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DATASHEET DAPT

Product overview

Name Cat No	DAPT
Biological action	Inhibitor
Purity	>98%
Description	γ -secretase inhibitor and classical notch inhibitor. Induces neuronal differentiation. 3D Growth matrix component and used in cerebral organoid differentiation media.

Images



Biological Data

Biological description

<u>Overview</u>

DAPT is a γ -secretase inhibitor which blocks notch signaling. It is a classical notch inhibitor.

It has been reported to inhibit amyloid beta (A β) in a dose-dependent manner although at low doses, an increase in A β production in cell culture and animal models has also been reported.

Uses & applications

DAPT is used in a variety of stem cell applications.

It has been shown that in combination with other small molecules that inhibit SMAD (SB 431542, LDN193189), activate WNT (CHIR99021) and inhibit FGF-signaling (SU5402), DAPT yields 75% postmitotic neurons in 11 days of differentiation. These are defined as peripheral sensory neurons.

Recently, DAPT in combination with LDN193189, SB431542, XAV939, PD0325901 and SU5402 has been shown to accelerate induction of early-born cortical neurons that have mature electrophysiological properties by day 16 of differentiation.

DAPT also enhances neuronal differentiation in ESC-derived embryoid bodies independent of Hhsignaling.

Additionally, the compound promotes cardiac differentiation of murine pluripotent stem cells and enhances the reprogramming of mouse fibroblasts to iCLMs (induced cardiac-like myocytes).

It is also used as a 3D Growth matrix component and used in cerebral organoid differentiation media.

Solubility & Handling

Storage instructions Solubility overview Important

+4°C Soluble in DMSO (100mM) 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 Molecular Weight **Chemical structure**

Molecular Formula

N-[N-(3,5-Difluorophenacetyl-L-alanyl)]-S-phenylglycine tbutyl ester 432.5

 $C_{23}H_{26}F_2N_2O_4$

CAS Number PubChem identifier SMILES Source InChi

208255-80-5 5311272 C[C@@H](C(=O)N[C@@H](C1=CC=CC=C1)C(=O)OC(C)(C)C)NC(=O)CC2=CC(=C2)F)F Synthetic InChI=1S/C23H26F2N2O4/c1-14(26-19(28)12-15-10-17(24)13-18(25)11-15)21(29)27-20(16-8-6-5-7 -9-16)22(30)31-23(2,3)4/h5-11,13-14,20H,12H2,1-4H3,(H,26,28)(H,27,29)/t14-,20-/m0/s1 DWJXYEABWRJFSP-XOBRGWDASA-N MFCD04974585 White to off-white solid

InChiKey **MDL** number Appearance

References

The Notch signaling inhibitor DAPT down-regulates cdk5 activity and modulates the distribution of neuronal cytoskeletal proteins.

Kanungo et al (2008) J Neurochem 106(5) PubMedID 18662245

The notch response inhibitor DAPT enhances neuronal differentiation in embryonic stem cell-derived embryoid bodies independently of sonic hedgehog signaling.

Crawford and Roelink (2007) Dev Dyn 236(3) PubMedID 17295317

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Dovey et al (2001) J Neurochem 76(1) PubMedID 11145990

Lingo-1 shRNA and Notch signaling inhibitor DAPT promote differentiation of neural stem/progenitor cells into neurons.

Wang et al (2015) Brain Res 8993(15) PubMedID 26607252