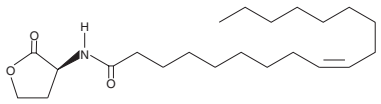
PRODUCT INFORMATION

N-*cis*-octadec-9Z-enoyl-L-Homoserine lactone

Item No. 10012674

CAS Registry No.:	1400974-23-3
Formal Name:	N-[(3S)-tetrahydro-2-oxo-3-furanyl]-9Z-octadecenamide
Synonyms:	C18:1-Δ^9*cis*-(L)-HSL, N-(2-oxotetrahydrofuran-3S-yl) Oleyl Amide
MF:	$C_{22}H_{39}NO_3$
FW:	365.6
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*-octadec-9Z-enoyl-L-homoserine latone (C18:1-Δ^9*cis*-(L)-HSL) is supplied as a crystalline solid. A stock solution may be made by dissolving the C18:1-Δ^9*cis*-(L)-HSL in an organic solvent purged with an inert gas. C18:1-Δ^9*cis*-(L)-HSL is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of C18:1-Δ^9*cis*-(L)-HSL in these solvents is approximately 20 mg/ml. While C18:1-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.

C18:1-Δ^9*cis*-(L)-HSL is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, C18:1-Δ^9*cis*-(L)-HSL should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. C18:1-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 (C_4-C_{18}), 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] C18:1-Δ^9*cis*-(L)-HSL is a long-chain AHL that may have antimicrobial activity[4] and thus, might be used to inhibit pathogenesis by regulating bacterial quorum sensing signaling.[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. Kajiyama, S., Tawara, T., and Tamano, A. JP19830153621 19830823, 535-540 (1995).
5. Cegelski, L., Marshall, G.R., Eldridge, G.R., *et al. Nature Reviews Microbiology* **6(1)**, 17-27 (2008).

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