

Product Data Sheet

Product Name: Alitame
Cat. No.: GD01460

Chemical Properties

Cas. No. 80863-62-3

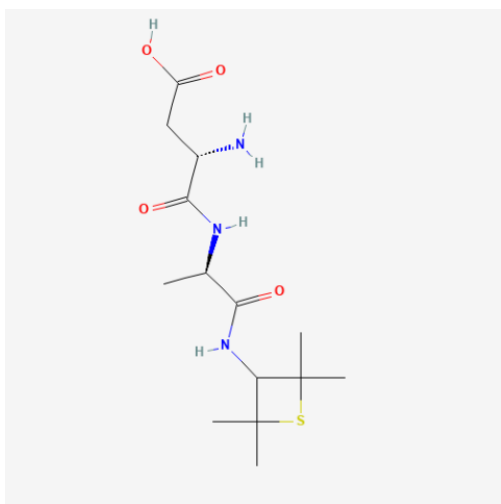
Formula $C_{14}H_{25}N_3O_4S$ M.Wt 331.4

Solubility DMSO : 125 mg/mL (377.15 mM; Need ultrasonic) 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 [1]:	
Cell lines	R2/R3 U2OS cells (human osteosarcoma stable cell line expressing hT1R2 and hT1R3)
Preparation Method	R2/R3 U2OS cells were seeded on Epic 384 microplates at 16,000 cells/well in 40µL assay media and cultured at 37°C, 5% CO ₂ for 18-24h. Cells were then washed and equilibrated in D-PBS for 90min. After baseline recording, cells were treated with Alitame at concentrations up to 1000µM for 30min and DMR responses were monitored. In parallel, R2/R3 U2OS cells were transduced with Ga15 baculovirus and loaded with Fluo-4 AM, then treated with Alitame for calcium mobilization measurement in a FLIPR assay.
Reaction Conditions	0-1mM; 30min
Applications	Alitame produced dose-dependent DMR responses in R2/R3 U2OS cells with an EC ₅₀ of 37µM. Alitame also produced calcium mobilization in R2/R3 U2OS cells overexpressing Ga15 with an EC ₅₀ of 20µM.
References:[1] Servant NB, Williams ME, Brust PF, et al. A Dynamic Mass Redistribution Assay for the Human Sweet Taste Receptor Uncovers G-Protein Dependent Biased Ligands. Front Pharmacol. 2022 Feb 17;13:832529.	

Background

Alitame is a novel dipeptide sweetener with a sweetness approximately 2000 times that of sucrose. Alitame is partially absorbed in the gastrointestinal tract and hydrolyzed into aspartic acid and alanine amide metabolites. Alitame is excreted as glucuronide conjugates and other forms. Alitame exhibits better thermal stability and pH stability than various dipeptide sweeteners. Alitame can be used in studies on low-calorie foods, sugar-free beverages, and sweetening alternatives for diabetic diets^[1-4].

In vitro, R2/R3 U2OS cells expressing human sweet taste receptors T1R2/T1R3 were treated with 0-

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1mM Alitame for 30 minutes. Alitame produced dose-dependent responses with the T1R2/T1R3 receptors^[5].

References:

- [1] Zyglar A, Wasik A, Namieśnik J. Retention behaviour of some high-intensity sweeteners on different SPE sorbents. *Talanta*. 2010 Oct 15;82(5):1742-8.
- [2] Kim C, Shin CS. Solvent-free enzymatic synthesis of alitame precursor using eutectic substrate mixtures. *Enzyme Microb Technol*. 2001 May 7;28(7-8):611-616.
- [3] Chattopadhyay S, Raychaudhuri U, Chakraborty R. Artificial sweeteners - a review. *J Food Sci Technol*. 2014 Apr;51(4):611-21.
- [4] Weihrauch MR, Diehl V. Artificial sweeteners--do they bear a carcinogenic risk? *Ann Oncol*. 2004 Oct;15(10):1460-5.
- [5] Servant NB, Williams ME, Brust PF, et al. A Dynamic Mass Redistribution Assay for the Human Sweet Taste Receptor Uncovers G-Protein Dependent Biased Ligands. *Front Pharmacol*. 2022 Feb 17;13:832529.

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