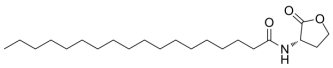
N-Octadecanoyl-L-homoserine lactone

Cat. No.:	HY-W127487
CAS No.:	479050-96-9
Molecular Formula:	$C_{22}H_{41}NO_3$
Molecular Weight:	367.57
Target:	Biochemical Assay Reagents
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Quorum sensing is a regulatory system used by bacteria to control gene expression in response to increased cell density. This regulatory process manifests itself in a variety of phenotypes, including biofilm formation and virulence factor production. Coordinated gene expression is achieved through the production, release and detection of small diffusible signaling molecules called autoinducers. N-acylated homoserine lactones (AHLs) comprise a class of such autoinducers, each of which generally consists of a fatty acid coupled to a homoserine lactone (HSL). Modulation of bacterial quorum-sensing signaling systems to suppress pathogenesis represents a new approach to antimicrobial research for infectious diseases. AHLs differ in acyl length (C4-C18), C3 substitution (hydrogen, hydroxyl, or oxo group), and the presence or absence of one or more carbon-carbon double bonds in the fatty acid chain. These differences confer signaling specificity through the affinity of the LuxR family of transcriptional regulators. C18-HSL, one of four lipophilic long acyl side chain AHLs produced by the LuxI AHL synthase homolog SinI, is involved in quorum-sensing signaling in strains of Rhizobium meliloti (a nitrogen-fixing bacterial symbiont of the legume M. sativa) . C18-HSL and other hydrophobic AHLs tend to localize in the relatively lipophilic environment of bacterial cells and cannot diffuse freely across the cell membrane. Long-chain N-acyl homoserine lactones can be exported from cells by efflux pumps, or can be transported between communicating cells by extracellular outer membrane vesicles.

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