

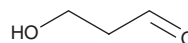
# PRODUCT INFORMATION



## Reuterin

Item No. 36300

**CAS Registry No.:** 2134-29-4  
**Formal Name:** 3-hydroxy-propanal  
**Synonyms:** 3-HPA, 3-Hydroxypropionaldehyde,  
 $\beta$ -Hydroxypropionaldehyde  
**MF:**  $C_3H_6O_2$   
**FW:** 74.1  
**Purity:**  $\geq 95\%$   
**Supplied as:** A neat oil  
**Storage:**  $-20^\circ C$   
**Stability:**  $\geq 4$  years



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

### Laboratory Procedures

Reuterin is supplied as a neat oil. A stock solution may be made by dissolving the reuterin in the solvent of choice, which should be purged with an inert gas. Reuterin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of reuterin in these solvents is approximately 16, 20, and 25 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 reuterin can be prepared by directly dissolving the neat oil in aqueous buffers. The solubility of reuterin in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Reuterin is a glycerol metabolite originally isolated from *L. reuteri*, a bacteria found in the intestines of humans, that has antibacterial activity.<sup>1</sup> It is produced by *L. reuteri* during exposure to live or UV-killed *E. coli*.<sup>2</sup> Reuterin is active against *E. coli* and several species of *Bacteroides*, *Bifidobacterium*, and *Eubacterium* (MICs = 1.9-15 mM) as well as *C. difficile* and *B. vulgatus* (MICs = <1.9 mM for both).<sup>3</sup> It enhances increases in the production of reactive oxygen species (ROS) and cell death induced by vancomycin (Item No. 15327) or metronidazole (Item No. 9002409) in *C. difficile* when used at a concentration of 2.5 mM.<sup>4</sup> Reuterin alters the bacterial composition of, and volatile organic compounds (VOCs) produced by, the mouse fecal microbiome.<sup>5</sup>

### References

1. Talarico, T.L., Casas, I.A., Chung, T.C., et al. Production and isolation of reuterin, a growth inhibitor produced by *Lactobacillus reuteri*. *Antimicrob. Agents Chemother.* **32(12)**, 1854-1858 (1988).
2. Schaefer, L., Auchtung, T.A., Hermans, K.E., et al. The antimicrobial compound reuterin (3-hydroxypropionaldehyde) induces oxidative stress via interaction with thiol groups. *Microbiology (Reading)* **156(Pt 6)**, 1589-1599 (2010).
3. Cleusix, V., Lacroix, C., Vollenweider, S., et al. Inhibitory activity spectrum of reuterin produced by *Lactobacillus reuteri* against intestinal bacteria. *BMC Microbiol.* **7**, 101 (2007).
4. Engevik, M.A., Danhof, H.A., Shrestha, R., et al. Reuterin disrupts *Clostridioides difficile* metabolism and pathogenicity through reactive oxygen species generation. *Gut Microbes* **12(1)**, 1788898 (2020).
5. Castellani, C., Obermüller, B., Kienesberger, B., et al. Production, storage stability, and susceptibility testing of reuterin and its impact on the murine fecal microbiome and volatile organic compound profile. *Front. Microbiol.* **12**, 699858 (2021).

#### 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.

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#### 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