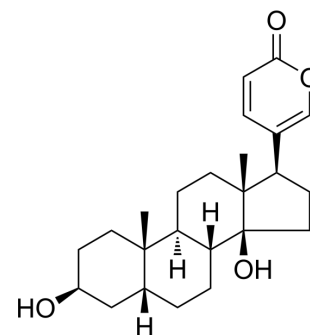


## Bufalin

<b>Cat. No.:</b>	HY-N0877		
<b>CAS No.:</b>	465-21-4		
<b>Molecular Formula:</b>	C <sub>24</sub> H <sub>34</sub> O <sub>4</sub>		
<b>Molecular Weight:</b>	386.52		
<b>Target:</b>	Na <sup>+</sup> /K <sup>+</sup> ATPase		
<b>Pathway:</b>	Membrane Transporter/Ion Channel		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 100 mg/mL (258.72 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	1 mM	2.5872 mL	12.9359 mL	25.8719 mL
		5 mM	0.5174 mL	2.5872 mL	5.1744 mL
10 mM		0.2587 mL	1.2936 mL	2.5872 mL	
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.08 mg/mL (5.38 mM); Clear solution</li> </ol>				

### BIOLOGICAL ACTIVITY

<b>Description</b>	Bufalin is an active component isolated from Chan Su, acts as a potent Na <sup>+</sup> /K <sup>+</sup> -ATPase inhibitor, binds to the subunit α1, α2 and α3, with K <sub>d</sub> of 42.5, 45 and 40 nM, respectively <sup>[1][2]</sup> . Anti-cancer activity <sup>[2]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	Kd: 42.5 nM (Na,K-ATPase α1), 45 nM (Na,K-ATPase α2), 40 nM (Na,K-ATPase α3) <sup>[1]</sup>
<b>In Vitro</b>	Bufalin (0, 1, 2, 4 μM for 48 hours) decreases cell viability in NCI-H460 cells <sup>[2]</sup> . Bufalin (2 μM) increases caspae-3, Endo G and GADD153 mRNA expression, but decreases the GRP78 mRNA expression <sup>[2]</sup> .

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

#### Cell Viability Assay<sup>[2]</sup>

Cell Line:	NCI-H460 cells
Concentration:	0, 1, 2, 4 $\mu$ M
Incubation Time:	48 hours
Result:	Decreased viability of NCI-H460 cells in a dose-dependent manner.

#### In Vivo

Bufalin (0.1, 0.2, or 0.4 mg/kg, i.p., daily for 14 days) shows significant anti-tumor activity in mice bearing NCI-H460 cells<sup>[2]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Forty male athymic BALB/c nu/nu mice (6-8 weeks old) <sup>[2]</sup>
Dosage:	0.1, 0.2, or 0.4 mg/kg
Administration:	I.P. every day until 14 days
Result:	Dose-dependently suppressed tumor growth.

## CUSTOMER VALIDATION

- Pharmacol Res. 2021 Nov 2;105927.
- Apoptosis. 2023 May 30.
- Int J Mol Sci. 2022 Nov 1;23(21):13354.
- Int J Mol Med. 2020 Dec;46(6):2137-2149.
- Cancers. 2020 Aug 4;12(8):2169.

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## REFERENCES

[1]. Katz A, et al. Selectivity of digitalis glycosides for isoforms of human Na,K-ATPase. J Biol Chem. 2010 Jun 18;285(25):19582-92.

[2]. Wu SH, et al. Bufalin induces apoptosis in vitro and has Antitumor activity against human lung cancer xenografts in vivo. Environ Toxicol. 2017 Apr;32(4):1305-1317.

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA