

Product Data Sheet

Product Name: Caraphenol A

Cat. No.: GC68829

Chemical Properties

Cas. No. 354553-35-8

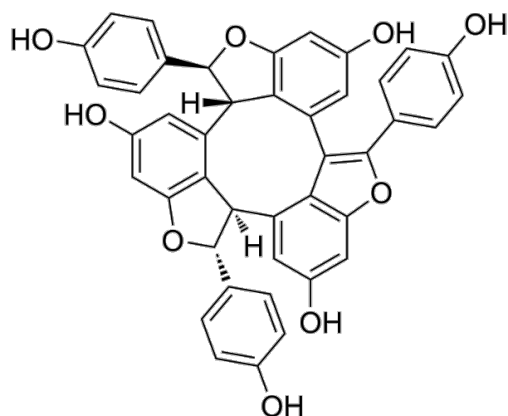
Formula $C_{42}H_{28}O_9$ M.Wt 676.67

Solubility DMSO : 50 mg/mL (73.89 mM; Need ultrasonic) Storage 4°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 HeLa cells (human epithelial immortal cell line)

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

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HeLa cells were maintained in Dulbecco's minimal essential medium (DMEM) supplemented with 10% heat-inactivated fetal bovine serum (FBS) at 37°C, 5% CO₂. HeLa cells were transduced with VSV-G pseudotyped pRRL-SIN-MND-EGFP lentiviral vector (LV) at a multiplicity of infection (MOI) of 10 in the presence of Caraphenol A for 8 hours.

Reaction Conditions 30-50μM; 8h

Applications Caraphenol A significantly enhanced LV gene delivery efficiency in HeLa cells, increasing EGFP marking frequency about twofold. Caraphenol A decreased interferon-induced transmembrane protein (IFITM)-mediated restriction by altering the levels of IFITM2 and IFITM3 proteins and their association with late endosomes, thus augmenting LV core endosomal escape.

Animal experiment [2]:

Animal models Male Kunming mice (25-30g)

Preparation Method Hyperuricemia (HUA) was induced by daily intraperitoneal injection of potassium oxonate (100mg/kg) and intragastric administration of hypoxanthine (500mg/kg) for 7 consecutive days. From day 3 to 7, Caraphenol A were administered via oral gavage.

Dosage form 5, 10, and 20mg/kg; oral gavage; once daily for 5 days

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Applications

Caraphenol A significantly reduced serum uric acid levels, alleviated hyperuricemia-induced renal injury, inhibited hepatic xanthine oxidase (XOD) activity and protein expression, modulated renal uric acid transporters (URAT1, GLUT9, OAT1, and ABCG2), and suppressed inflammatory cascades by affecting the "cytokine-cytokine receptor interaction" pathway.

References:

- [1] Ozog S, Timberlake ND, Hermann K, et al. Resveratrol trimer enhances gene delivery to hematopoietic stem cells by reducing antiviral restriction at endosomes. *Blood*. 2019 Oct 17;134(16):1298-1311.
- [2] Fang L, Tian XL, Zhou DM, et al. The resveratrol trimer caraphenol A from *Caragana sinica* alleviates hyperuricemia and hyperuricemia-induced renal injury in mice by modulating uric acid metabolism and inflammatory pathways. *J Ethnopharmacol*. 2026 May 20;369:121874.

Background

Caraphenol A is a natural resveratrol trimer. Caraphenol A downregulates the expression of interferon-induced transmembrane (IFITM) proteins and inhibits human cystathionine β -synthase (hCBS; $IC_{50}=5.9\mu M$) and human cystathionine γ -lyase (hCSE; $IC_{50}=12.1\mu M$). Caraphenol A can be used for gene therapy (e.g., hematopoietic stem cell gene delivery) and research related to hyperuricemia, gout, and associated renal injury^[1-4].

In vitro, HeLa cells were pretreated with Caraphenol A (30-50 μM) for 8 hours, followed by transduction with VSV-G pseudotyped lentiviral vectors (MOI=10) for 20 hours. Caraphenol A significantly downregulated the expression of IFITM2 and IFITM3 proteins and altered their association with late endosomes, thereby enhancing the gene delivery efficiency of lentiviral vectors^[5]. hURAT1-HEK293T cells were treated with Caraphenol A ($IC_{50}=5.45\mu M$) for 8 minutes. Caraphenol A significantly inhibited URAT1 activity^[6].

In vivo, hyperuricemic Kunming mice were orally administered Caraphenol A (5, 10, 20mg/kg; once daily) for 5 days. Caraphenol A significantly reduced serum uric acid levels, alleviated renal injury, inhibited hepatic xanthine oxidase (XOD) activity, and modulated renal uric acid transporters (URAT1,

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GLUT9, OAT1, ABCG2)^[6].

References:

- [1] Niu W, Wu P, Chen F, et al. Discovery of selective cystathionine β -synthase inhibitors by high-throughput screening with a fluorescent thiol probe. *Medchemcomm.* 2016 Nov 15;8(1):198-201.
- [2] Li X, Xie Y, Xie H, et al. π - π Conjugation Enhances Oligostilbene's Antioxidant Capacity: Evidence from α -Viniferin and Caraphenol A. *Molecules.* 2018 Mar 19;23(3):694.
- [3] Jin Q, Han XH, Hong SS, et al. Antioxidative oligostilbenes from *Caragana sinica*. *Bioorg Med Chem Lett.* 2012 Jan 15;22(2):973-6.
- [4] Snyder SA, Brill ZG. Structural revision and total synthesis of caraphenol B and C. *Org Lett.* 2011 Oct 21;13(20):5524-7.
- [5] Ozog S, Timberlake ND, Hermann K, et al. Resveratrol trimer enhances gene delivery to hematopoietic stem cells by reducing antiviral restriction at endosomes. *Blood.* 2019 Oct 17;134(16):1298-1311.
- [6] Fang L, Tian XL, Zhou DM, et al. The resveratrol trimer caraphenol A from *Caragana sinica* alleviates hyperuricemia and hyperuricemia-induced renal injury in mice by modulating uric acid metabolism and inflammatory pathways. *J Ethnopharmacol.* 2026 May 20;369:121874.

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