrochloride salt, a water-soluble version of DREADD agonist 21.
[1] Chen X. et al. The first structure-activity relationship studies for designer receptors exclusively activated by designer drugs. ACS Chem. Neurosci. 2015. 6(3). 476-484.
[2] Thompson K.J. et al. DREADD agonist 21 is an effective agonist for muscarinic-based DREADDs in vitro and in vivo. ACS Pharmacol. Transl. Sci. 2018. 1(1). 61-72.


Structure of DREADD agonist 21 dihydrochloride

## General properties

Appearance: yellow-brown powder
Molecular weight: 351.28
CAS number: 2250025-92-2
Molecular formula: $\mathrm{C}_{17} \mathrm{H}_{18} \mathrm{~N}_{4}$
IUPAC name: 11-(1-piperazinyl)-5H-dibenzo[b,e][1,4]diazepine dihydrochloride
Solubility: in water, DMSO
Quality control: $\quad$ NMR ${ }^{1} \mathrm{H}$ and HPLC-MS (95+\%)
Storage conditions: 24 months after receival at $-20^{\circ} \mathrm{C}$ in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.

