Indolicidin

Cat. No.:	HY-P0261
CAS No.:	140896-21-5
Molecular Formula:	$C_{100}H_{132}N_{26}O_{13}$
Molecular Weight:	1906.28
Sequence:	Ile-Leu-Pro-Trp-Lys-Trp-Pro-Trp-Trp-Pro-Trp-Arg-Arg-NH2
Sequence Shortening:	ILPWKWPWWPWRR-NH2
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Protect from light Powder -80°C 2 years -20°C 1 year * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)

BIOLOGICAL ACTIVITY

Description	Indolicidin is a potent antimicrobial peptide purified from the cytoplasmic granules of bovine neutrophils.
In Vitro	Indolicidin is comprised of 13 amino acids, 5 of which are tryptophan residues, and the carboxylterminal arginine is carboxamidated. Indolicidin has the highest tryptophan content of any known protein. The multiple tryptophan residues may play an important role in the function of this unique antibiotic peptide. Indolicidin is a tridecapeptide amide which possesses in vitro bactericidal activities comparable with the most active of the defensin or bactenecin peptides[1]. Indolicidin binds purified surface lipopolysaccharide with high affinity and permeabilized the outer membrane of Escherichia coli to the small hydrophobic molecule 1-N-phenylnapthylamine (Mr 200), results consistent with indolicidin crossing the outer membrane via the self-promoted uptake pathway. The methyl esterification of indolicidin's carboxyl terminus increases its activity for Gram-negative and Gram-positive bacteria. In Gram-negative bacteria this is associated with an increased binding to lipopolysaccharide and increased permeabilization of the outer membrane. The cytoplasmic membrane is the site of action of indolicidin as assayed in Escherichia coli by the unmasking of cytoplasmic beta-galactosidase due to membrane permeabilization[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	The time course and dose dependence of indolicidin bactericidal activity are determined using Escherichia coli ML35 and Staphylococcus aureus 502A as test organisms. The assays are performed in 10 mM sodium phosphate buffer, pH 7.4, at 37°C. A 50 µg sample of indolicidin is dissolved in 50 pl of 0.1 M pyridine acetate, pH 6.5, and incubated with 5 µg of chymotrypsin for 15 h at 37°C. Digestion of the sample is confirmed by the disappearance of the indolicidin band on acid-urea PAGE. Following lyophilization, untreated and digested samples are tested for antibacterial activity in a agar diffusion assay against Escherichia coli using concentrations of peptide ranging from 10 to 300 µg/mL[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Selsted ME, et al. Indolicidin, a novel bactericidal tridecapeptide amide from neutrophils. J Biol Chem. 1992 Mar 5;267(7):4292-5.

[2]. Falla TJ, et al. Mode of action of the antimicrobial peptide indolicidin. J Biol Chem. 1996 Aug 9;271(32):19298-303.

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