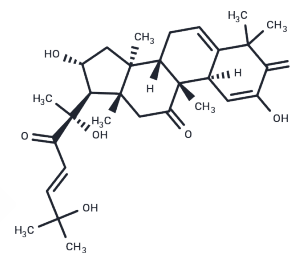


## Cucurbitacin I

## Chemical Properties

CAS No. :	2222-07-3
Formula:	C <sub>30</sub> H <sub>42</sub> O <sub>7</sub>
Molecular Weight:	514.65
Storage:	Store at low temperature, Keep away from moisture Powder: -20°C for 3 years   In solvent: -80°C for 1 year <small>Actual storage temperature shall be subject to the COA.</small>



## Biological Description

Description	Cucurbitacin I (JSI-124), a natural compound, is a selective inhibitor of JAK2/STAT3 with anti-cancer activity.
Targets(IC50)	STAT,JAK
In vitro	The anticancer activity of Cucurbitacin I is accomplished by downregulating p-STAT3 and MMP-9 expression [1]. Incubation of the Seax cell line with the Jak/Stat3 inhibitor Cucurbitacin I result in a time- and concentration-dependent decrease of P-Stat3 and Stat3. Incubation of freshly isolated Sz cells with 30 μM Cucurbitacin I for 6 hours induces apoptosis in the large majority (73-91%) of tumor cells [2]. PE-induced cell enlargement and upregulation of ANF and β-MHC are significantly suppressed by pretreatment of the cardiomyocytes with Cucurbitacin I. Cucurbitacin I also impaired connective tissue growth factor (CTGF) and MAPK signaling, pro-hypertrophic factors, as well as TGF-β/Smad signaling, the important contributing factors to fibrosis [3].
In vivo	The differences in tumor volume between the Cucurbitacin I and control, combination and control, and combination and Cucurbitacin I arms are significant. Furthermore, combination-treated tumors exhibit a significantly lower average tumor weight at study termination than control. Moreover, there was no effect on the body weights of mice [4].
Animal Research	BALB/c nude (nu/nu) female mice are used. U251 cells (5×10 <sup>6</sup> cells in 50 μL of serum-free DMEM) are inoculated subcutaneously into the right flank of 5-week-old female mice after acclimatization for a week. Tumor growth is measured daily with calipers. When the tumors reach a mean volume of 90-120 mm <sup>3</sup> , animals are randomized into groups. In the first experiment, 16 mice are randomly assigned to Cucurbitacin I (1 mg/kg/day in 20% DMSO in PBS) or drug vehicle control (20% DMSO in PBS) and dosed intraperitoneally with 100 μL of vehicle or drug once daily for 18 days, whereas, in the second, 20 mice are assigned to four groups. Control animals receive 20% DMSO in PBS vehicle, whereas treated animals are injected with Cucurbitacin I (1 mg/kg/day) in 20% DMSO in PBS, CQ (25 mg/kg/day) in 20% DMSO in PBS, and Cucurbitacin I (1 mg/kg/day) plus CQ (25 mg/kg/day) in 20% DMSO in PBS and dosed intraperitoneally with 100 μL of vehicle or drug once daily for 15 days [4].

## Solubility Information

## A DRUG SCREENING EXPERT

Solubility	DMSO: 95 mg/mL (184.59 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.5 mg/mL (4.86 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

### Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9431 mL	9.7153 mL	19.4307 mL
5 mM	0.3886 mL	1.9431 mL	3.8861 mL
10 mM	0.1943 mL	0.9715 mL	1.9431 mL
50 mM	0.0389 mL	0.1943 mL	0.3886 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Song J, et al. Cucurbitacin I inhibits cell migration and invasion and enhances chemosensitivity in colon cancer. *Oncol Rep.* 2015 Apr;33(4):1867-71.

Gong X, Liu Y, Liang K, et al.Cucurbitacin I Reverses Tumor-Associated Macrophage Polarization to Affect Cancer Cell Metastasis.*International Journal of Molecular Sciences.*2023, 24(21): 15920.

Jeong MH, et al. Cucurbitacin I Attenuates Cardiomyocyte Hypertrophy via Inhibition of Connective Tissue Growth Factor (CCN2) and TGF-  $\beta$ /Smads Signalings. *PLoS One.* 2015 Aug 21;10(8):e0136236.

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Yuan G, et al. Cucurbitacin I induces protective autophagy in glioblastoma in vitro and in vivo. *J Biol Chem.* 2014 Apr 11;289(15):10607-19.

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