Cecropin A

Cat. No.: HY-P1539

CAS No.: 80451-04-3

Molecular Formula: $C_{184}H_{313}N_{53}O_{46}$

Molecular Weight: 4003.78

KWKLFKKIEKVGQNIRDGIIKAGPAVAVVGQATQIAK-NH_2

Sequence: Lys-Trp-Lys-Leu-Phe-Lys-Lys-Ile-Glu-Lys-Val-Gly-Gln-Asn-Ile-Arg-Asp-Gly-Ile-Ile-Lys-Ala-Gly-Pro-Ala-Val-Ala-Val-Val-Gly-Gln-Ala-Thr-Gln-Ile-Ala-Lys-NH2

Sequence Shortening: KWKLFKKIEKVGQNIRDGIIKAGPAVAVVGQATQIAK-NH2

Target: Bacterial; Antibiotic

Pathway: Anti-infection

Storage: Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

SOLVENT & SOLUBILITY

In Vitro

H_2O : 20 mg/mL (5.00 mM; ultrasonic and adjust pH to 5 with HCl)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	0.2498 mL	1.2488 mL	2.4976 mL
5 mM	0.0500 mL	0.2498 mL	0.4995 mL
10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Cecropin A is a linear 37-residue antimicrobial polypeptide, with anticancer and anti-inflammatory activity.

IC_{50} & Target

Bacterial[2]

In Vitro

Cecropin A shows anticancer activity. Cecropin A (10-50 μM) dose-dependently reduces the viability of HL-60 cells. Cecropin A (30 μM) promotes ROS production, causes mitochondrial membrane potential (Δψm) collapse, and generates morphological changes in nuclear chromatin in HL-60 cells. Cecropin A (30 μM) also leads to an early apoptosis and cuases caspase-independent cell death in HL-60 cells[1]. Cecropin A has cytotoxicity on gram negative bacteria, including A. baumanii (CCARM 12005, CCARM 12035, CCARM 12036, CCARM 12037) with minimal inhibitory concentration (MIC) of 0.5-1 μM. Cecropin A (25 μM) significantly blocks the expression of mTNF-α, mIL-1β, and mMIP-2 mRNA and slightly inhibited the expression of mMIP-1 mRNA in RAW264.7 cells. Cecropin A (0.1, 0.25, 0.5, 1, 2.5, 5 μM) also inhibits NO production and reduces mTNF-α cytokine levels in LPS-stimulated RAW264.7 cells, and exihibits anti-inflammatory activity[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]

Briefly, 5×10^5 cells/mL in RPMI 1640 supplemented with 10% heat-inactivated FCS are placed onto 96-well plates. Cecropin A is added to cell cultures at a final concentration of 10, 20, 30, 40 and 50 μM and cells are incubated for 24 h at 37°C in a humidified atmosphere with 5% CO_2. Then, 20 μL MTT (0.5 mg/mL) is added to each well and the plate is incubated for 4 h at 37°C. The MTT solution is removed and isopropyl alcohol containing 0.04 N hydrochloric acid is added to each well to dissolve the formazan crystal. Absorbance is determined on a spectrophotometric microplate reader at a test wavelength of 550 nm and a reference wavelength of 620 nm. The absorbance of the cells incubated in the absence of cecropin A (untreated cells) is set at 100%. Results are expressed as percentage of cell viability[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Cerón JM, et al. The antimicrobial peptide cecropin A induces caspase-independent cell death in human promyelocytic leukemia cells. Peptides. 2010 Aug;31(8):1494-503.

[2]. Lee E, et al. Anti-inflammatory activities of cecropin A and its mechanism of action. Arch Insect Biochem Physiol. 2015 Jan;88(1):31-44.

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