Cleansing Balm Study

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Tradename: AC Vegan Keratin OS

Code: 20964

CAS #: 68650-44-2 & 90063-40-4 & 92113-26-3 & 225234-01-5

Test Request Form #: 9300

Lot #: 8863700

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*
Study Director: *Maureen Drumwright*
Principal Investigator: *Hannah Duckett*

Test Performed:
Cleansing Balm Study

Introduction

Many cosmetic products, especially color cosmetics, are formulated using hydrophobic pigments that do not readily rinse away with soap and water. As a result, the double cleansing trend has become a popular way of removing these stubborn cosmetic products. Consumers start with an oil-based cleanse followed by a standard water-based cleanse to ensure their skin is free of all products and debris. The oil-based cleanser (usually formulated as a balm) functions by interacting with the lipophilic pigments and ingredients resulting in easy removal. One major downside of these oil-cleansers is that they can strip the skin of natural oils, leaving the skin dry and uncomfortable. It is therefore important to formulate a cleansing balm that adequately removes stubborn products while also providing hydrating benefits.

A cleansing balm study was conducted to assess the ability of **AC Vegan Keratin OS** to augment the removal of color cosmetics while providing hydrating benefits to the skin.

Study Principle

Foundation is applied to participants' skin and after a cleansing protocol, the amount of makeup removed by the balm is quantified via ImageJ analysis. Skin hydration measurements are recorded at various timepoints throughout the study via DermaLab Skin Combo.

Materials

A. **Equipment:** Dissecting microscope; DermaLab Skin Combo (Hydration/Moisture Pin Probe)
B. **Reagents**: Maybelline Fit Me, Matte + Poreless Foundation shade 368 (base foundation); Base Cleansing Balm (Table 1)
C. **Other:** Makeup Sponges, Kimwipes®
D. **Software:** ImageJ (National Institutes of Health)

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Table 1. Base Cleansing Balm Ingredient List

INCI
Caprylic/ Capric Triglyceride
Sodium Lauroyl Lactylate
Glyceryl Behenate
Cera Alba

Methods

20 volunteers between the ages of 23 and 45, who were known to be free of any skin pathologies with Fitzpatrick skin types I to IV, participated in this study (Table 2).

Table 2. The Fitzpatrick Classification of Skin Types Chart[1]

Fitzpatrick Skin Type Descriptions*	
Skin Type	**Description**
I	Always burns, never tans
II	Burns easily, tans minimally
III	Burns moderately, tans to light brown
IV	Burns minimally, tans to moderate brown
V	Rarely burns, tans to dark
VI	Never burns, least sensitive to changes
*Adapted from The Surgeon General's Call to Action to Prevent Skin Cancer	

Initial images of skin and hydration readings were recorded prior to participants applying 40 mg of foundation to each test site using a makeup sponge to create a uniform layer on the skin. Foundations dried for 15 minutes before images and hydration readings were obtained again. Next, participants applied 2 mg of 5.0% **AC Vegan Keratin OS** in a cleansing balm and the base cleansing balm alone to the respective test sites (Table 3). The cleansing balms, with and without the test article, were rubbed in for 30 seconds before wiping away with a clean, dry Kimwipe® three times. For added perspective, data of an untreated test site wiped with just a Kimwipe® was recorded. Importantly, the foundation utilized throughout the study was much darker than their natural skin tone to provide better imaging contrast.

Table 3. Descriptions of the Conditions and Treatments for each Skin Test Site

Skin Test Site	Condition	Treatment / Test Article Application Description
1	Untreated Control	None
2	Base Cleansing Balm	Base Cleansing Balm
3	5.0% **AC Vegan Keratin OS**	5.0% **AC Vegan Keratin OS** in Base Cleansing Balm

ImageJ analysis was conducted on each image to understand the area covered by the foundation at each step. This was expressed as an area of pixels converted to mm^2. Information about the skin's hydration was measured via a moisture pin probe. The probe measured the conducting properties of the upper skin layers when subjected to an alternating voltage. The method is referred to as a conductance measurement and the output is presented in the unit of µSiemens (µS).

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Results

The data obtained from this study met criteria for a valid study and the controls performed as anticipated. AC Vegan Keratin OS at a concentration of 5.0% enhanced makeup removal and retained skin moisture.

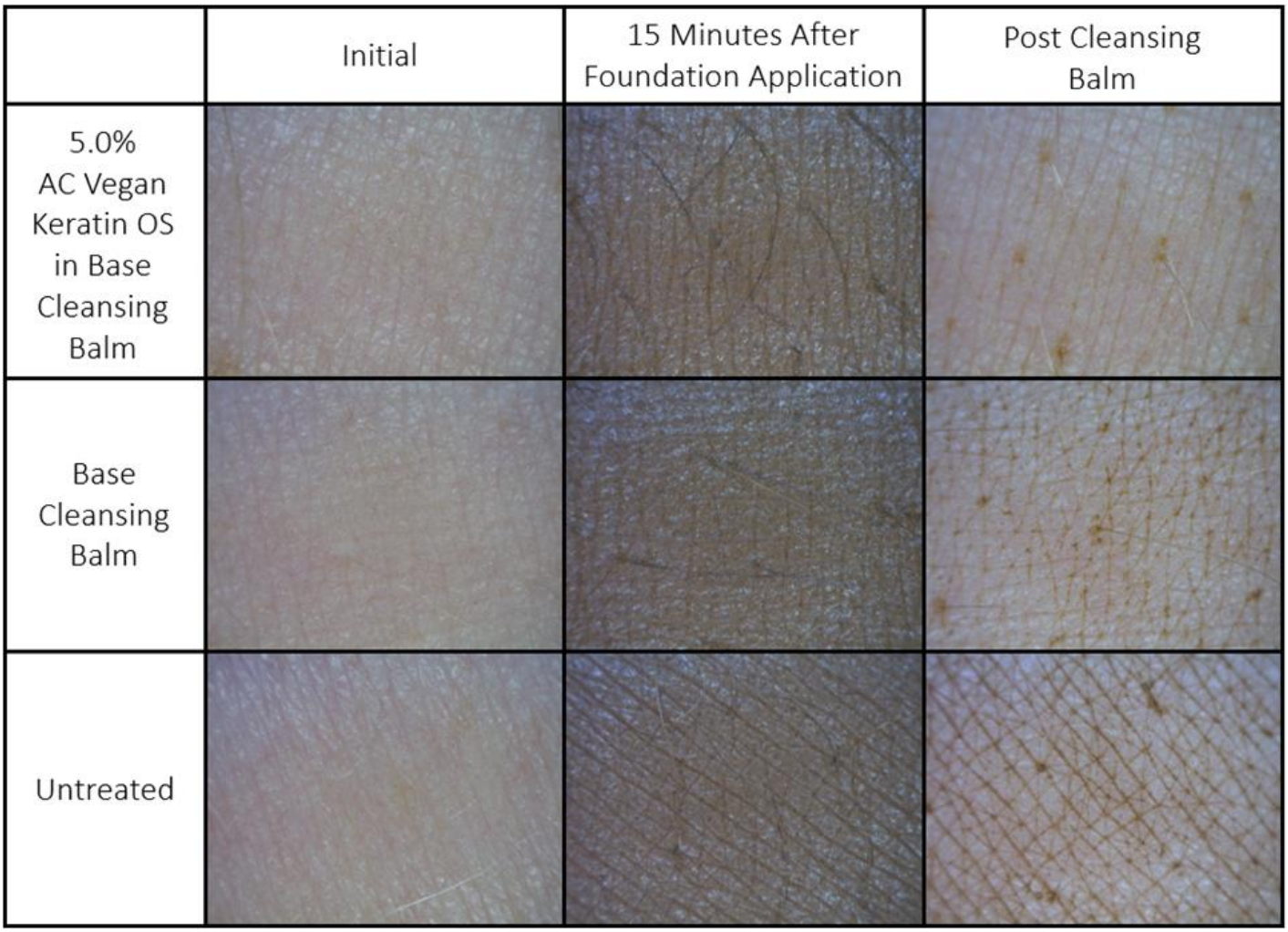

Figure 1. Representative Images of Each Test Site Initially, 15 Minutes After Foundation Application, and After Cleansing Balm Use. Please note that larger pores may retain foundation creating a freckle-like appearance post cleansing balm.

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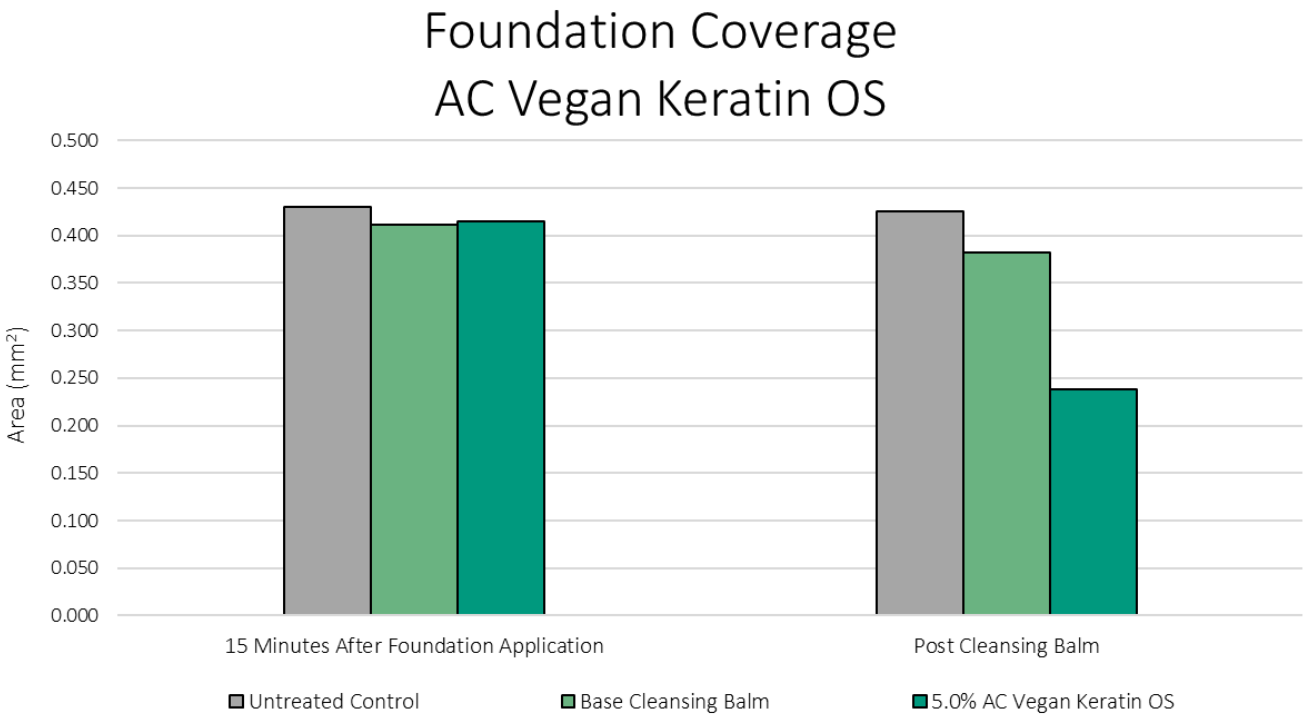

Figure 2. Foundation Coverage at Each Timepoint

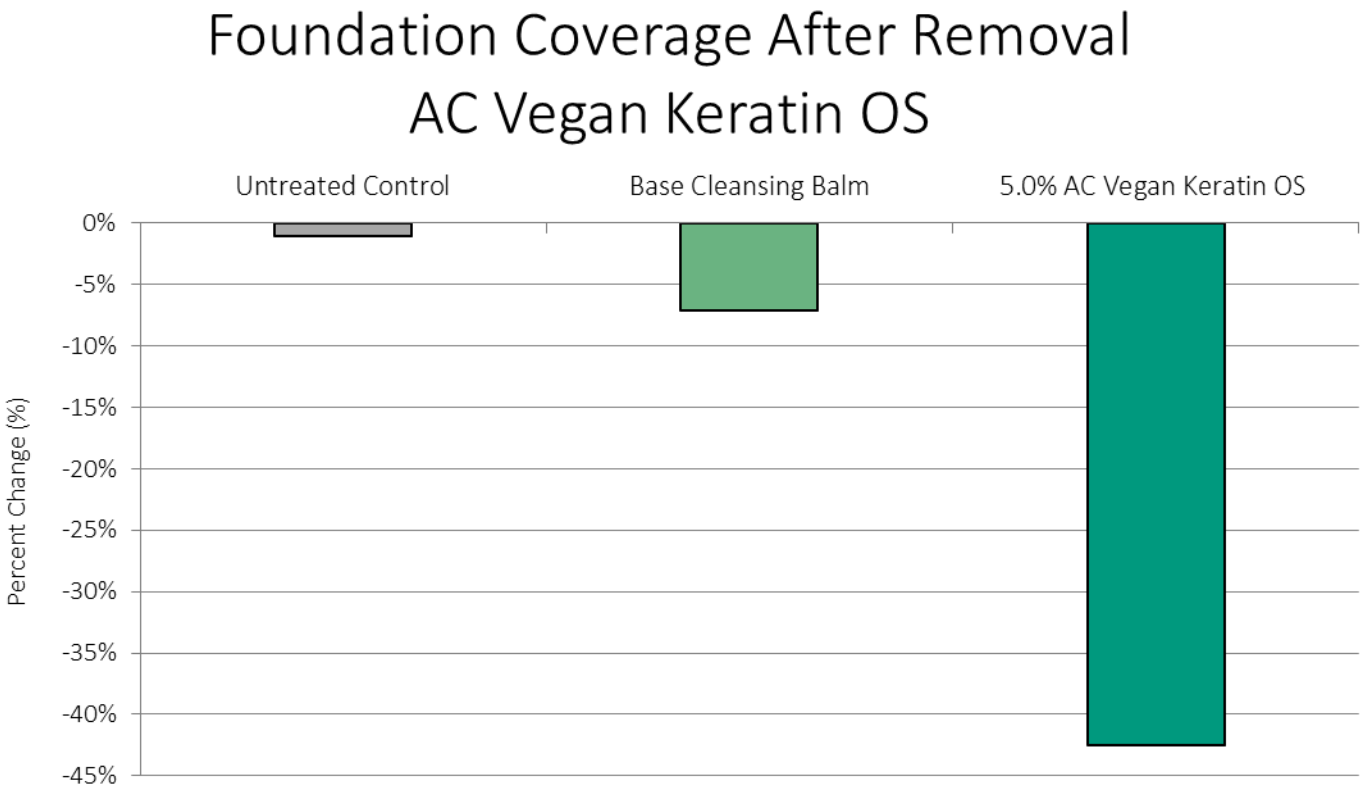

Figure 3. The Effect of **AC Vegan Keratin OS** on Foundation Coverage After Removal with a Cleaning Balm

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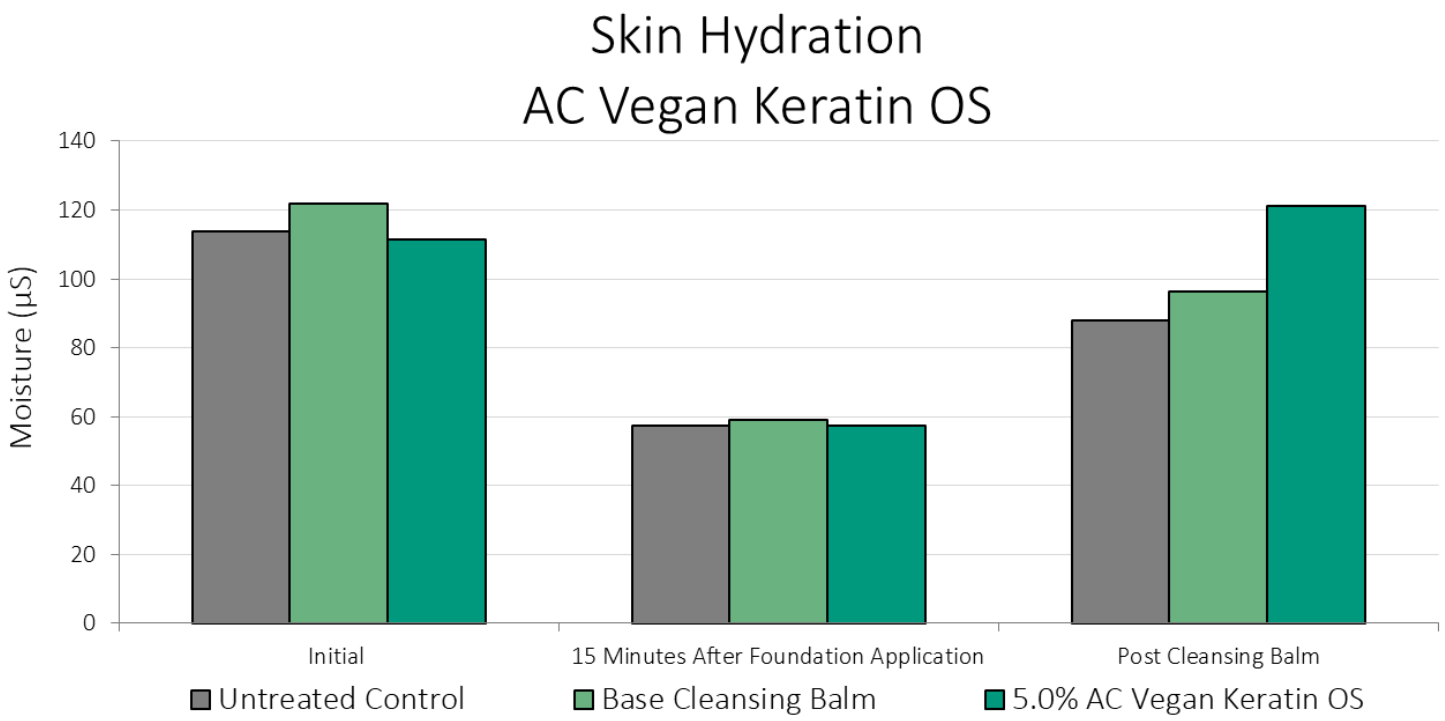

Figure 4. Average Skin Moisturization at Each Timepoint

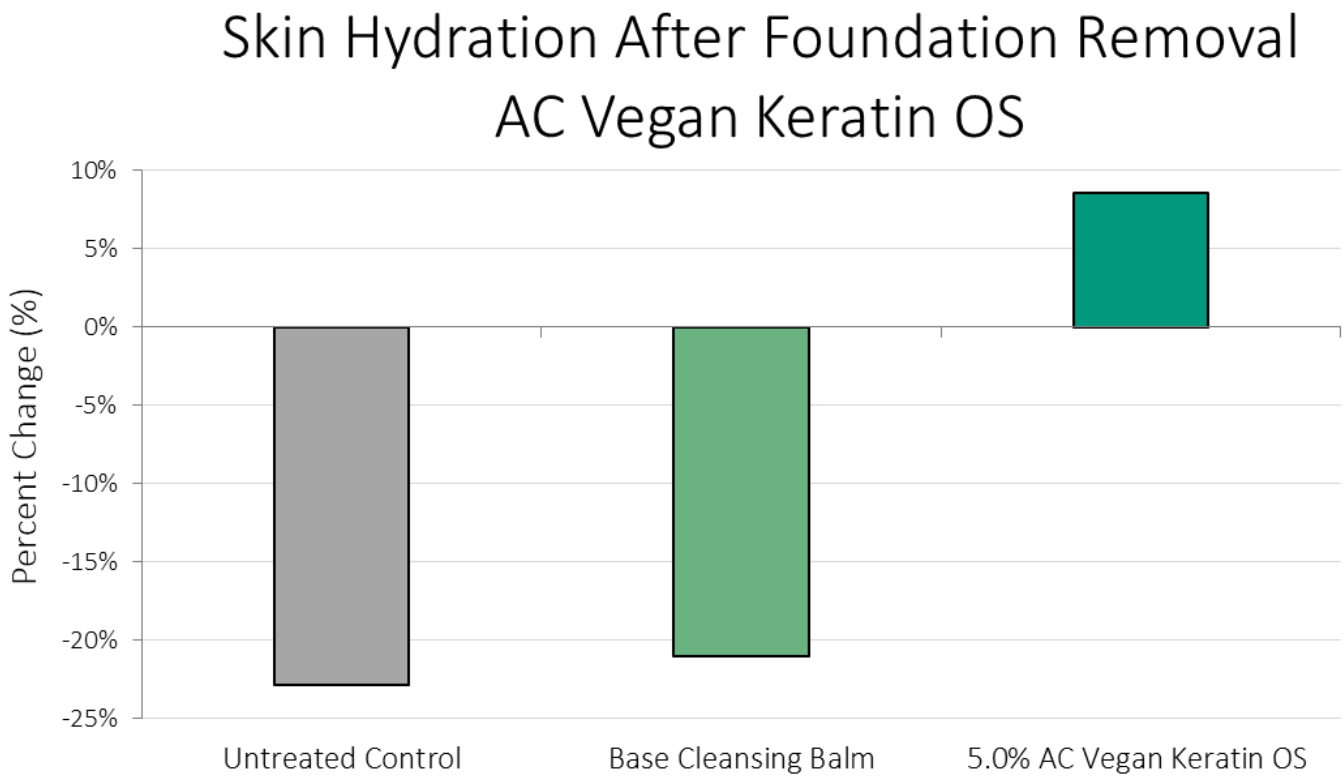

Figure 5. The Effect of **AC Vegan Keratin OS** on Skin Moisturization after Foundation Removal with a Cleansing Balm Compared to Initial Moisturization Levels.

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Discussion

As shown in Figure 1, AC Vegan Keratin OS enhanced the removal of color cosmetics, exhibited by the reduction in foundation coverage on the skin. The small amount of remaining foundation compared to the cleansing balm base and untreated control indicates the addition of AC Vegan Keratin OS to a cleansing balm augments the removal of makeup products.

ImageJ analysis confirmed that the cleansing balm containing AC Vegan Keratin OS boosted foundation removal as seen in Figures 2 and 3. All three conditions had similar foundation coverage after 15 minutes verifying that application was consistent across participants and test sites (Figure 2). After the cleansing procedure, the untreated control had almost no change in coverage and the base cleansing balm only removed 7% of the foundation present (Figures 2, 3). Conversely, 5.0% AC Vegan Keratin OS in the base cleansing balm removed over 40% of the foundation present, indicating that the active ingredient enhanced make up removal compared to the other conditions (Figures 2, 3).

Dehydrated skin is common after makeup application as was demonstrated by the decrease in moisture levels of all three conditions 15 minutes after foundation application (Figure 4). After the cleansing procedure, moisturization increased across all conditions, but only the cleansing balm containing 5.0% AC Vegan Keratin OS returned skin moisture levels back to initial readings. The untreated control saw a slight increase in moisturization likely due to the disruption of a uniform layer, however the skin had 23% less moisture than before foundation application (Figure 5). Similarly, the base cleansing balm increased skin moisturization but had 21% less moisture than initial levels. Conversely, 5.0% AC Vegan Keratin OS in the base cleansing balm augmented skin moisturization levels above initial measurements, leaving the skin 9% more hydrated than initial measurements (Figure 5).

In summary, 5.0% AC Vegan Keratin OS not only enhanced the cleansing ability of a base cleansing balm it also provided additional hydrating benefits as demonstrated by the present study. It can therefore be concluded that at normal use levels AC Vegan Keratin OS can be used as a booster in oil-based cleansing balms to remove cosmetic products and provide additional moisture benefits to the skin.

References

1. Sharma AN, Patel BC. Laser Fitzpatrick Skin Type Recommendations. [Updated 2022 Mar 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557626/