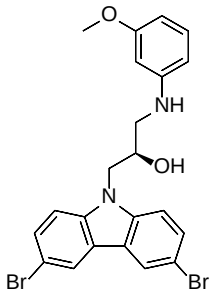
Product data sheet

MedKoo Cat#: 530596 Name: P7C3-OMe CAS: 1235481-43-2 Chemical Formula: $C_{22}H_{20}Br_2N_2O_2$ Exact Mass: 501.9892 Molecular Weight: 504.222	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
P7C3-OMe, also known as (R)-P7C3-OMe, is an analogue of P7C3 and P3C3-A20. P7C3 Attenuates the Scopolamine-Induced Memory Impairments in C57BL/6J Mice.P7C3-A20 promotes neurogenesis and improves cognitive function after ischemic stroke.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	59.50
DMSO	30.0	59.50
Ethanol	1.0	1.98

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.98 mL	9.92 mL	19.83 mL
5 mM	0.40 mL	1.98 mL	3.97 mL
10 mM	0.20 mL	0.99 mL	1.98 mL
50 mM	0.04 mL	0.20 mL	0.40 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Chen W, Jia W, Wu C, Chen L, Sun K, Wang J, Ding B, Liu N, Xu R. The Neurogenic Compound P7C3 Regulates the Aerobic Glycolysis by Targeting Phosphoglycerate Kinase 1 in Glioma. Front Oncol. 2021 Jun 18;11:644492. doi: 10.3389/fonc.2021.644492. PMID: 34221965; PMCID: PMC8252887.

2. Gu C, Hu Q, Wu J, Mu C, Ren H, Liu CF, Wang G. P7C3 Inhibits LPS-Induced Microglial Activation to Protect Dopaminergic Neurons Against Inflammatory Factor-Induced Cell Death in vitro and in vivo. Front Cell Neurosci. 2018 Nov 5;12:400. doi: 10.3389/fncel.2018.00400. PMID: 30455635; PMCID: PMC6230654.

In vivo study

1. Latchney SE, Jaramillo TC, Rivera PD, Eisch AJ, Powell CM. Chronic P7C3 treatment restores hippocampal neurogenesis in the Ts65Dn mouse model of Down Syndrome [Corrected]. Neurosci Lett. 2015 Mar 30;591:86-92. doi: 10.1016/j.neulet.2015.02.008. Epub 2015 Feb 7. Erratum in: Neurosci Lett. 2015 Jun 15;597():25. PMID: 25668489; PMCID: PMC4363293.

2. Pieper AA, Xie S, Capota E, Estill SJ, Zhong J, Long JM, Becker GL, Huntington P, Goldman SE, Shen CH, Capota M, Britt JK, Kotti T, Ure K, Brat DJ, Williams NS, MacMillan KS, Naidoo J, Melito L, Hsieh J, De Brabander J, Ready JM, McKnight SL.

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7. Bioactivity

Biological target:

(S)-P7C3-OMe, P7C3-A20 hydroxylated analog, is the (S)-enantiomer of P7C3-OMe. P7C3-OMe is a pro-neurogenic compound.

In vitro activity

This study showed that P7C3 specially suppressed the expression of lipopolysaccharide (LPS)-induced pro-inflammatory factors but not influenced the anti-inflammatory factors in microglia. The inhibition of the nuclear factor κB (NF-κB) signaling pathway was involved in the mechanisms of the anti-inflammatory effects by P7C3. LPS-induced activation of IκB kinase (IKK), degradation of the inhibitory κB alpha (IκBα) and nuclear translocation of NF-κB can be attenuated by the pretreatment of P7C3 in microglia. Furthermore, in LPS-treated microglia, P7C3-pretreatment decreased the toxicity of conditioned media to MES23.5 cells (a dopaminergic (DA) cell line).

Reference: Front Cell Neurosci. 2018 Nov 5;12:400. https://pubmed.ncbi.nlm.nih.gov/30455635/

In vivo activity

In vivo studies gave evidence that P7C3 exerts its proneurogenic activity by protecting newborn neurons from apoptosis. Mice missing the gene encoding neuronal PAS domain protein 3 (NPAS3) are devoid of hippocampal neurogenesis and display malformation and electrophysiological dysfunction of the dentate gyrus. Prolonged administration of P7C3 to npas3(-/-) mice corrected these deficits by normalizing levels of apoptosis of newborn hippocampal neurons. Prolonged administration of P7C3 to aged rats also enhanced neurogenesis in the dentate gyrus, impeded neuron death, and preserved cognitive capacity as a function of terminal aging.

Reference: Cell. 2010 Jul 9;142(1):39-51. https://pubmed.ncbi.nlm.nih.gov/20603013/