
Product Data Sheet

Product Name: Antioxidant peptide A

Cat. No.: GC34392

Chemical Properties

Cas. No.

SMILES Pro-His-Cys-Lys-Arg-Met

Formula $C_{31}H_{54}N_{12}O_7S_2$ M.Wt 770.97

Solubility Soluble in Water Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°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 **Protocol****Kinase experiment:**

Y79 cells are seeded at 2×10^5 cells/well in 12-well plates with 1000 μ L of culture media and incubated at 37°C overnight. The cells are then exposed to varying dosages of Antioxidant peptide A (Pep-A) and Pep-B (10, 50, and 100 μ M) in fresh medium and then incubated for 6 h. At the end of the incubation, the cells are collected and washed with ice-cold PBS twice and lysed with cell lysis buffer [0.1 M Tris/HCl, pH 7.4 containing 0.5 % Triton X-100, 5 mM β -Mercaptoethanol, 0.1 mg/mL PMSF]. Cell lysate is centrifuged at 14000 \times g for 5 min at 4°C. The supernatant contains a combined SOD activity from cytosol and mitochondria. The SOD activity is measured using the superoxide dismutase (SOD) activity assay kit. In brief, the cell lysate, buffer, enzyme, and the WST reagent are diluted, and the solution is added as per the protocol and incubated at 37°C for 20 min and read at 450 nm on a microplate reader. SOD activity is then calculated as a percentage of the inhibition activity of xanthine oxidase[1].

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

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Cell experiment:

Y79 retinoblastoma and MIOM1 cells are seeded at 5×10^3 cells/well in 96-well plates and incubated at 37°C overnight. The cells are then treated with varying concentrations (10, 30, 60, and 100 μ M) of Antioxidant peptide A (Pep-A) and Pep-B in a fresh medium and incubated for specific time periods (24 and 48 h). At the end of the incubation, 10 μ L of MTT (5 mg/mL) is added to the cells with fresh medium (100 μ L) and incubated at 37°C until formazan crystals are formed. The formazan crystals are dissolved in 100 μ L of DMSO, and the reading is taken at 570 nm. Cell viability is calculated[1].

References:

[1]. Kalmodia S, et al. Bio-conjugation of antioxidant peptide on surface-modified gold nanoparticles: a novel approach to enhance the radical scavenging property in cancer cell. Cancer Nanotechnol. 2016;7:1.

Background

Antioxidant peptide A is a short peptide, which contains alternative aromatic or sulfur-

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containing amino acid. The side chains of Antioxidant peptide A are believed to contribute to strong radical scavenging activities of peptides in the cancer cell.

The effects of 10-100 μM of Antioxidant peptide A (Pep-A) concentrations are studied on the superoxide dismutase (SOD) enzyme activity. The enzyme activity decreases by 0.5 and 0.7-folds at 10 and 50 μM Antioxidant peptide A concentrations, respectively, and increases by 1.79-folds at 100 μM Antioxidant peptide A treatment, indicating that this concentration can be ideal for the treatment on Y79 a, RB cells. Furthermore, the Antioxidant peptide A can be involved in decreasing the ROS by increasing the antioxidant enzyme activity. A similar increase in the antioxidative enzyme levels in the presence of Hoki skin antioxidative peptide in hepatocarcinoma cells is attributed to the peptide's role in maintaining the redox balance in the cellular environment. Cell viability analysis results show that the Antioxidant peptide A shows no toxicity to cancerous (Y79) cells and non-cancerous cells even after 48 h of treatment. The Y79 RB cell viability ranges between 115 and 157 % and 111-126 % after 24 and 48 h of exposures with Antioxidant peptide A, respectively. The cancer cell death from the treatment of 10-100 μM GNPs concentration is studied[1].

[1]. Kalmodia S, et al. Bio-conjugation of antioxidant peptide on surface-modified gold nanoparticles: a novel approach to enhance the radical scavenging property in cancer cell. *Cancer Nanotechnol.* 2016;7:1.

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