

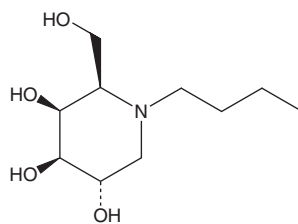
# PRODUCT INFORMATION



## N-(n-Butyl)deoxygalactonojirimycin

Item No. 19520

**CAS Registry No.:** 141206-42-0  
**Formal Name:** 1-butyl-2R-(hydroxymethyl)-3S,4R,5S-piperidinetriol  
**Synonyms:** Lucerastat, NBDGJ  
**MF:** C<sub>10</sub>H<sub>21</sub>NO<sub>4</sub>  
**FW:** 219.3  
**Purity:** ≥95%  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

N-(n-Butyl)deoxygalactonojirimycin (NB-DGJ) is supplied as a crystalline solid. A stock solution may be made by dissolving the NB-DGJ in the solvent of choice, which should be purged with an inert gas. NB-DGJ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of NB-DGJ in these solvents is approximately 5, 30, and 20 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of NB-DGJ can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of NB-DGJ in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

NB-DGJ is an inhibitor of the glycolipid biosynthesis enzyme glucosylceramide synthase and the glycolipid catabolic enzymes glucocerebrosidase (GBA) and  $\beta$ -glucosidase 2 (GBA2).<sup>1-5</sup> It also inhibits acid  $\alpha$ -glucosidase, sucrase, maltase, and lactase.<sup>4</sup> NB-DGJ (0.5-500  $\mu$ M) reduces glycolipid levels in HL-60 and WEHI-3B cells.<sup>1</sup> It decreases brain ganglioside levels in a *Glb1*<sup>-/-</sup> neonatal mouse model of GM1 gangliosidosis when administered intraperitoneally at doses of 600 and 1,200 mg/kg four times per day for three days.<sup>6</sup> NB-DGJ (1-1,200 mg/kg per day for 35 days) increases testicular glucosylceramide levels in mice.<sup>2</sup> NB-DGJ induces abnormal spermatid and acrosome formation, as well as reduces motility, in isolated mouse epididymal sperm when administered at doses of 15, 25, and 50 mg/kg per day.<sup>5</sup> It also induces infertility, an effect that is reversed by withdrawal, in the same model.

### References

1. Platt, F.M., Neises, G.R., Karlsson, G.B., et al. *J. Biol. Chem.* **269**(43), 27108-27114 (1994).
2. Walden, C.M., Sandhoff, R., Chuang, C.C., et al. *J. Biol. Chem.* **282**(45), 32655-32664 (2007).
3. Ridley, C.M., Thur, K.E., Shanahan, J., et al. *J. Biol. Chem.* **288**(36), 26052-26066 (2013).
4. Wennekes, T., Meijer, A.J., Groen, A.K., et al. *J. Med. Chem.* **53**(2), 689-698 (2010).
5. Gupta, V., Hild, S.A., Jakkaraj, S.R., et al. *Int. J. Mol. Sci.* **21**(1), (2020).
6. Kasperzyk, J.L., El-Abbadi, M.M., Hauser, E.C., et al. *J. Neurochem.* **89**(3), 645-653 (2004).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/07/2022

#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
[WWW.CAYMANCHEM.COM](http://WWW.CAYMANCHEM.COM)