

Product Data Sheet

Product Name: Acarbose sulfate

Cat. No.: GC17266

Chemical Properties

Cas. No. 1221158-13-9

SMILES C[C@]1([H])[C@](N[C@@]2([H])C=C([C@](O)([H])[C@@](O)([H])[C@@]2([H])O)CO)([H])[C@@](O)([H])[C@](O)([H])[C@](O[C@]([C@@](O)([H])[C@](O)([H])[C@](O[C@]([C@@](O)([H])[C@](O)([H])[C@]3([H])O)([H])[C@@](O3)([H])CO)([H])O4)([H])[C@@]4([H])CO)([H])O1.OS(O)(=O)=O

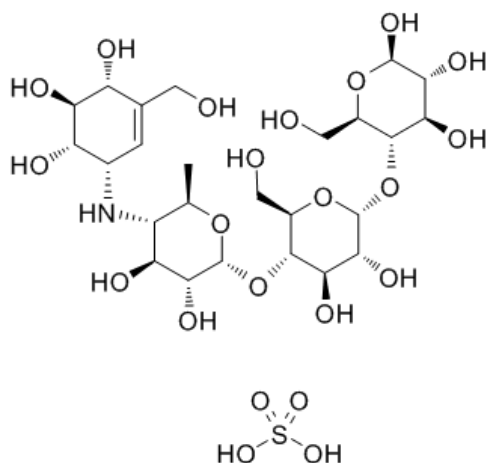
Formula C₂₅H₄₅NO₂₂S M.Wt 743.68

Solubility Soluble in DMSO Storage Store at -20°C

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

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

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Cell experiment: Cell viability is determined using the MTT assay. Cells are seeded in 24-well culture plates at a density of 2×10^4 cells/well, incubated for 48 h, treated with acarbose at varying concentrations (0.5, 1.0, 2.0, 3.0, and 5.0 μ M) for 24 h; or pre-treated with TNF- α (20 ng/mL) for either 24 h or 48 h to evaluate the dose-dependent effects of acarbose on VSMC growth and viability, cultured with 0.5 mg/mL MTT at 37°C in a humidified atmosphere of 5% CO₂ for another 4 h, and solubilized with isopropanol. The viable cell number varies directly with the concentration of formazan product measured spectrophotometrically at 563 nm.

Animal experiment: Twenty-four male New Zealand white rabbits, weighing 2500 g are used. They are individually housed in metal cages in an air-conditioned room ($22 \pm 2^\circ\text{C}$, $55 \pm 5\%$ humidity), under a 12 h light/12 h dark cycle with free access to food and water. All rabbits are randomly assigned to four groups of 6 animals each and are fed either standard chow (Group I), high cholesterol diet (HCD; containing 95.7% standard Purina chow + 3% lard oil + 0.5% cholesterol) (Group II), HCD diet and 2.5 mg/kg per day acarbose (Group III), or HCD diet and 5.0 mg/kg per day acarbose (Group IV). At the end of the 25 weeks, all rabbits are sacrificed by exsanguination under deep anesthesia with pentobarbital (30 mg/kg i.v.) injected via the marginal ear vein. Serum is stored at -80°C prior to measurement of serum values. The aortic arch and thoracic aortas are carefully removed to protect the endothelial lining, and are collected and freed of adhering soft tissue.

References:

- [1]. Zhang Q, et al. Acarbose Reduces Blood Glucose by Activating miR-10a-5p and miR-664 in Diabetic Rats. PLoS One. 2013 Nov 18;8(11):e79697.
- [2]. Chan KC, et al. Pleiotropic effects of acarbose on atherosclerosis development in rabbits are mediated via upregulating AMPK signals. Sci Rep. 2016 Dec 7;6:3864

Background

Acarbose sulfate is an inhibitor of alpha glucosidase, an anti-diabetic drug.

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Acarbose (1, 2, and 3 μ M) dose- and time-dependently inhibits TNF- α -induced VSMC proliferation and migration. Acarbose (1, 2, and 3 μ M) dose-dependently decreases β -galactosidase, Ras expression and increased p-AMPK expression in TNF- α pre-treated A7r5 cells[2].

Acarbose (300 mg/60 kg body weight) decreases the fasting blood glucose, and regulates the glucose tolerance of DM rats without body weight loss. Acarbose significantly suppresses serum IL6 and TNF- α in DM rats[1]. Acarbose (2.5 and 5.0 mg/kg) significantly and dose-dependently decreases the intensity of neointimal IL-6, TNF- α , and iNOS staining, and significantly increases the intensity of neointimal p-AMPK staining. Acarbose (2.5 and 5.0 mg/kg) significantly and dose-dependently decreases neointimal Ras and β -galactosidase expression in HCD-fed rabbits without body weight loss[2].

References:

- [1]. Zhang Q, et al. Acarbose Reduces Blood Glucose by Activating miR-10a-5p and miR-664 in Diabetic Rats. PLoS One. 2013 Nov 18;8(11):e79697.
- [2]. Chan KC, et al. Pleiotropic effects of acarbose on atherosclerosis development in rabbits are mediated via upregulating AMPK signals. Sci Rep. 2016 Dec 7;6:3864

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