

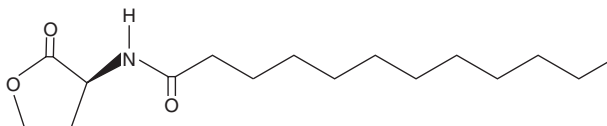
PRODUCT INFORMATION



N-dodecanoyl-L-Homoserine lactone

Item No. 10011203

CAS Registry No.: 137173-46-7
Formal Name: N-[(3S)-tetrahydro-2-oxo-3-furanyl]-dodecanamide
Synonyms: C12-HSL, dDHL
MF: C₁₆H₂₉NO₃
FW: 283.4
Purity: ≥98%
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-dodecanoyl-L-Homoserine lactone is supplied as a crystalline solid. A stock solution may be made by dissolving the N-dodecanoyl-L-homoserine lactone in the solvent of choice, which should be purged with an inert gas. N-dodecanoyl-L-Homoserine lactone is soluble in organic solvents such as chloroform, DMSO, and dimethyl formamide (DMF). The solubility of N-dodecanoyl-L-homoserine lactone in chloroform is approximately 10 mg/ml and approximately 1 mg/ml in DMSO and DMF. While N-dodecanoyl-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.

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 LuxR family of proteins, is coordinated by the synthesis of diffusible acylhomoserine lactone (AHL) molecules. N-dodecanoyl-L-Homoserine lactone (C12-HSL) is a small diffusible signaling molecule involved in quorum sensing, thereby controlling gene expression and affecting cellular metabolism in bacteria.¹⁻³ In addition to regulating bacterial functions, C12-HSL activates NF-κB in RAW 264.7 macrophages, increasing the expression of TNF-α, interleukin-1β (IL-1β), and IL-8, while other lactones do not.⁴ In addition, C12-HSL alters cell cycling and metabolism of human keratinocyte (HaCaT) cells.⁵ It is important to note that C12-HSL is distinct from N-3-oxo-dodecanoyl-L-homoserine lactone (Item No. 10007895), which is produced at different times in biofilm development and has different cellular effects.^{5,6}

References

1. Kuo, A., Blough, N.V., and Dunlap, P.V. *J. Bacteriol.* **176**(24), 7558-7565 (1994).
2. Lithgow, J.K., Wilkinson, A., Hardman, A., et al. *Mol. Microbiol.* **37**(1), 81-97 (2000).
3. McClean, K.H., Winson, M.K., Fish, L., et al. *Microbiology* **143**(PT 12), 3703-3711 (1997).
4. Gomi, K., Kikuchi, T., Tokue, Y., et al. *Infect. Immun.* **74**(12), 7029-7031 (2006).
5. Kristiansen, S., Bjarnsholt, T., Adeltoft, D., et al. *APMIS* **116**(5), 361-371 (2008).
6. Huang, Y.L., Ki, J.S., Lee, O.O., et al. *ISME J.* **3**(3), 296-304 (2008).

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, 04/02/2024

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