Product Datasheet

4-Oxofenretinide

Catalog No. **BP-06857** · CAS **865536-65-8** · Form **free base** · Physical state **solid** · Version **1.0** · Revision **2026-11-16**

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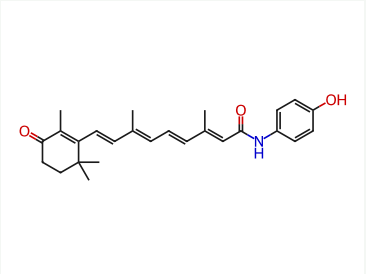
Target	Research area
Apoptosis; Reactive Oxygen Species (ROS); Drug Metabolite	**Cancer**

Molecular formula	**$C_{26}H_{31}NO_3$**
Molecular weight	**405.5292**

STRUCTURE



DESCRIPTION

4-Oxofenretinide (4-Oxo-4-HPR) is a metabolite of Fenretinide 4-Oxofenretinide induces cell growth inhibition in ovarian, breast, and neuroblastoma tumor cell lines. 4-Oxofenretinide causes a marked accumulation of cells in G2-M. 4-Oxofenretinide induces cancer cell apoptosis through caspase-9 .

BIOLOGICAL ACTIVITY

In Vitro

Anti-cancer

4-Oxofenretinide (4-oxo-4-HP) (0.3-10 μM; 72 h) inhibits the growth of all 16 tested ovarian cancer, breast cancer, and neuroblastoma cell lines, with SK-N-MC showing the lowest IC50 (0.4 μM), and both A2780 and A2780/HPR cells showing an IC50 of 0.6 μM[1].

Anti-cancer

Apoptosis

4-Oxofenretinide (5-10 μM; 24 h) induces DNA fragmentation in A2780 and A2780/HPR cells[1].

4-Oxofenretinide (5-10 μM; 24 h) activates caspase-3 and caspase-9, but not caspase-8, in A2780 and A2780/HPR cells[1].

Anti-cancer

Cell Cycle Regulation

4-Oxofenretinide (5 μM; 24 h) decreases cdc25c and p-cdk1 and increases p21 and p53 in A2780 and A2780/HPR cells[1].

4-Oxofenretinide (4-Oxo-4-HPR) (5 μM; 24 h) increases the mitotic index by approximately 5-6 fold and causes A2780, IGROV-1, T47D, and BT-20 cells to arrest in mitosis with abnormal chromosome alignment[4].

REFERENCES

[1]. Villani MG, et al. 4-oxo-fenretinide, a recently identified fenretinide metabolite, induces marked G2-M cell cycle arrest and apoptosis in fenretinide-sensitive and fenretinide-resistant cell lines. Cancer Res. 2006 Mar 15;66(6):3238-47.

[2]. Cooper JP, et al. Fenretinide metabolism in humans and mice: utilizing pharmacological modulation of its metabolic pathway to increase systemic exposure. British journal of pharmacology. 2011 Jul;163(6):1263-75.

[3]. Tiberio P, et al. Sodium 4-Carboxymethoxyimino-(4-HPR) a Novel Water-Soluble Derivative of 4-Oxo-4-HPR Endowed with In Vivo Anticancer Activity on Solid Tumors. Front Pharmacol. 2017 Apr 26;8:226.

[4]. Appierto V, et al. Antimitotic effect of the retinoid 4-oxo-fenretinide through inhibition of tubulin polymerization: a novel mechanism of retinoid growth-inhibitory activity. Molecular cancer therapeutics. 2009 Dec;8(12):3360-8.
