

Product Data Sheet

Product Name: Digitonin
Cat. No.: GC32854

Chemical Properties

Cas. No. 11024-24-1

SMILES C[C@@]12[C@]([C@@H]3C([H])[C@](O[C@]34CC[C@@H](C)CO4)([H])[C@@H](O)[C@@]1([H])[C@@](CC[C@]5([H])[C@@]6(C[C@@H](O)[C@H](O[C@]([C@@H]([C@@H](O)[C@H]7O[C@@](O[C@H](CO)[C@@H](O)[C@@H]8O[C@@](OC[C@@H](O)[C@@H]9O)([H])[C@@H]9O)([H])[C@@H]8O[C@@](O[C@H](CO)[C@H

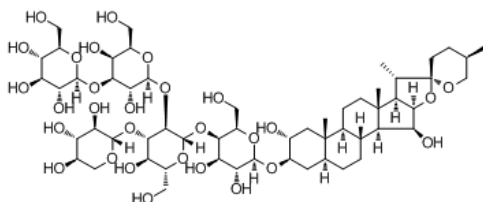
Formula $C_{56}H_{92}O_{29}$ M.Wt 1229.31

Solubility DMF: 30 mg/ml, DMSO: 30 mg/ml Storage Store at 4°C, stored under nitrogen

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]:

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

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Cell lines	Caco-2 and MCF-7 cells
Preparation Method	The cells were incubated with 100 µl of medium containing different concentrations of digitonin and other secondary metabolites for 24 hours.
Reaction Conditions	0-500µM for 24 hours.
Applications	Digitonin showed the high exhibition to Caco-2, MCF-7 with IC ₅₀ of 15.72 ± 0.16 and 5.23 ± 0.61µM, respectively.
Animal experiment [2]:	
Animal models	Inbred rats of both sexes of the Lister-Hooded (LH) strain
Preparation Method	Digitonin was dissolved in dimethylsulfoxide (DMSO) and diluted with saline to yield a solution that contained 400 µM digitonin and 40 µM DMSO; 0.2 ml of the solution was infused into the hepatic artery.
Dosage form	400 µM 0.2 ml of Digitonin solution, a catheter (PE 10, inner diameter 0.28 mm, outer diameter 0.61 mm) was inserted into the hepatic artery proper via the gastroduodenal artery

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Applications After pretreatment with digitonin the platinum content in the tumour as measured at 1 h after CBDCA infusion was 66 ± 19 ng/mg. This was more than 5 times higher than the values obtained after pretreatment with saline alone (12 ± 4 ng/mg) or with DMSO-saline (10 ± 2 ng/mg)

References:

- [1]: Eid S Y, El-Readi M Z, Wink M. Digitonin synergistically enhances the cytotoxicity of plant secondary metabolites in cancer cells[J]. Phytomedicine, 2012, 19(14): 1307-1314.
- [2]: Lindn  r P G, Heath D, Howell S B, et al. Digitonin enhances the efficacy of carboplatin in liver tumour after intra-arterial administration[J]. Cancer chemotherapy and pharmacology, 1997, 40(5): 444-448.

Background

Digitonin is a steroidal saponin used extensively as a mild non-ionic detergent [1]. Digitonin finds application as a cholesterol precipitating agent [2]. Digitonin increases cell permeability by binding specifically to cholesterol in the cell membrane [4].

Digitonin had high exhibition against Caco-2, MCF-7 with IC₅₀ of 15.72 ± 0.16 and $5.23 \pm 0.61 \mu\text{M}$, respectively. Combinations of the panel of SM with a non-toxic concentration of digitonin (2 or 5 μM) generally enhanced the cytotoxicity in Caco-2, MCF-7 cells [3]. Pretreatment with digitonin increases the tumour uptake of carboplatin and potentiates the cytotoxic effect of carboplatin [4].

References:

- [1]. Bridges C D. A method for preparing stable digitonin solutions for visual pigment extraction[J]. Vision Research, 1977, 17(2): 301-302.
- [2]. Haust H L, Kuksis A, Beveridge J M R. Quantitative precipitation of various 3 β -hydroxysterols with digitonin[J]. Canadian Journal of Biochemistry, 1966, 44(1): 119-128.
- [3]. Eid S Y, El-Readi M Z, Wink M. Digitonin synergistically enhances the cytotoxicity of plant secondary metabolites in cancer cells[J]. Phytomedicine, 2012, 19(14): 1307-1314.
- [4]. Lindn  r P G, Heath D, Howell S B, et al. Digitonin enhances the efficacy of carboplatin in liver

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