Product Data Sheet

Product Name: N-hexadecanoyl-L-Homoserine lactone
Cat. No.: GC18770

Chemical Properties

Cas. No.	87206-01-7		
SMILES	CCCCCCCCCCCCCCCC(=O)N[C@H]1CCOC1=O		
Formula	$C_{20}H_{37}NO_3$	M.Wt	339.5
Solubility	Chloroform: 1 mg/ml	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

Quorum sensing is a regulatory system 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). Regulation of bacterial quorum sensing signaling systems to inhibit pathogenesis represents a new approach to antimicrobial therapy in the treatment of infectious diseases.[3] AHLs vary in acyl group length (C4-C18), 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.[4] C16-HSL is one of a number of lipophilic, long acyl side-chain bearing AHLs, including its monounsaturated analog C16:1-(L)-HSL, produced by the LuxI AHL synthase homolog SinI involved in quorum-sensing signaling in S. meliloti, a nitrogen-fixing bacterial symbiont of certain legumes.[5],[6] C16-HSL is the most

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

abundant AHL produced by the proteobacterium R. capsulatus and activates genetic exchange between R. capsulatus cells.[7] N-Hexadecanoyl-L-homoserine lactone and other hydrophobic AHLs tend to localize in relatively lipophilic cellular environments of bacteria and cannot diffuse freely through the cell membrane. The long-chain N-acylhomoserine lactones may be exported from cells by efflux pumps or may be transported between communicating cells by way of extracellular outer membrane vesicles.[8],[9]

Reference:

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