

PRODUCT INFORMATION



Lactobionic Acid

Item No. 18926

Formal Name: 4-O-β-D-galactopyranosyl-D-gluconic acid,
4-O-β-D-galactopyranosyl-D-gluconic acid,
δ-lactone

Synonym: Galactosylgluconic Acid

MF: C₁₂H₂₂O₁₂ (for acid)

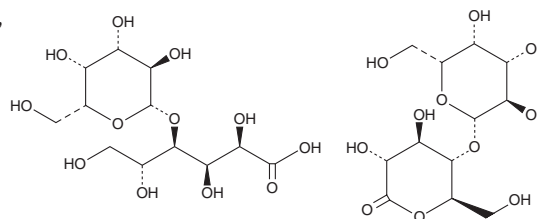
FW: 358.3

Purity: ≥95% (mixture of acid and lactone forms)

Supplied as: A crystalline solid

Storage: Room temperature

Stability: ≥4 years



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

Laboratory Procedures

Lactobionic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the lactobionic acid in the solvent of choice, which should be purged with an inert gas. Lactobionic acid is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of lactobionic acid in these solvents is approximately 20 mg/ml.

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 lactobionic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of lactobionic acid in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Lactobionic acid is an aldonic acid that is comprised of galactose and gluconic acid and can be produced by the lactose oxidation pathway in *Pseudomonas*.^{1,2} Lactobionic acid increases the water solubility of clarithromycin and has been used as a low pH buffer for the entrapment of SYK kinase inhibitors in liposomal nanoparticles.^{3,4} It also has antioxidant, humectant, and metal-chelating properties.^{1,2} Topical administration of lactobionic acid (10% v/v) lowers the pH of the stratum corneum in mice.⁵ Formulations containing lactobionic acid have been used in cosmetic, pharmaceutical, biomedicine, and food applications as well as in the preservation of organs during transplantation.^{1,2} The free acid and δ-lactone forms of lactobionic acid are interconvertible, with acidic pH conditions favoring formation of the δ-lactone form.⁶ Lactobionic acid is provided as a mixture of the free acid and lactone.

References

1. Alonso, S., Rendueles, M., and Díaz, M. *Biotechnol. Adv.* **31(8)**, 1275-1291 (2013).
2. Goderska, K., Szwengiel, A., and Czarnecki, Z. *Appl. Biochem. Biotechnol.* **173(8)**, 2189-2197 (2014).
3. Zakeri-Milani, P., Mousavian-Fathi, N., Ghanbarzadeh, S., et al. *Adv. Pharm. Bull.* **2(1)**, 37-42 (2012).
4. Cely, I., Yiv, S., Yin, Q., et al. *J. Anal. Oncol.* **1(1)**, 1-9 (2012).
5. Hachem, J.P., Roelandt, T., Schürer, N., et al. *J. Invest. Dermatol.* **130(2)**, 500-510 (2010).
6. Delagustin, M.G., Gonçalves, E., Carra, S., et al. *J. Pharm. Biomed. Anal.* **174**, 104-114 (2019).

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, 10/03/2022

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