

Product Information

R-FSL-1

For Research Purposes only. Not for use in Humans



Product	L7022
Chemical name	S-[2,3-bis(palmitoyloxy)-(2 <i>R</i>)-propyl]-(<i>R</i>)-cysteiny-GDPKHPKSF
Synonyms	<i>R</i> -Pam ₂ Cys-GDPKHPKSF, Fibroblast-stimulating Lipopeptide
CAS	Not available
MW / Formula	1665 / C ₈₄ H ₁₄₀ N ₁₄ O ₁₈ S
Description	<div style="display: flex; align-items: flex-start;"><div style="flex: 1;"><p>Chemical structure of R-FSL-1: A diacylglycerol backbone with two palmitoyl chains (CH₃-(CH₂)₁₄-CO-) esterified to the glycerol backbone. The third carbon of the glycerol is linked to a chiral center (CH(R)) which is further connected to a methylene group (CH₂), a sulfur atom (S), another methylene group (CH₂), and a second chiral center (CH(R)) with a free amino group (H₂N). This second chiral center is part of a peptide chain: -G-D-P-K-H-P-K-S-F.</p></div><div style="flex: 2; padding-left: 20px;"><p>Lipopeptides are valuable tools for basic research in innate and acquired immunity. The synthetic lipopeptide FSL-1 represents the N-terminal sequence of the 44-kDa lipoprotein LP44 of <i>Mycoplasma salivarium</i>. It carries two ester bound fatty acids and a free amino terminus. The synthetic lipopeptide FSL-1 is described to elicit cellular responses through TLR2/TLR6 heterodimers which involves downstream NF-κB activation and cytokine release.</p><p>The naturally occurring RR-stereoisomer of Pam₂Cys, R-Pam₂Cys, is described to be biologically more active than the S-stereoisomer S-[2,3-bis(palmitoyloxy)-2(<i>S</i>)-propyl]-(<i>R</i>)-cysteine present in S-FSL-1 (product code L7021). FSL-1 (product code L7000) is a mixture of both stereoisomers.</p></div></div>
Packaging Reconstitution Storage	<p>The lipopeptide is provided as a lyophilised, colourless powder without any additives. It can be shipped at room temperature and should be stored at 4°C.</p> <p><i>R</i>-FSL-1 can be reconstituted in endotoxin-free water (1 mg/ml stock solution). Through the use of either a homogeniser or sonicator, a homogenous solution or emulsion can be prepared. For further dilutions water, saline, buffer or media can be used.</p> <p>Depending on the sensitivity of the <i>in vitro</i> assay, the recommended working concentration for specific stimulation of innate immunity via TLR2/TLR6 heterodimers is 10 – 100 nM (0.015 – 0.15 µg/ml).</p> <p>After reconstitution, the solution should be aliquoted and stored at or below –20°C. Repeated thawing and freezing should be avoided.</p>
References	<p>A. O. Aliprantis, R. B. Yang, M. R. Mark, S. Suggett, B. Devaux, J. D. Radolf, G. P. Klimpel, P. Godowski, A. Zychlinsky (1999) Cell Activation and Apoptosis by Bacterial Lipoproteins Through Toll-like Receptor-2. <i>Science</i> 285, 736-739.</p> <p>K.-I. Shibata, A. Hasebe, T. Into, M. Yamada, T. Watanabe (2000) The N-terminal lipopeptide of a 44 kDa membrane-bound lipoprotein of <i>Mycoplasma salivarium</i> is responsible for the expression of intracellular adhesion molecule-1 on the cell surface of normal human gingival fibroblasts. <i>J. Immunol.</i> 165, 6538-6544.</p> <p>O. Takeuchi, T. Kawai, P. F. Mühlradt, M. Morr, J. D. Radolf, A. Zychlinsky, K. Takeda, S. Akira (2001) Discrimination of bacterial lipoproteins by Toll-like receptor 6. <i>Int. Immunol.</i> 13, 933-940.</p> <p>O. Takeuchi, S. Sato, T. Horiuchi, K. Hoshino, K. Takeda, Z. Dong, R. L. Modlin, S. Akira (2002) Cutting edge: role of Toll-like receptor 1 in mediating immune response to microbial lipoproteins. <i>J. Immunol.</i> 169(1), 10-14.</p> <p>J. Nakamura, K. Shibata, A. Hasebe, T. Into, T. Watanabe, N. Ohata (2002) Signaling pathways induced by lipoproteins derived from <i>Mycoplasma salivarium</i> and a synthetic lipopeptide (FSL-1) in normal human gingival fibroblasts. <i>Microbiol. Immunol.</i> 46, 151-158.</p> <p>S. Akira, S. Mammalian (2003) Toll-like receptors. <i>Curr. Opin. Immunol.</i> 15, 5–11.</p> <p>T. Okusawa, M. Fujita, J.-I. Nakamura, T. Into, M. Yasuda, A. Yoshimura, Y. Hara, A. Hasebe, D. T. Golenbock, M. Morita, Y. Kuroki, T. Ogawa, K.-I. Shibata (2004) Relationship between structures and biological activities of mycoplasmal diacylated lipopeptides and their recognition by Toll-like receptors 2 and 6. <i>Infect. Immun.</i> 72(3), 1657-1665.</p> <p>K. O. Omueti, J. M. Beyer, C.M. Johnson, E. A. Lyle, R. I. Tapping (2005) Domain exchange between human toll-like receptors 1 and 6 reveals a region required for lipopeptide discrimination. <i>J. Biol. Chem.</i> 280, 36616–36625.</p> <p>J. Y. Kang, X. Nan, M. S. Jin, S. J. Youn, Y. H. Ryu, S. Mah, S. H. Han, H. Lee, S. G. Paik, J. O. Lee (2009) Recognition of lipopeptide patterns by Toll-like receptor 2-Toll-like receptor 6 heterodimer. <i>Immunity</i> doi:10.1016/j.immuni.2009.09.018</p> <p>H. Kumar, T. Kawai, S. Akira (2009) Toll-like receptors and innate immunity. <i>Biochem. Biophys. Res. Comm.</i> 388, 621–625.</p> <p>A. Burger-Kentischer, I. S. Abele, D. Finkelmeier, K.-H. Wiesmüller, S. Rupp (2010) A new cell-based innate immune receptor assay for the examination of receptor activity, ligand specificity, signalling pathways and the detection of pyrogens. <i>J. Immunol. Methods</i> 30, 93-103.</p> <p>H. Bartz, N. M. Avalos, A. Baetz, K. Heeg, A. H. Dalpke (2006) Involvement of suppressors of cytokine signaling in toll-like receptor-mediated block of dendritic cell differentiation. <i>Blood.</i> 15, 108(13), 4102-4108.</p>
Product citations	