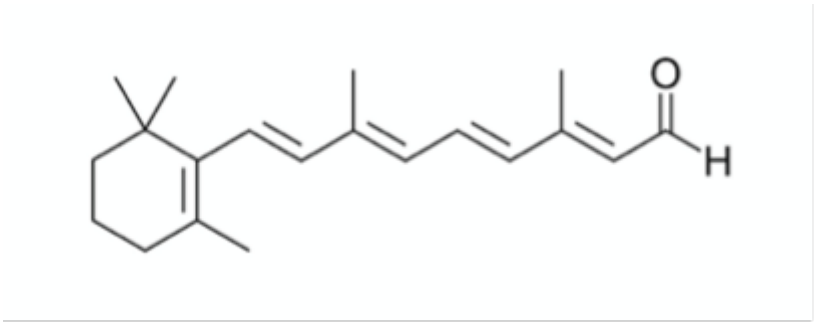
INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

Design and Synthesis of Novel Retinoids

Technology number: 7453



OVERVIEW

Improved retinoid compounds minimizing skin irritation while enhancing acne treatment and skin repair

- Enhanced efficacy with reduced inflammatory responses
- Useful for acne treatment, skin repair therapies, reducing skin irritation

BACKGROUND

Retinoids, derivatives of vitamin A, are widely utilized in dermatological treatments for conditions such as acne, photoaging, and psoriasis due to their ability to influence cell differentiation and proliferation. Historically, retinoids like all-trans retinoic acid (ATRA) have been groundbreaking but are often associated with significant side effects, such as skin irritation and systemic inflammatory responses. Traditional formulations tend to induce pro-inflammatory cytokines and cytotoxicity, limiting their therapeutic potential and patient adherence. These shortcomings necessitate the development of improved retinoid compounds that retain beneficial effects while minimizing adverse reactions, addressing both the efficacy and safety concerns in dermatological applications.

INNOVATION

Researchers have created retinoid compounds, named VMC14, VMC29a, VMC44c, and VMC48, which demonstrate comparable efficacy to ATRA in promoting fibroblast survival, reducing keratinocyte cohesion, and inducing epidermal thickening - key indicators for effective acne treatment and skin repair. Importantly, these compounds show significantly reduced induction of pro-inflammatory cytokines, which suggests a lower propensity for causing skin irritation.

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Category

Therapeutics and Vaccines
Life Sciences

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Potential real-world applications of these innovations include acne treatment products that are more tolerable for patients, advanced skin repair therapies for conditions like wounds or ulcers, and treatments for inflammatory skin diseases, offering a more balanced approach to skincare and dermatological health. The reduction in side effects could lead to higher patient adherence and satisfaction.

ADDITIONAL INFORMATION

PATENTS:

US11148998B2 "Dimethyl-nonatetraenyl-trimethyl-cyclohexyl compounds and uses thereof"