# Bohemine

**Cat. No.:** HY-12843

**CAS No.:** 189232-42-6

**Molecular Formula:** $C_{18}H_{24}N_6O$

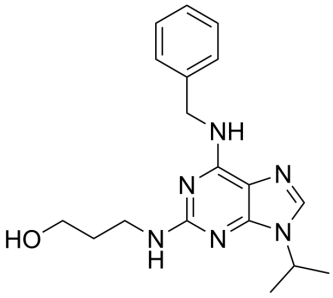
**Molecular Weight:** 340.42

**Target:** CDK; ERK

**Pathway:** Cell Cycle/DNA Damage; MAPK/ERK Pathway; Stem Cell/Wnt

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| In solvent | -80°C | 6 months |
| | -20°C | 1 month |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (293.75 mM; Need ultrasonic)

| Preparing Stock Solutions | Mass / Solvent / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.9375 mL | 14.6877 mL | 29.3755 mL |
| | 5 mM | 0.5875 mL | 2.9375 mL | 5.8751 mL |
| | 10 mM | 0.2938 mL | 1.4688 mL | 2.9375 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: ≥ 2.5 mg/mL (7.34 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.34 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.34 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Bohemine is a purine analogue and is a synthetic and selective CDK inhibitor with $IC_{50}$s of 4.6 μM, 83 μM, and 2.7 μM for Cdk2/cyclin E, Cdk2/cyclin A, and Cdk9/cyclin T1, respectively. Bohemine also inhibits ERK2 with an $IC_{50}$ of 52 μM and has less inhibitory effect on CDK1, CDK4 and CDK6. Bohemine has a broad spectrum anti-cancer activities[1][2].

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

| | | | |
|---|---|---|---|
| CDK2/cyclinE | cdk2/cyclin A | CDK9/cyclinT1 | ERK2 |
| 4.6 μM ($IC_{50}$) | 83 μM ($IC_{50}$) | 2.7 μM ($IC_{50}$) | 52 μM ($IC_{50}$) |

**In Vitro**

Bohemine (0-30 μM; 72 hours; ME-750 cells) treatment inhibits cell growth. Addition of Bohemine at concentrations in the

range of 1-10 μM results in a short-term arrest of growth and of monoclonal antibody production. The short-term suppression of cell functions is followed by a significant temporary increase of specific growth rate and of specific production rate[1].
Hybridoma cells are retarded both at the G1/S boundary and at the G2/M boundary, depending on Bohemine (0-30 μM) concentration[1].
T-lymphoblastic cell line CEM is treated by Bohemine, five proteins are found to be downregulated, namely α-enolase, triosephosphate isomerase, initiation factor 5A, and α- and β-subunits of Rho GDP-dissociation inhibitor 1. These proteins play significant roles in glycolysis, proteosynthesis, and in cytoskeleton rearrangement[1].
Bohemine inhibits growth of human tumor cell lines with an $IC_{50}$ of 27 μM[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

| | |
|---|---|
| Cell Line: | Mouse hybridoma ME-750 cells |
| Concentration: | 0 μM, 1 μM, 3 μM, 10 μM and 30 μM |
| Incubation Time: | 72 hours |
| Result: | At 10 μM and 30 μM concentrations, the viable cell count was significantly lower with respect to control, i.e., 77% and 48%, respectively. |

**In Vivo**

Bohemine (50 mg/kg; intravenous injection; BALB/c mice) treatment shows $C_{max}$ is 72,308 nM, observed clearance is 0.23 L/h and $T_{1/2}$ is 1.39 h[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | BALB/c mice bearing the colon 26 murine tumor[2] |
| Dosage: | 50 mg/kg |
| Administration: | Intravenous injection (Pharmacokinetic Analysis) |
| Result: | $C_{max}$ is 72,308 nM, observed clearance is 0.23 L/h and $T_{1/2}$ is 1.39 h. |

## CUSTOMER VALIDATION

- EMBO Rep. 2022 Apr 11;e53932.

See more customer validations on www.MedChemExpress.com

## REFERENCES

[1]. Franek F, et al. Diverse effects of the cyclin-dependent kinase inhibitor bohemine: Concentration- and time-dependent suppression or stimulation of hybridoma culture. Cytotechnology. 2001 Jul;36(1-3):117-23.

[2]. Raynaud FI, et al. In vitro and in vivo pharmacokinetic-pharmacodynamic relationships for the trisubstituted aminopurine cyclin-dependent kinase inhibitors olomoucine, bohemine and CYC202. Clin Cancer Res. 2005 Jul 1;11(13):4875-87.

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

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