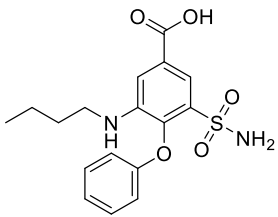


Product data sheet



MedKoo Cat#: 317355 Name: Bumetanide CAS#: 28395-03-1 Chemical Formula: C ₁₇ H ₂₀ N ₂ O ₅ S Exact Mass: 364.10929 Molecular Weight: 364.4161	
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:

Bumetanide is a loop diuretic of the sulfamyl category to treat heart failure. It is often used in people in whom high doses of furosemide are ineffective. It is marketed by Hoffmann-La Roche. The main difference between the two substances is in bioavailability and pharmacodynamic potency. Furosemide is incompletely absorbed in the intestine (60%), and there are substantial inter- and intraindividual differences in bioavailability (range 10-90%). Bumetanide is almost completely absorbed (80%), and the absorption is not altered when it is taken with food. It is said to be a more predictable diuretic, meaning that the predictable absorption is reflected in a more predictable effect.

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
DMSO	53.81	147.66
DMF	33.0	90.56
DMF:PBS (pH 7.2) (1:1)	0.5	1.37
Ethanol	20.67	56.72

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.74 mL	13.72 mL	27.44 mL
5 mM	0.55 mL	2.74 mL	5.49 mL
10 mM	0.27 mL	1.37 mL	2.74 mL
50 mM	0.05 mL	0.27 mL	0.55 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

- Skorput AG, Lee SM, Yeh PW, Yeh HH. The NKCC1 antagonist bumetanide mitigates interneuronopathy associated with ethanol exposure in utero. *Elife*. 2019 Sep 23;8:e48648. doi: 10.7554/eLife.48648. PMID: 31545168; PMCID: PMC6768659.
- Dzhala V, Staley KJ. Acute and chronic efficacy of bumetanide in an in vitro model of posttraumatic epileptogenesis. *CNS Neurosci Ther*. 2015 Feb;21(2):173-80. doi: 10.1111/cns.12369. Epub 2014 Dec 12. PMID: 25495911; PMCID: PMC4391014.

In vivo study

- Matsumoto D, Ushio S, Wada Y, Noda Y, Esumi S, Izushi Y, Kitamura Y, Sendo T. Bumetanide prevents diazepam-modified anxiety-like behavior in lipopolysaccharide-treated mice. *Eur J Pharmacol*. 2021 Aug 5;904:174195. doi: 10.1016/j.ejphar.2021.174195. Epub 2021 May 15. PMID: 34004209.

Product data sheet



2. Palaniappan B, Solomon AP, C DR. Targeting AgrA quorum sensing regulator by bumetanide attenuates virulence in Staphylococcus aureus - A drug repurposing approach. Life Sci. 2021 May 15;273:119306. doi: 10.1016/j.lfs.2021.119306. Epub 2021 Mar 1. PMID: 33662434.

7. Bioactivity

Biological target:

Bumetanide (Ro 10-6338; PF 1593), a highly potent loop diuretic, is a Na⁺-K⁺-Cl⁻ cotransporter (NKCC) blocker.

In vitro activity

The addition of bumetanide (20μM) to the culture medium prevented the ethanol-induced escalation of Nkx2.1⁺ interneuron migration into the cortex with no significant difference observed compared to control (Figure 3a and b; EtOH+Bumet x⁻ = 61.1 ± 2.4 cells, 10 cultures; P > 0.999; effect size ω² for treatment = 0.23).

Reference: eLife. 2019; 8: e48648. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6768659/>

In vivo activity

This study further found that the decrease in head-dipping behavior caused by diazepam was blocked by bumetanide, a Na⁺-K⁺-2Cl⁻ cotransporter isoform 1 (NKCC1) antagonist, in LPS-treated mice.

Reference: Eur J Pharmacol. 2021 Aug 5;904:174195. <https://pubmed.ncbi.nlm.nih.gov/34004209/>

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.