Small	Dopamine (Hydrochloride)	STENCELL [™]
Molecules	Catecholamine neurotransmitter	Scientists Helping Scientists™ │ WWW.STEMCELL.COM
Catalog #100-0887	10 g	TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713 INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

Dopamine is a catecholamine neurotransmitter and a beta-adrenergic and dopaminergic receptor agonist (Aslanoglou et al.; Hoban et al.; Wise). This endogenous neurotransmitter is linked to motor and motivational functions in the brain (Aslanoglou et al.; Wise). Reduction of dopamine neurons in the substantia nigra is one of the main pathological features of Parkinson's disease (Hoban et al.). In addition, dopamine is used in applications to investigate the neurological pathways related to reward and addiction, which have implications for psychiatric disorders (Taber et al.). Dopamine also plays a role in regulating the immune response and has been implicated in tumor immunity and autoimmune diseases (Xue et al.).

Alternative Names:	3-Hydroxy Tyramine; 3-Hydroxytyramine hydrochloride; KW 3160	
CAS Number:	62-31-7	
Chemical Formula:	C ₈ H ₁₁ NO ₂ • HCI	
Molecular Weight:	189.6 g/mol	
Purity:	≥ 98%	
Chemical Name:	4-(2-aminoethyl)-1,2-benzenediol, monohydrochloride	
Structure:		



Properties

Physical Appearance: Storage:

Solubility:

A crystalline solid

Product stable at room temperature (15 - 25°C) as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.

- \cdot PBS (pH 7.2) \leq 25 mM
- \cdot DMSO \leq 155 mM
- \cdot Absolute ethanol \leq 5.2 mM

For example, to prepare a 10 mM stock solution in PBS, resuspend 10 g in 5 L of PBS.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.



Published Applications

CANCER RESEARCH

· Activates the JNK pathway and induces apoptosis in human kidney cells (Luo et al.).

References

Aslanoglou D et al. (2021) Dopamine regulates pancreatic glucagon and insulin secretion via adrenergic and dopaminergic receptors. Transl Psychiatry 11(1): 59.

Hoban DB et al. (2020) Impact of α -synuclein pathology on transplanted hESC-derived dopaminergic neurons in a humanized α -synuclein rat model of PD. Proc Natl Acad Sci USA 117(26): 15209–20.

Luo Y et al. (1998) Dopamine Induces Apoptosis through an Oxidation-involved SAPK/JNK Activation Pathway. J Biol Chem 273(6): 3756–64.

Taber KH et al. (2012) Neuroanatomy of dopamine: reward and addiction. J Neuropsychiatry Clin Neurosci 24(1): 1-4.

Wise RA. (2004) Dopamine, learning and motivation. Nat Rev Neurosci 5(6): 483-94.

Xue R et al. (2018) Peripheral dopamine controlled by gut microbes inhibits invariant natural killer T cell-mediated hepatitis. Front Immunol 9: 2398.

Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).

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