

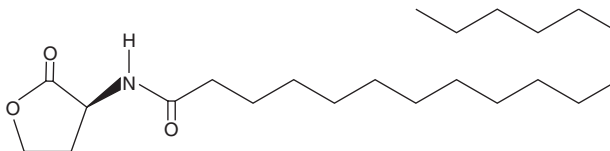
PRODUCT INFORMATION



N-octadecanoyl-L-Homoserine lactone

Item No. 13209

CAS Registry No.: 479050-96-9
Formal Name: N-[(3S)-tetrahydro-2-oxo-3-furanyl]-octadecanamide
Synonyms: C₁₈-HSL
MF: C₂₂H₄₁NO₃
FW: 367.6
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

N-octadecanoyl-L-Homoserine lactone is supplied as a crystalline solid. A stock solution may be made by dissolving the N-octadecanoyl-L-homoserine lactone in the solvent of choice, which should be purged with an inert gas. N-octadecanoyl-L-Homoserine lactone is soluble in the organic solvent chloroform at a concentration of approximately 0.5 mg/ml.

Description

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 homoserine lactone (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 C₁₈-HSL is one of four lipophilic, long acyl side-chain bearing AHLs produced by the LuxI AHL synthase homolog SinI involved in quorum sensing signaling in strains of *S. meliloti*, a nitrogen-fixing bacterial symbiont of the legume *M. sativa*.⁵ C₁₈-HSL and other hydrophobic AHLs tend to localize in relatively lipophilic cellular environments of bacteria and cannot diffuse freely through the cell membrane. The long-chain N-acylhomoserine lactones may be exported from cells by efflux pumps or may be transported between communicating cells by way of extracellular outer membrane vesicles.^{6,7}

References

1. González, J.E. and Keshavan, N.D. *Microbiol. Mol. Biol. Rev.* **70**(4), 859-875 (2006).
2. Gould, T.A., Herman, J., Krank, J., et al. *J. Bacteriol.* **188**(2), 773-783 (2006).
3. Cegelski, L., Marshall, G.R., Eldridge, G.R., et al. *Nat. Rev. Microbiol.* **6**(1), 17-27 (2008).
4. Penalver, C.G.N., Morin, D., Cantet, F., et al. *FEBS Lett.* **580**, 561-567 (2006).
5. Marketon, M., Gronquist, M.R., Eberhard, A., et al. *J. Bacteriol.* **184**(20), 5686-5695 (2002).
6. Pearson, J.P., Van Delden, C., and Iglewski, B.H. *J. Bacteriol.* **181**(4), 1203-1210 (1999).
7. Mashburn-Warren, L. and Whiteley, M. *Mol. Microbiol.* **61**(4), 839-846 (2006).

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, 10/21/2021

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