# G43

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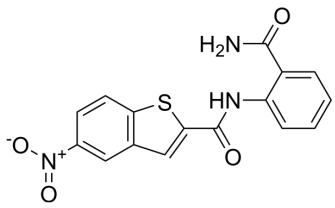
| **Cat. No.:** | HY-155715 |
| **CAS No.:** | 690693-02-8 |
| **Molecular Formula:** | $C_{16}H_{11}N_3O_4S$ |
| **Molecular Weight:** | 341.34 |
| **Target:** | Bacterial; Glucosylceramide Synthase (GCS) |
| **Pathway:** | Anti-infection; Neuronal Signaling |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |



## BIOLOGICAL ACTIVITY

**Description**

G43 is a potent, selective glucosyltransferase inhibitor, with the $K_d$ of 3.7μM and 46.9 nM for GtfB and GtfC, respectively. G43 has antibacterial to S. mutans in vitro and in vivo, and can be used for dental caries study[1][2].

**In Vitro**

G43 (16 h) inhibits more than 85% of S. mutans biofilm at 12.5 μM[1].
G43 (25 μM, 24 h) reduces the glucan production by the glucosyltransferase (Gtfs), and consistently inhibits the activity of both GtfB and GtfC with 80% inhibition of both enzymes[1].
G43 (up to 25 μM, 24 h) shows no significant difference on expression of gtfs (gtfB, gtfC and gtfD) in S. mutans. UA159 cells[1].
G43 (50 μM, 24-48 h) reduces the biofilm formation by decreasing the production of Water-insoluble extracellular polysaccharide in wild-type S. mutans[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[1]

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| Cell Line: | S. mutans. UA159 cells |
| Concentration: | 3.125, 6.25, 12, 25 μM |
| Incubation Time: | 24 h |
| Result: | Showed no significant difference on expression of gtfs (gtfB, gtfC and gtfD). |

**In Vivo**

G43 (100 μM twice daily for 4 weeks, topically administration) reduces S. mutans virulence in vivo[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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| Animal Model: | The rat model of dental caries infected with S. mutans UA159[1] |
| Dosage: | 100 μM twice daily for 4 weeks |
| Administration: | Topically administration |
| Result: | Reduced the buccal, sulcal, and proximal surface caries scores, but did not lose weight over the course of the study. |

## REFERENCES

[1]. Zhang Q, et al. Structure-Based Discovery of Small Molecule Inhibitors of Cariogenic Virulence. Sci Rep. 2017;7(1):5974.

[2]. Scaffa PMC, et al. The potential use of glycosyl-transferase inhibitors for targeted reduction of S. mutans biofilms in dental materials. Sci Rep. 2023;13(1):11889.



Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA