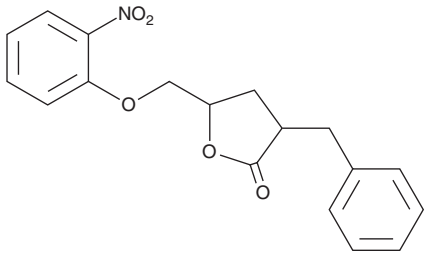
PRODUCT INFORMATION

3BDO

Item No. 29441

CAS Registry No.:	890405-51-3
Formal Name:	2,3-dideoxy-5-O-(2-nitrophenyl)-2-(phenylmethyl)-pentonic acid, γ-lactone
Synonym:	3-Benzyl-5-((2-nitrophenoxy)methyl) dihydrofuran-2(3H)-one
MF:	$C_{18}H_{17}NO_5$
FW:	327.3
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

3BDO is supplied as a crystalline solid. A stock solution may be made by dissolving the 3BDO in the solvent of choice, which should be purged with an inert gas. 3BDO is soluble in the organic solvent DMSO at a concentration of approximately 65 mg/ml.

Description

3BDO is a butyrolactone derivative and inhibitor of autophagy.[1,2] It increases phosphorylation of the mammalian target of rapamycin (mTOR) substrates, eIF4E-binding protein 1 (EIF4EBP1), and RPS6KB1/p70S6K1 in human umbilical vein endothelial cells (HUVECs) when used at a concentration of 60 µM.[1] 3BDO (60 µM) also prevents rapamycin-induced MAP1LC3B puncta formation, a marker of autophagy, in HUVECs. It inhibits apoptosis, senescence, and increases in integrin β4 levels induced by serum- and FGF2-deprivation in HUVECs when used at a concentration of 40 µg/ml.[3] 3BDO (80 mg/kg per day) reduces cortical and hippocampal amyloid plaque burden, inhibits autophagy in the brain, and rescues learning and memory deficits in the AβPP/PS1 transgenic mouse model of Alzheimer's disease.[2]

References

1. Ge, D., Han, L., Huang, S., *et al.* Identification of a novel MTOR activator and discovery of a competing endogenous RNA regulating autophagy in vascular endothelial cells. *Autophagy* **10(6)**, 957-971 (2014).
2. Wei, L., Yang, H., Xie, Z., *et al.* A butyrolactone derivative 3BDO alleviates memory deficits and reduces amyloid-β deposition in an AβPP/PS1 transgenic mouse model. *J. Alzheimers Dis.* **30(3)**, 531-543 (2012).
3. Wang, W., Liu, X., Zhang, Y., *et al.* Both senescence and apoptosis induced by deprivation of growth factors were inhibited by a novel butyrolactone derivative through depressing integrin β4 in vascular endothelial cells. *Endothelium* **14(6)**, 325-332 (2007).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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