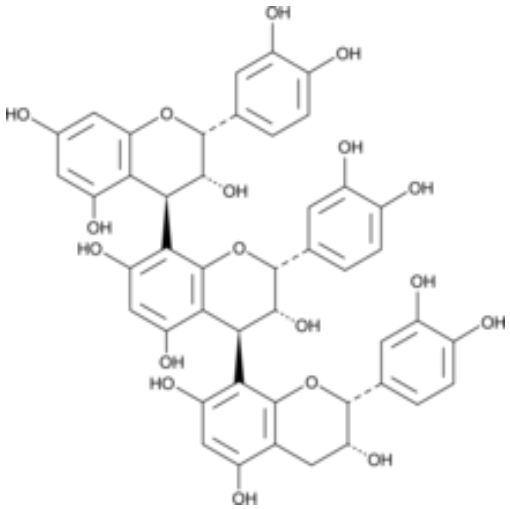
Product Data Sheet

Product Name: Procyanidin C1
Cat. No.: GC44689

Chemical Properties

Cas. No.	37064-30-5		
SMILES	OC1=CC=C([C@H]2OC(C([C@H]3C4=C(O)C=C(O)C=C4O[C@H](C5=CC(O)=C(O)C=C5)[C@@H]3O)=C(O)C=C6O)=C6[C@H](C7=C(O)C=C(O)C8=C7O[C@H](C9=CC=C(O)C(O)=C9)[C@H](O)C8)[C@H]2O)C=C1O		
Formula	C45H38O18	M.Wt	866.8
Solubility	DMF: 30 mg/ml,DMSO: 30 mg/ml,Ethanol: 30 mg/ml,PBS (pH 7.2): 10 mg/ml	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]:

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Cell lines	MCF-7 cells
Preparation Method	MCF-7 cells were cultured in minimal essential medium (MEM) supplemented with 4.5g/l glucose, 100mg/ml penicillin and streptomycin, 2mM L-glutamine and 5% fetal bovine serum (FBS) at 37°C in a humidified incubator under 5% CO_2. MCF-7 cells (5000 cells per well) were inoculated into 96-well plates overnight. Procyanidin C1 was applied in concentrations of (6.25, 12.5, 25, 50, and 100μg/ml). After 72h of treatment, cell viability was detected.
Reaction Conditions	6.25, 12.5, 25, 50, and 100μg/ml; 72h
Applications	Procyanidin C1 treatment reduced viability of MCF-7 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models	Male C57BL/6 mice
Preparation Method	Male C57BL/6 mice (8 weeks of age) were housed in stainless steel rust-free cages at 22-24°C with 45-55% relative humidity. To generate the repetitive-dose BLM-induced pulmonary fibrosis model, the mice were anesthetized prior to surgery. After anesthesia, the mice received an intratracheal injection of 1mg/kg BLM or normal saline for 20μl (control) once a week for six weeks. After 17 days of BLM administration, the mice received an intraperitoneal injection of 100μl Procyanidin C1 (20mg/kg/week) or normal saline (control). On day 42 after BLM administration, the mice were sacrificed and lung tissues were collected for analysis.
Dosage form	20mg/kg/week; 4 weeks; i.p.

Caution: Product has not been fully validated for medical applications. For research use only.
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Applications	Procyanidin C1 treatment significantly inhibited BLM-induced pulmonary fibrosis in mice.

References:

[1] Koteswari L L, Kumari S, Kumar A B, et al. A comparative anticancer study on procyanidin C1 against receptor positive and receptor negative breast cancer[J]. Natural product research, 2020, 34(22): 3267-3274.

[2] Shao M, Qiu Y, Shen M, et al. Procyanidin C1 inhibits bleomycin-induced pulmonary fibrosis in mice by selective clearance of senescent myofibroblasts[J]. The FASEB Journal, 2024, 38(13): e23749.

Background

Procyanidin C1 is an oral polyphenol with antiproliferative properties [1]. Procyanidin C1 mitigates atherosclerosis by targeting both metabolic and inflammatory pathways through senescent cell clearance and HSP90-mediated blockade of the TLR2/NF-κB signaling axis[2]. Procyanidin C1 has been widely used to improve the osteoarthritic microenvironment and energetic metabolism[3].

In vitro, Procyanidin C1 treatment for 48 hours significantly inhibited the viability of MCF-7 and MDA-MB-231 cells, with the IC_{50} values of 31.5 and 36.6μg/ml, respectively [4]. Treatment with 25μM Procyanidin C1 for 5 days significantly inhibited the aging of L929 cells induced by D-galactose and rescued the G2/M phase arrest[5]. Treatment with 10μM Procyanidin C1 for 12 hours inhibited glutamate-induced apoptosis of HT22 cells and reduced excessive accumulation of intracellular reactive oxygen species (ROS)[6].

In vivo, Procyanidin C1 treatment via oral administration at a dose of 30mg/kg every two days for 8 days significantly inhibited tumor growth and activated the PKA/PP2A/CPI17/MRLC pathway in B16 tumor-bearing C57BL/6J mice[7]. Intraperitoneal injection of Procyanidin C1 at a dose of 20mg/kg once weekly for 4 weeks reversed bleomycin (BLM)-induced pulmonary fibrosis and alleviated structural damage in lung tissues in a mouse model[8].

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References:

[1] Villalaín J. Procyanidin C1 location, interaction, and aggregation in two complex biomembranes[J]. Membranes, 2022, 12(7): 692.

[2] Li M, Si J Y, Xie P F, et al. Procyanidin C1 from hawthorn modulates metabolic-inflammatory axis to combat vascular senescence in atherosclerosis[J]. Food Research International, 2025: 118224.

[3] Wu X, Xiang R, Yang L, et al. Procyanidin C1 ameliorates osteoarthritis through epigenetic modulation of RAGEs[J]. Food & Function, 2025, 16(23): 9022-9032.

[4] Koteswari L L, Kumari S, Kumar A B, et al. A comparative anticancer study on procyanidin C1 against receptor positive and receptor negative breast cancer[J]. Natural product research, 2020, 34(22): 3267-3274.

[5] Wang J H, Li M, Xie P F, et al. Procyanidin C1 ameliorates aging-related skin fibrosis through targeting EGFR to inhibit TGFβ/SMAD pathway[J]. Phytomedicine, 2025, 142: 156787.

[6] Song J H, Lee H J, Kang K S. Procyanidin C1 activates the Nrf2/HO-1 signaling pathway to prevent glutamate-induced apoptotic HT22 cell death[J]. International journal of molecular sciences, 2019, 20(1): 142.

[7] Bae J, Kumazoe M, Murata K, et al. Procyanidin C1 inhibits melanoma cell growth by activating 67-kDa laminin receptor signaling[J]. Molecular nutrition & food research, 2020, 64(7): 1900986.

[8] Shao M, Qiu Y, Shen M, et al. Procyanidin C1 inhibits bleomycin-induced pulmonary fibrosis in mice by selective clearance of senescent myofibroblasts[J]. The FASEB Journal, 2024, 38(13): e23749.

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