

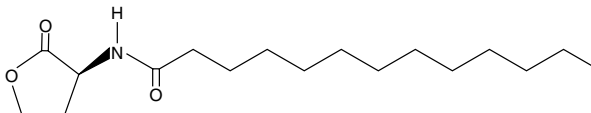
Product Information



N-tridecanoyl-L-Homoserine lactone

Item No. 13093

CAS Registry No.: 878627-21-5
Formal Name: N-[(3S)-tetrahydro-2-oxo-3-furanyl]-tridecanamide
Synonym: C13-HSL
MF: C₁₇H₃₁NO₃
FW: 297.4
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that N-tridecanoyl-L-homoserine lactone (C13-HSL) be stored as supplied at -20°C. It should be stable for at least two years.

C13-HSL is supplied as a crystalline solid. A stock solution may be made by dissolving the C13-HSL in an organic solvent purged with an inert gas. The solubility of C₁₃-HSL in dimethyl formamide is approximately 0.25 mg/ml.

If aqueous stock solutions are required for biological experiments, they can best be prepared by diluting the organic solvent into aqueous buffers or isotonic saline. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Quorum sensing is a regulatory system 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 HSL. Regulation of bacterial quorum sensing signaling systems to inhibit pathogenesis represents a new approach to antimicrobial therapy in the treatment of infectious diseases.³ 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.⁴ C13-HSL possesses a rare odd-numbered acyl carbon chain and is produced by wild-type and mutant strains of *Y. pseudotuberculosis* in trace amounts.⁵

References

1. González, J.E. and Keshavan, N.D. Messing with bacterial quorum sensing. *Microbiology and Molecular Biology Reviews* **70**(4), 859-875 (2006).
2. Gould, T.A., Herman, J., Krank, J., *et al.* Specificity of acyl-homoserine lactone syntheses examined by mass spectrometry. *J. Bacteriol.* **188**(2), 773-783 (2006).
3. Cegelski, L., Marshall, G.R., Eldridge, G.R., *et al.* The biology and future prospects of antivirulence therapies. *Nature Reviews Microbiology* **6**(1), 17-27 (2008).
4. Penalver, C.G.N., Morin, D., Cantet, F., *et al.* *Methylobacterium extorquens* AM1 produces a novel type of acyl-homoserine lactone with a double unsaturated side chain under methylotrophic growth conditions. *FEBS Lett.* **580**, 561-567 (2006).
5. Ortori, C.A., Atkinson, S., Chhabra, S.R., *et al.* Comprehensive profiling of N-acylhomoserine lactones produced by *Yersinia pseudotuberculosis* using liquid chromatography coupled to hybrid quadrupole-linear ion trap mass spectrometry. *Anal. Bioanal. Chem.* **387**, 497-511 (2007).

Related Products

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