

Product Data Sheet

Product Name: 740 Y-P
 Cat. No.: GC16157

Chemical Properties

Cas. No. 1236188-16-1

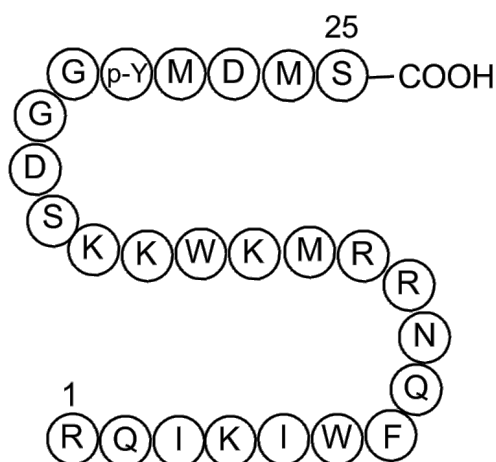
Formula $C_{141}H_{222}N_{43}O_{39}PS_3$ M.Wt 3270.72

Solubility $\geq 163.536\text{mg/mL}$ in DMSO Storage -20°C , protect from light

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:	
Cell lines	AGS and HGC-27 cells
Preparation Method	AGS and HGC-27 cells were treated with $20\mu\text{M}$ 740 Y-P for 24h, then cell viability was assessed using the 3-(4,5-dimethylthiazol-2-yl)-3,5-diphenyltetrazolium bromide (MTT) assay.

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

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Reaction Conditions	20μM; 24h
Applications	Treatment with 740 Y-P significantly promoted the viability of AGS and HGC-27 cells.
Animal experiment [2]:	
Animal models	Nu/Nu mice bearing SK-OV-3 OCSC xenografts
Preparation Method	Nu/Nu mice bearing SK-OV-3 OCSC xenografts were intraperitoneally injected with 20mg/kg 740 Y-P twice weekly for 4 weeks. Tumor growth was monitored using a small animal <i>in vivo</i> imaging system on days 7, 14, 21, and 28. After 4 weeks, mice were euthanized, and tumors were excised and weighed.
Dosage form	20mg/kg; twice weekly; 4 weeks; i.p.
Applications	Treatment with 740 Y-P significantly promoted tumor growth (tumor volume increased from 188.88mm ³ to 386.4mm ³ ; tumor weight increased from 198.24mg to 405.72mg).

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References:

- [1] Yang L, Liu Y N, Gu Y, et al. Deltonin enhances gastric carcinoma cell apoptosis and chemosensitivity to cisplatin via inhibiting PI3K/AKT/mTOR and MAPK signaling[J]. World Journal of Gastrointestinal Oncology, 2023, 15(10): 1739.
- [2] Liang J, Bai Y, Zhao H. Inhibition of PI3K and Hedgehog signaling pathway inhibits Hypoxia-Induced vasculogenic mimicry formation in ovarian cancer stem cells[J]. Balkan Medical Journal, 2025, 42(5): 440.

Background

740 Y-P is a potent, cell-permeable activator of phosphoinositide 3-kinase (PI3K) [1]. PI3Ks are a family of intracellular enzymes that function by converting the membrane lipid PIP2 to PIP3, which acts as a second messenger to activate downstream signaling networks that regulate cell growth, proliferation, survival, and metabolism[2]. 740 Y-P is commonly used as a tool activator of the PI3K/Akt signaling pathway in research areas including neuronal survival, antitumor activity, and vesicular trafficking[3,4].

In vitro, 740 Y-P (20 μ M) treated gastric cancer AGS and HGC-27 cells for 24h, significantly promoting cell viability[5]. 740 Y-P (10 μ M) treated MIR22HG-knockdown human bone marrow mesenchymal stem cells (hBMSCs) during osteogenic induction for 7 days, partially reversing the decrease in alkaline phosphatase (ALP) activity caused by MIR22HG knockdown[6].

In vivo, 740 Y-P (20mg/kg) was intraperitoneally co-administered with Imperatorin (IMP, 25mg/kg) to myocardial ischemia/ reperfusion injury (MIRI) mice 3h before model establishment. Compared with IMP alone, 740 Y-P further increased the expression of p-PI3K, p-AKT, and nuclear Nrf2 proteins in myocardial tissue[7]. 740 Y-P (20mg/kg; twice weekly) was intraperitoneally administered to Nu/Nu mice bearing SK-OV-3 OCSC (ovarian cancer stem cells isolated from the SK-OV-3 cell line) xenografts for 4 weeks, significantly promoting tumor growth (tumor volume increased from 188.8mm³ to 386.4mm³; tumor weight increased from 198.24mg to 405.72mg) [8].

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- [1] Zeng L, Fan W, Tao L, et al. Eriodictyol modulates glioma cell autophagy and apoptosis by inhibition of PI3K/Akt/mTOR signaling pathway[J]. Tropical Journal of Pharmaceutical Research, 2020, 19(11).
- [2] Czech M P. PIP2 and PIP3: complex roles at the cell surface[J]. Cell, 2000, 100(6): 603-606.
- [3] Xi X, Wang X, Ma J, et al. miR-130a-3p enhances autophagy through the YY1/PI3K/AKT/mTOR signaling pathway to regulate macrophage polarization and alleviate diabetic retinopathy[J]. Journal of Diabetes Investigation, 2025, 16(3): 392-404.
- [4] Sun Z, Sun L, Tu L. GABAB receptor-mediated PI3K/Akt signaling pathway alleviates oxidative stress and neuronal cell injury in a rat model of Alzheimer's disease[J]. Journal of Alzheimer's Disease, 2020, 76(4): 1513-1526.
- [5] Yang L, Liu Y N, Gu Y, et al. Deltonin enhances gastric carcinoma cell apoptosis and chemosensitivity to cisplatin via inhibiting PI3K/AKT/mTOR and MAPK signaling[J]. World Journal of Gastrointestinal Oncology, 2023, 15(10): 1739.
- [6] Jin C, Jia L, Tang Z, et al. Long non-coding RNA MIR22HG promotes osteogenic differentiation of bone marrow mesenchymal stem cells via PTEN/AKT pathway[J]. Cell death & disease, 2020, 11(7): 601.
- [7] Han M, Yu F, Li H. Imperatorin ameliorates myocardial ischemia-reperfusion injury by inhibiting endoplasmic reticulum stress-mediated apoptosis via the PI3K/AKT/Nrf2 pathway[J]. Journal of Cell Communication and Signaling, 2026, 20(2): e70084.
- [8] Liang J, Bai Y, Zhao H. Inhibition of PI3K and Hedgehog signaling pathway inhibits Hypoxia-Induced vasculogenic mimicry formation in ovarian cancer stem cells[J]. Balkan Medical Journal, 2025, 42(5): 440.

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