

Use of ApoA-1 to Treat and Prevent Pro-Inflammatory Conditions

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Technology description

UCLA researchers in the Department of Obstetrics and Gynecology have discovered that ApoA-I can be used to treat and prevent pro-inflammatory skin conditions.

BACKGROUND

Inflammation is a standard immune signaling process that is strongly associated with stress and is connected to various diseases. Inflammation is activated to fight infection or invasion of potentially deleterious biological agents and to drive wound healing. While essential for these functions, inflammation can also exert detrimental effects. An unbalanced systemic inflammatory reaction can induce shock, derangement of microcirculation, and defects in coagulation. Antioxidants such as vitamin C, coffeeberry, and resveratrol have been used in the prevention and treatment of skin and systemic pro-inflammatory conditions.

Apolipoprotein A1 (ApoA₁) is the major protein component of HDL particles in the plasma. The protein, as a component of HDL particles, enables efflux of fat molecules by accepting fats from within cells for transport outside of the cells. ApoA₁ has been shown to have extremely strong and specific antioxidant activity.

INNOVATION

Researchers at UCLA have shown that ApoA₁ can significantly reduce the viability and proliferation of pro-inflammatory ID8 cells (mouse epithelial ovarian cancer cell line). An ApoA₁ mimetic (D₄f) was able to induce synthesis of mnSOD mRNA and protein, which inhibits cancer cell growth. To date, ApoA₁ has never been used for this purpose. However, the mechanism of action has already been determined, which will enable more directed development for therapeutic use.

Application area

Epithelial cancers

Alzheimer's disease

Atherosclerosis

Inflammatory skin diseases

Inflammatory bowel syndrome

Other autoimmune diseases

Advantages

ApoA-I has never been used as a therapeutic before

Extremely strong and specific antioxidant activity

Part of mechanism of action determined

Institution

[University of California, Los Angeles](#)

Inventors

[Srinivasa Reddy](#)

Professor

OB & GYN

[Robin Farias-Eisner](#)

Professor & Chief Gyn-Onc

OB & GYN

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com