

Novel Targeted Nitroxide Cream to Prevent or Reverse Skin Damage

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Technology description

Background

Sunlight has a profound effect on the skin causing premature skin aging, skin cancer, and a host of other skin changes. In fact 90% of the symptoms of premature skin aging can be attributed to exposure to ultraviolet light, UVA or UVB, from sunlight. It is now known that many skin changes that were commonly believed to be due to aging, such as easy bruising, are actually a result of prolonged exposure to UV radiation. Oxidative damage is a critical final common pathway in skin damage resulting from a variety of radiation (including UVA and UVB) and toxin exposures that can result in a broad range of unwanted events including unwanted cosmetic effects (skin aging and wrinkling).

Technology Description

Investigators have developed a novel Gramicidin S (GS)-derived nitroxide, known as JP4-039. This agent has been formulated into a topical cream and when applied to the skin, acts as a potent antioxidant by delivering nitroxide specifically to the mitochondria. Nitroxide protects the skin by neutralizing harmful free radicals that are produced by UVA and UVB radiation, which decreases the signs of aging. The topical formulation can also be used to deliver chemical and physical sunscreens along with JP4-039. The invention provides claims for compound compositions, formulations, and methods of use.

Application area

1. Prevents oxidative skin damage from sun exposure.
2. Reverses or mitigates signs of aging (wrinkling, sagging, discoloration).
3. Can be combined with sunscreens in a single cream or lotion.

Advantages

1. All inactive ingredients of the cream are FDA approved.
2. Protective when applied before sun damage.

3. Effective in correcting damage when applied after sun exposure
4. Non toxic with no vehicle associated side effects.
5. Nitroxides are targeted to the mitochondria and act as antioxidants.
6. Active in cells in the concentration range from 2.5-20mM
7. Able to deliver a sufficient amount of agent to the skin to achieve efficacy

Institution

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