# EB1

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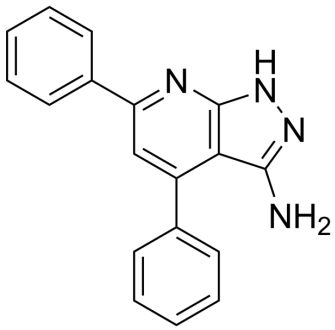
|---|---|
| **Cat. No.:** | HY-146805 |
| **CAS No.:** | 42951-68-8 |
| **Molecular Formula:** | $C_{18}H_{14}N_4$ |
| **Molecular Weight:** | 286.33 |
| **Target:** | MNK; Eukaryotic Initiation Factor (eIF); Apoptosis |
| **Pathway:** | MAPK/ERK Pathway; Cell Cycle/DNA Damage; Apoptosis |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |



## BIOLOGICAL ACTIVITY

**Description**

EB1 is the inhibitor of kinases MNK with $IC_{50}$s of 0.69 μM (MNK1) and 9.4 μM (MNK2). EB1 selectively inhibits the growth of cancer cells, but not normal cells. EB1 also increases cell apoptosis and suppresses eIF4E phosphorylation[1][2].

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

| MNK1 | MNK2 | eIF4E |
|---|---|---|
| 0.69 μM ($IC_{50}$) | 9.4 μM ($IC_{50}$) | |

**In Vitro**

EB1 (1.3-40 μM; 24 hr) inhibits the phosphorylation of eIF4E dose-dependently[1].
EB1 (2.5-40 μM; 72 hr) shows dose-dependent cytotoxicity on tumor cells, and induces apoptosis[1].
EB1 (5 μM, 10 μM, and 20 μM; 24 hr) acts directly on MNK kinases without perturbing activating upstream signaling, such as activation of p38 (p-p38) and phosphorylation of its downstream effector HSP27[1].
EB1 (compound 14) inhibits the growth of HepG2 and MCF-7 cancer cells with $IC_{50}$s of 0.74 μM and 5.18 μM, respectively[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

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| Cell Line: | MDA-MB-231, MDA-MB-468, MCF7, and IMR90 cells |
| Concentration: | 1.3 μM, 2.5 μM, 5 μM, 10 μM, 20 μM, 40 μM |
| Incubation Time: | 24 hours |
| Result: | Blocked the phosphorylation of eIF4E in a dose-dependent manner. |

Apoptosis Analysis[1]

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|---|---|
| Cell Line: | MDA-MB-231, MDA-MB-468, MCF7, and IMR90 cells |
| Concentration: | 2.5 μM, 5 μM, 10 μM, 20 μM, 40 μM |
| Incubation Time: | 72 hours |
| Result: | Increased the percentage of apoptosis cells among tumor cells. |

## REFERENCES

[1]. Bou-Petit E, et al. Overcoming Paradoxical Kinase Priming by a Novel MNK1 Inhibitor. J Med Chem. 2022 Apr 28;65(8):6070-6087.

[2]. Aboukhatwa SM, et al. Nicotinonitrile-derived apoptotic inducers: Design, synthesis, X-ray crystal structure and Pim kinase inhibition. Bioorg Chem. 2022 Dec;129:106126.



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