

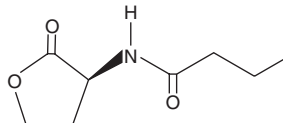
PRODUCT INFORMATION



N-butyryl-L-Homoserine lactone

Item No. 10007898

CAS Registry No.: 67605-85-0
Formal Name: N-[(3S)-tetrahydro-2-oxo-3-furanyl]-butanamide
Synonyms: BHL, C4-HSL, PAI-2
MF: C₈H₁₃NO₃
FW: 171.2
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-butyryl-L-Homoserine lactone is supplied as a crystalline solid. A stock solution may be made by dissolving the N-butyryl-L-homoserine lactone in the solvent of choice, which should be purged with an inert gas. N-butyryl-L-Homoserine lactone is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of N-butyryl-L-homoserine lactone in these solvents is approximately 30 mg/ml. While N-butyryl-L-homoserine lactone is also soluble in ethanol and other primary alcohols, their use is not recommended as they have been shown to open the lactone ring.

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 N-butyryl-L-homoserine lactone can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of N-butyryl-L-homoserine lactone in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Quorum sensing is a regulatory system used by bacteria for controlling gene expression in response to increasing cell density. Controlling bacterial infections by quenching their quorum sensing systems is a promising field of study. The expression of specific target genes, such as transcriptional regulators belonging to the LuxIR family of proteins, is coordinated by synthesis of diffusible acylhomoserine lactone (AHL) molecules. N-butyryl-L-Homoserine lactone is a quorum-sensing signaling molecule produced by *P. aeruginosa*.² It induces expression of the virulence genes *lasB* and *rhlA* in *P. aeruginosa* when used at a concentration of 10 μM.¹ N-butyryl-L-Homoserine lactone (50 μM) induces rhamnolipid accumulation in *P. aeruginosa* growth media.³

References

1. Ikeda, T., Kajiyama, K., Kita, T., *et al.* The synthesis of optically pure enantiomers of N-acyl-homoserine lactone autoinducers and their analogues. *Chem. Lett.* **30(4)**, 314-315 (2001).
2. Pearson, J.P., Passador, L., and Iglewski, B.H. A second N-acylhomoserine lactone signal produced by *Pseudomonas aeruginosa*. *Proc. Natl. Acad. Sci. USA* **92(5)**, 1490-1494 (1995).
3. Schooling, S.R., Charaf, U.K., Allison, D.G., *et al.* A role for rhamnolipid in biofilm dispersion. *Biofilm* **1(2)**, 91-99 (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.

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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