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DATASHEET

DETQ

Product overview

Name	DETQ
Cat No	HB15406
Biological action	Potentiator
Description	Dopamine D_1 receptor selective PAM. Enhances genetically encoded dopamine sensor (e.g. dLight) sensitivity.

Images

Biological Data

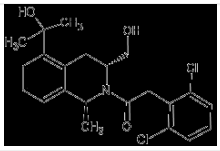
Biological description	Potent and selective dopamine D_1 receptor positive allosteric modulator (K_b = 11.4nM and EC_{50} = 5.8nM in human D_1 receptors). Suitable for use with genetically encoded dopamine sensors to enhance their sensitivity. When used with the dLight1.3b genetically encoded dopamine sensor, DETQ administration leads to an 8-fold increase in dopamine sensitivity (2µM to 244nM) with a K_b of 54nM. Due to a 30-fold lower affinity for rodent D_1 receptors (Mouse D_1: K_b = 312nM) compared to human (K_b = 11.4), DETQ is suitable for chemogenetic modulation of human based dopamine sensors in rodents. No cross-reactivity observed with D_2, D_5, β2, $5HT_6$ receptors. DETQ reverses reserpine induced locomotor deficits alongside increasing PFC histamine and acetylcholine concentrations in human D1 expressing mice. Orally bioavailable, active *in-vivo* and blood brain barrier permeable.

Solubility & Handling

Storage instructions	-20°C
Solubility overview	Soluble in DMSO

Storage instructions	-20°C
Shipping conditions	Room Temperature
Handling	For in vivo administration, Labouesse MA et al (2024) use a vehicle consisting of 20% 2-hydroxy-propyl-beta-cyclodextrin in puriified water with ultrasonication
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

Chemical Data

Chemical name	2-(2,6-dichlorophenyl)-1-[(1S,3R)-3-(hydroxymethyl)-5-(2-hydroxypropan-2-yl)-1-methyl-3,4-dihydro-1H-isoquinolin-2-yl]ethanone
Molecular Weight	422.3
Chemical structure	
Molecular Formula	$C_{22}H_{25}Cl_2NO_3$
CAS Number	1638667-81-8
PubChem identifier	117720272
SMILES	C[C@H]1C2=C(C[C@@H](N1C(=O)CC3=C(C=CC=C3Cl)Cl)CO)C(=CC=C2)C(C)(C)O
Source	Synthetic
InChi	InChI=1S/C22H25Cl2NO3/c1-13-15-6-4-7-18(22(2,3)28)16(15)10-14(12-26)25(13)21(27)11-17-19(23)8-5-9-20(17)24/h4-9,13-14,26,28H,10-12H2,1-3H3/t13-,14+/m0/s1
InChiKey	CWRORBWPLQQFMX-UONOGXRCSA-N
Appearance	white solid

References

Preclinical profile of a dopamine D1 potentiator suggests therapeutic utility in neurological and psychiatric disorders

Bruns RF et al (2018) Neuropharmacology
PubMedID 29102759

A chemogenetic approach for dopamine imaging with tunable sensitivity

Labouesse MA et al (2024) Nature Communications
PubMedID 38956067

Intracellular Binding Site for a Positive Allosteric Modulator of the Dopamine D1 Receptor

Wang X et al (2018) Molecular Pharmacology
PubMedID 30111649