

Product Data Sheet

Product Name: Magainin 2

Cat. No.: GC30830

Chemical Properties

Cas. No. 108433-95-0

SMILES Gly-Ile-Gly-Lys-Phe-Leu-His-Ser-Ala-Lys-Lys-Phe-Gly-Lys-Ala-Phe-Val-Gly-Glu-Ile-Met-Asn-Ser

Formula $C_{114}H_{180}N_{30}O_{29}S$ M.Wt 2466.9

Solubility H_2O : 50 mg/mL (20.27 mM; Need ultrasonic) Storage $-20^{\circ}C$, protect from light

General tips For obtaining a higher solubility , please warm the tube at $37^{\circ}C$ and shake it in the ultrasonic bath for a while. Stock solution can be stored below $-20^{\circ}C$ 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

GIGKFLHSAKKFGKAFVGEIMNS

Protocol

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Cell experiment: Escherichia coli cells are incubated with magainin 2 (50 µg /mL). The cultures are acquired after incubation for 0, 2, 4, 6, and 8 h, respectively, and spread onto LB agar plates, and then the colony-forming units are counted after incubation for 24 h at 37°C. The percentage survival is determined relative to the control treatment[1].

References:

- [1]. Lee W, et al. Magainin 2 induces bacterial cell death showing apoptotic properties. Curr Microbiol. 2014 Dec;69(6):794-801.
- [2]. Matsuzaki K, et al. Magainins as paradigm for the mode of action of pore forming polypeptides. Biochim Biophys Acta. 1998 Nov 10;1376(3):391-400.
- [3]. Imura Y, et al. Magainin 2 in action: distinct modes of membrane permeabilization in living bacterial and mammalian cells. Biophys J. 2008 Dec 15;95(12):5757-65.

Background

Magainin 2 is an antimicrobial peptide discovered in the skin of *Xenopus laevis*.

Magainin 2 exhibits bactericidal effects and induces morphological changes in *Escherichia coli* regarding early apoptosis. Magainin 2 induces the expression of a bacterial protein with affinity for the caspase substrate and effects the expression of RecA as a caspase-like protein[1]. Magainin 2 kill bacteria by permeabilizing the cell membranes without exhibiting significant toxicity against mammalian cells. The main target of the peptide is considered to be the lipid matrix of the membranes. Application of 10 µg /mL magainin 2 to *Paramecium caudatum*, a protozoan, in pond water caused an osmotic swelling of the cell and a subsequent cell burst, suggesting that the peptide could perturb membrane functions responsible for osmotic balance[2]. Magainin 2 permeabilizes bacterial and mammalian membranes in significantly different ways. The peptide forms pores with a diameter of about 2.8 nm (less than 6.6 nm) in *B. megaterium*, and translocates into the cytosol. In contrast, the peptide significantly perturbs the membrane of CHO-K1 cells, permitting the entry of a large molecule (larger than 23 nm) into the cytosol, accompanied by membrane budding and lipid flip-flop, mainly accumulating in mitochondria and nuclei[3].

- [1]. Lee W, et al. Magainin 2 induces bacterial cell death showing apoptotic properties. Curr

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