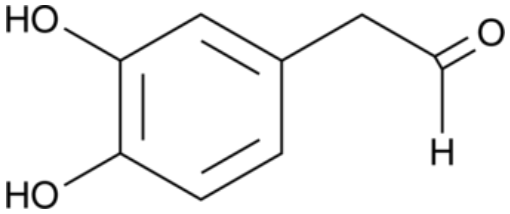
Product Data Sheet

Product Name: DOPAL
Cat. No.: GC40945

Chemical Properties

Cas. No.	5707-55-1		
Chemical Name	3,4-dihydroxy-benzeneacetaldehyde		
SMILES	OC1=C(O)C=CC(CC([H])=O)=C1		
Formula	$C_8H_8O_3$	M.Wt	152.1
Solubility	15mg/mL in ethanol or DMF, 10mg/mL in DMSO	Storage	Store at -20°C, protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

DOPAL is an aldehyde product of the oxidative deamination of dopamine by monoamine oxidase.[1] It can be further oxidized to 3,4-dihydroxyphenylacetic acid (DOPAC) by aldehyde dehydrogenase (ALDH) and, to a lesser extent reduced to 3,4-dihydroxyphenyl ethanol (DOPET). DOPAL is toxic to neurons.[2],[3] It can also oligomerize and precipitate α-synuclein, an event associated with Parkinson's disease.[2] Mice lacking cytosolic and mitochondrial forms of ALDH display increased levels of DOPAL as well as neurodegeneration and motor dysfunction characteristic of Parkinson's disease.[4]

Reference:

[1]. Jinsmaa, Y., Florang, V.R., Rees, J.N., et al. Products of oxidative stress inhibit aldehyde

Caution: Product has not been fully validated for medical applications. For research use only.
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oxidation and reduction pathways in dopamine catabolism yielding elevated levels of a reactive intermediate. Chemical Research in Toxicology 22(5), 835-841 (2009).
[2]. Goldstein, D.S., Sullivan, P., Holmes, C., et al. Determinants of buildup of the toxic dopamine metabolite DOPAL in Parkinson's disease. Journal of Neurochemistry 126(5), 591-603 (2013).
[3]. Panneton, W.M., Kumar, V.B., Gan, Q., et al. The neurotoxicity of DOPAL: Behavioral and stereological evidence for its role in Parkinson disease pathogenesis. PLoS One 5(12), e15251 (2010).
[4]. Wey, M.C.Y., Fernandez, E., Martinez, P.A., et al. Neurodegeneration and motor dysfunction in mice lacking cytosolic and mitochondrial aldehyde dehydrogenases: implications for Parkinson's disease. PLoS One 7(2), e31522 (2012).

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