

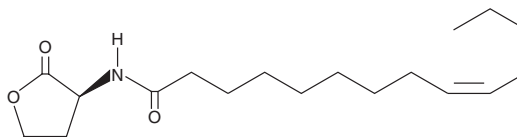
PRODUCT INFORMATION



N-cis-tetradec-9Z-enoyl-L-Homoserine lactone

Item No. 10012672

CAS Registry No.: 1675245-06-3
Formal Name: (S,Z)-N-(2-oxotetrahydrofuran-3-yl) tetradec-9-enamide
Synonym(s): C14:1- Δ^9 -cis-(L)-HSL, N-(2-oxotetrahydrofuran-3S-yl) Myristoleyl Amide
MF: C₁₈H₃₁NO₃
FW: 309.4
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-cis-tetradec-9Z-enoyl-L-homoserine lactone (C14:1- Δ^9 -cis-(L)-HSL) is supplied as a crystalline solid. A stock solution may be made by dissolving the C14:1- Δ^9 -cis-(L)-HSL in an organic solvent purged with an inert gas. C14:1- Δ^9 -cis-(L)-HSL is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of C14:1- Δ^9 -cis-(L)-HSL in these solvents is approximately 20 mg/ml. While C14:1- Δ^9 -cis-(L)-HSL is also soluble in ethanol and other primary alcohols, their use is not recommended as they have been shown to open the lactone ring.

C14:1- Δ^9 -cis-(L)-HSL is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, C14:1- Δ^9 -cis-(L)-HSL should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. C14:1- Δ^9 -cis-(L)-HSL has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Quorum sensing is a regulatory process used by bacteria for controlling gene expression in response to increasing cell density.¹ This regulatory process manifests itself with a variety of phenotypes including biofilm formation and virulence factor production.² Coordinated gene expression is achieved by the production, release, and detection of small diffusible signal molecules called autoinducers. The N-acylated homoserine lactones (AHLs) comprise one such class of autoinducers, each of which generally consists of a fatty acid coupled with homoserine lactone (HSL). AHLs vary in acyl group length (C₄-C₁₈), in the substitution of C3 (hydrogen, hydroxyl, or oxo group) and in the presence or absence of one or more carbon-carbon double bonds in the fatty acid chain. These differences confer signal specificity through the affinity of transcriptional regulators of the LuxR family.³ C14:1- Δ^9 -cis-(L)-HSL is a long-chain AHL that functions as a signaling molecule in the quorum sensing of *A. vitis*.⁴ Regulating bacterial quorum sensing signaling can be used to inhibit pathogenesis and thus, represents a new approach to antimicrobial therapy in the treatment of infectious diseases.⁵

References

1. González, J.E. and Keshavan, N.D. *Microbiology and Molecular Biology Reviews* **70(4)**, 859-875 (2006).
2. Gould, T.A., Herman, J., Krank, J., et al. *J. Bacteriol.* **188(2)**, 773-783 (2006).
3. Penalver, C.G.N., Morin, D., Cantet, F., et al. *FEBS Lett.* **580**, 561-567 (2006).
4. Li, Y., Gronquist, M.R., Hao, G., et al. *C Physiology and Molecular Plant Pathology* **67(6)**, 284-290 (2006).
5. Cegelski, L., Marshall, G.R., Eldridge, G.R., et al. *Nature Reviews Microbiology* **6(1)**, 17-27 (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.

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