

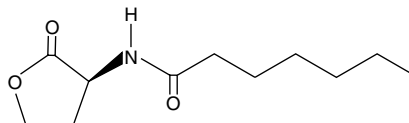
Product Information



N-heptanoyl-L-Homoserine lactone

Item No. 10011198

CAS Registry No.: 177158-20-2
Formal Name: N-[(3S)-tetrahydro-2-oxo-3-furanyl]-heptanamide
Synonym: C7-HSL
MF: C₁₁H₁₉NO₃
FW: 213.3
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that N-heptanoyl-L-homoserine lactone (C7-HSL) be stored as supplied at -20°C. It should be stable for at least two years.

C7-HSL is supplied as a crystalline solid. A stock solution may be made by dissolving the C7-HSL in an organic solvent purged with an inert gas. C7-HSL is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of C7-HSL in these solvents is approximately 20 mg/ml. While C7-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.

C7-HSL is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, C7-HSL should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. C7-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.

Quorum sensing is a regulatory system used by bacteria for controlling gene expression in response to increasing cell density. Controlling bacterial infections by quenching their quorum sensing systems is involved in a promising field of study. The expression of specific target genes, such as transcriptional regulators belonging to the LuxIR family of proteins, is coordinated by synthesis of diffusible acylhomoserine lactone (AHL) molecules. C7-HSL is a small diffusible signaling molecule involved in quorum sensing, thereby controlling gene expression and affecting cellular metabolism.^{1,2} The diverse applications of this molecule include regulation of virulence, infection prevention, and septicemia in fish.³

References

1. Lithgow, J.K., Wilkinson, A., Hardman, A., *et al.* The regulatory locus cinRI in *Rhizobium leguminosarum* controls a network of quorum-sensing loci. *Mol. Microbiol.* **37**(1), 81-97 (2000).
2. Barnard, A.M.L. and Salmond, G.P.C. Quorum sensing: The complexities of chemical communication between bacteria. *Complexus* **5**(2), 87-101 (2004).
3. Morohoshi, T., Inaba, T., Kato, N., *et al.* Identification of quorum-sensing signal molecules and the LuxRI homologs in fish pathogen *edwardsiella tarda*. *Journal of Bioscience and Bioengineering* **98**(4), 274-281 (2004).

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