

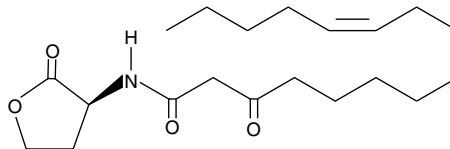
# Product Information



## N-3-oxo-hexadec-11(Z)-enoyl-L-Homoserine lactone

Item No. 10011238

**CAS Registry No.:** 1269663-80-0  
**Formal Name:** 3-oxo-N-[(3S)-tetrahydro-2-oxo-3-furanyl]-(11Z)-hexadecenamide  
**Synonym:** 3-oxo-C16:1- $\Delta^{11}$  *cis*-(L)-HSL  
**MF:** C<sub>20</sub>H<sub>33</sub>NO<sub>4</sub>  
**FW:** 351.5  
**Purity:** ≥98%  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in acetonitrile  
**UV/Vis.:** λ<sub>max</sub>: 246 nm



### Laboratory Procedures

For long term storage, we suggest that N-3-oxo-hexadec-11(Z)-enoyl-L-Homoserine lactone (3-oxo-C16:1- $\Delta^{11}$  *cis*-(L)-HSL) be stored as supplied at -20°C. It should be stable for at least one year.

3-oxo-C16:1- $\Delta^{11}$  *cis*-(L)-HSL is supplied as a solution in acetonitrile. To change the solvent, simply evaporate the acetonitrile under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of 3-oxo-C16:1- $\Delta^{11}$  *cis*-(L)-HSL in these solvents is approximately 30 mg/ml. While 3-oxo-C16:1- $\Delta^{11}$  *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.

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.<sup>1</sup> This regulatory process manifests itself with a variety of phenotypes including biofilm formation and virulence factor production.<sup>2</sup> 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.<sup>3</sup> AHLs vary in acyl group length (C<sub>4</sub>-C<sub>18</sub>), 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.<sup>4</sup> An unspecified positional and geometric isomer of 3-oxo-C16:1-(L)-HSL is produced by the F2/5 strain of *A. vitis*, the bacterium responsible for grape crown gall and its resulting loss of agricultural productivity.<sup>5</sup>

### 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. Cegelski, L., Marshall, G.R., Eldridge, G.R., *et al. Nature Reviews Microbiology* **6**(1), 17-27 (2008).
4. Penalver, C.G.N., Morin, D., Cantet, F., *et al. FEBS Lett.* **580**, 561-567 (2006).
5. Hao, G. and Burr, T.J. *J. Bacteriol.* **188**(6), 2173-2183 (2006).

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