# PI3K/AKT-IN-1

**Cat. No.:** HY-144806

**Molecular Formula:** $C_{23}H_{23}N_5O_4S$

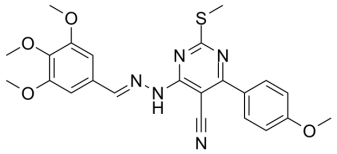
**Molecular Weight:** 465.52

**Target:** PI3K; Akt; Apoptosis

**Pathway:** PI3K/Akt/mTOR; Apoptosis

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 6 months |
| | -20°C | 1 month |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 50 mg/mL (107.41 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.1481 mL | 10.7407 mL | 21.4814 mL |
| | 5 mM | 0.4296 mL | 2.1481 mL | 4.2963 mL |
| | 10 mM | 0.2148 mL | 1.0741 mL | 2.1481 mL |

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

## BIOLOGICAL ACTIVITY

**Description**

PI3K/AKT-IN-1 is an effective PI3K/AKT dual inhibitor ($IC_{50}$ of 6.99, 4.01 and 3.36 μM for PI3Kγ, PI3Kδ and AKT, respectively). PI3K/AKT-IN-1 has anticancer activity and acts by inhibiting PI3K/AKT axis and inducing caspase 3 dependent apoptosis[1].

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

| PI3Kγ | PI3Kδ |
|---|---|
| 6.99 μM ($IC_{50}$) | 4.01 μM ($IC_{50}$) |

**In Vitro**

PI3K/AKT-IN-1 (compound 7f) (0.04-100 μM; 48 hours) has high cytotoxic activity on both cell lines with better activity on leukaemia cell line (K562 $IC_{50}$=2.62 μM) than on the breast cancer cell line (MCF-7 $IC_{50}$=3.22 μM)[1].

PI3K/AKT-IN-1 (2.62 μM) can promote S-phase cell cycle arrest and apoptosis induction in K562 cells[1].

PI3K/AKT-IN-1 (2.62 μM; 48 hours) causes an increase in the percentage of Annexin-V positive apoptotic cells both in the early and late stage[1].

PI3K/AKT-IN-1 (2.62 μM; 48 hours) markedly reduces the expression of PI3K, AKT, Cyclin D1 and NF-κB[1].

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

Cell Cytotoxicity Assay

| | |
|---|---|
| Cell Line: | MCF-7 and K562 cells[1] |

| | |
|---|---|
| Concentration: | 0.04-100 μM |
| Incubation Time: | 48 hours |
| Result: | Demonstrated high cytotoxic activity on both cell lines with better activity on leukaemia cell line (K562 $IC_{50}$=2.62 μM) than on the breast cancer cell line (MCF-7 $IC_{50}$=3.22 μM). |

Cell Cycle Analysis

| | |
|---|---|
| Cell Line: | K562 cells[1] |
| Concentration: | 2.62 μM |
| Incubation Time: | |
| Result: | Promoted S-phase cell cycle arrest and apoptosis induction. |

Apoptosis Analysis

| | |
|---|---|
| Cell Line: | K562 cells[1] |
| Concentration: | 2.62 μM |
| Incubation Time: | 48 hours |
| Result: | Caused an increase in the percentage of Annexin-V positive apoptotic cells both in the early and late stage. |

Western Blot Analysis

| | |
|---|---|
| Cell Line: | K562 cells[1] |
| Concentration: | 2.62 μM |
| Incubation Time: | 48 hours |
| Result: | Markedly reduced the expression of PI3K, p-PI3K, AKT, p-AKT, Cyclin D1 and NF-κB. |

**In Vivo**

PI3K/AKT-IN-1 (2000 mg/kg; p.o.; single) is non-toxic and is well tolerated by experimental animals[1].

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

| | |
|---|---|
| Animal Model: | Female rats (180-200g)[1] |
| Dosage: | 2000 mg/kg |
| Administration: | p.o.; single |
| Result: | The median lethal dose ($LD_{50}$) was greater than the test dose (2000 mg/kg). |

## CUSTOMER VALIDATION

- Adv Sci (Weinh). 2022 Jul 28;e2200546.
- Acta Pharmacol Sin. 2023 Dec 6.
- Int J Mol Sci. 2023 Nov 21, 24(23), 16552.

- Toxicology. 2023 Jan 10;485:153426.
- Exp Ther Med. 2023 Sep 14.

See more customer validations on www.MedChemExpress.com

## REFERENCES

[1]. El-Dydamony NM, et al. Pyrimidine-5-carbonitrile based potential anticancer agents as apoptosis inducers through PI3K/AKT axis inhibition in leukaemia K562. J Enzyme Inhib Med Chem. 2022;37(1):895-911.



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