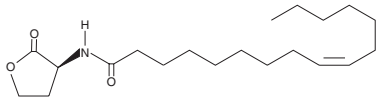
PRODUCT INFORMATION

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

Item No. 10012673

CAS Registry No.:	479050-94-7
Formal Name:	N-[(2S,9Z)-tetrahydro-2-oxo-3-furanyl]-9-hexadecenamide
Synonyms:	C16:1-Δ^9*cis*-(L)-HSL, N-(2-oxotetrahydrofuran-3S-yl) Palmitoleyl Amide (N-*cis*-hexadec-9-enoyl-L Homoserine lactone)
MF:	$C_{20}H_{35}NO_3$
FW:	337.5
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-*cis*-hexadec-9Z-enoyl-L-homoserine latone (C16:1-Δ^9*cis*-(L)-HSL) is supplied as a crystalline solid. A stock solution may be made by dissolving the C16:1-Δ^9*cis*-(L)-HSL in an organic solvent purged with an inert gas. C16:1-Δ^9*cis*-(L)-HSL is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of C16:1-Δ^9*cis*-(L)-HSL in these solvents is approximately 20 mg/ml. While C16:1-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.

C16:1-Δ^9*cis*-(L)-HSL is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, C16:1-Δ^9*cis*-(L)-HSL should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. C16:1-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] C16:1-Δ^9*cis*-(L)-HSL is a long-chain AHL that functions as a quorum sensing signaling molecule in strains of *S. meliloti*.[4-7] 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.[8]

References

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