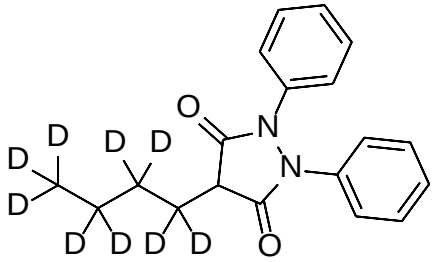
Product data sheet

MedKoo Cat#: 464698 Name: Phenylbutazone-d9 CAS: 1189479-75-1 Chemical Formula: $C_{19}H_{11}D_9N_2O_2$ Exact Mass: 317.209 Molecular Weight: 317.4359	
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:
Phenylbutazone-d9 is intended for use as an internal standard for the quantification of phenylbutazone by GC- or LC-MS. Phenylbutazone is a non-steroidal anti-inflammatory drug and an inhibitor of the peroxidase activity of COX (IC50 = ~100 µM in the presence of hydrogen peroxide). It also inhibits prostaglandin I synthase (IC50 = ~25 µM in the presence of hydrogen peroxide). Phenylbutazone (2 mg/kg) reduces increases in type II collagen levels in the inflamed joints of an equine model of LPS-induced acute synovitis. Formulations containing phenylbutazone have been used in the treatment of lameness in horses.

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
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.15 mL	15.75 mL	31.50 mL
5 mM	0.63 mL	3.15 mL	6.30 mL
10 mM	0.32 mL	1.58 mL	3.15 mL
50 mM	0.06 mL	0.32 mL	0.63 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. Walters B, Trumble TN, Wendt-Hornickle E, Kennedy M, Guedes A. Effects of cyclooxygenase and soluble epoxide hydrolase inhibitors on apoptosis of cultured primary equine chondrocytes. Res Vet Sci. 2022 Oct;147:44-49. doi: 10.1016/j.rvsc.2022.04.002. Epub 2022 Apr 12. PMID: 35447388.
2. Cho JY. Immunomodulatory effect of nonsteroidal anti-inflammatory drugs (NSAIDs) at the clinically available doses. Arch Pharm Res. 2007 Jan;30(1):64-74. doi: 10.1007/BF02977780. PMID: 17328244.

In vivo study

1. Chen G, Masuda A, Konishi H, Ohkawara B, Ito M, Kinoshita M, Kiyama H, Matsuura T, Ohno K. Phenylbutazone induces expression of MBNL1 and suppresses formation of MBNL1-CUG RNA foci in a mouse model of myotonic dystrophy. Sci Rep. 2016 Apr 29;6:25317. doi: 10.1038/srep25317. PMID: 27126921; PMCID: PMC4850456.

7. Bioactivity
Biological target:

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Phenylbutazone-d9 is the deuterium labeled Phenylbutazone. Phenylbutazone is an efficient reducing cofactor for the peroxidase activity of prostaglandin H synthase (PHS). Phenylbutazone, a hepatotoxin, is a nonsteroidal anti-inflammatory agent (NSAID).

In vitro activity

In the caspase model, 10xIC80t-TUCB significantly decreased whereas 10xIC80 phenylbutazone significantly enhanced apoptosis. Apoptosis enhancement by phenylbutazone was significantly attenuated by concurrent 10xIC80t-TUCB. The remaining treatments and concentrations had no effect on apoptosis development. In the ER stress model, IC50 and IC80 phenylbutazone and firocoxib significantly enhanced apoptosis, which was fully prevented by concurrent 10xIC80t-TUCB.

Reference: Res Vet Sci. 2022 Oct;147:44-49. https://pubmed.ncbi.nlm.nih.gov/35447388/

In vivo activity

This study found that a nonsteroidal anti-inflammatory drug (NSAID), phenylbutazone (PBZ), upregulated the expression of MBNL1 in C2C12 myoblasts as well as in the HSA(LR) mouse model for DM1. In the DM1 mice model, PBZ ameliorated aberrant splicing of Clcn1, Nfix, and Rpn2. PBZ increased expression of skeletal muscle chloride channel, decreased abnormal central nuclei of muscle fibers, and improved wheel-running activity in HSA(LR) mice.

Reference: Sci Rep. 2016 Apr 29;6:25317. https://pubmed.ncbi.nlm.nih.gov/27126921/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.