# Butyrolactone 3

**Cat. No.:** HY-129039

**CAS No.:** 778649-18-6

**Molecular Formula:** $C_9H_{12}O_4$

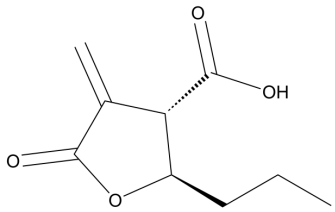
**Molecular Weight:** 184.19

**Target:** Histone Acetyltransferase

**Pathway:** Epigenetics

**Storage:** Powder -20°C 3 years

* The compound is unstable in solutions, freshly prepared is recommended.




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (542.92 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 5.4292 mL | 27.1459 mL | 54.2918 mL |
| | 5 mM | 1.0858 mL | 5.4292 mL | 10.8584 mL |
| | 10 mM | 0.5429 mL | 2.7146 mL | 5.4292 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (11.29 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (11.29 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (11.29 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Butyrolactone 3 (MB-3) is a specifical small-molecule inhibitor of the histone acetyltransferase Gcn5 ($IC_{50}$=100 μM), which has a high affinity to the Gcn5 enzyme comparable to that of its natural substrate, histone H3. Butyrolactone 3 shows weak inhibitory on CBP ($IC_{50}$=0.5 mM). Butyrolactone 3 can be used in studies of cancer, metabolic, autoimmune and neurological diseases[1][2][3].

**$IC_{50}$ & Target**

GCN5
100 μM ($IC_{50}$)

**In Vitro**

Butyrolactone 3 (50, 100, 200 μM, 16 h) can reduce acetylation of Gcn5 and induce degradation of E2A-PBX1[3].

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

Western Blot Analysis[3]

| | |
|---|---|
| Cell Line: | RCH-ACV |
| Concentration: | 50, 100, 200 μM |
| Incubation Time: | 16 h |
| Result: | Decreased the protein levels of E2A-PBX1 and E2A in a dose-dependent manner. Reduced Wnt16 and GCN5 protein levels. |

## CUSTOMER VALIDATION

- Cell Death Dis. 2022 Apr 30;13(4):421.
- Liver Int. 2023 May 15.
- J Agric Food Chem. 2021 Dec 23.
- Neurosci Lett. 2022 Jun 15;136742.

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## REFERENCES

[1]. Haque ME, et al. The GCN5: its biological functions and therapeutic potentials. Clin Sci (Lond). 2021 Jan 15;135(1):231-257.

[2]. Holmlund T, et al. GCN5 acetylates and regulates the stability of the oncoprotein E2A-PBX1 in acute lymphoblastic leukemia. Leukemia. 2013 Mar;27(3):578-85.

[3]. Biel M,et al. Design, synthesis, and biological evaluation of a small-molecule inhibitor of the histone acetyltransferase Gcn5.Angew Chem Int Ed Engl. 2004 Jul 26;43(30):3974-6



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