



# Cellular Renewal Assay

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**Tradename:** ACB Modified Pomegranate Enzyme PF

**Code:** 20440PF

**CAS#:** 84961-57-9 & 1686112-10-6 (or) 84775-94-0 (or) 9015-54-7

**Test Request Form #:** 9564

**Lot #:** 8755200

**Sponsor:** *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*

**Study Director:** *Maureen Danaher*

**Principle Investigator:** *Jennifer Goodman*

**Test Performed:**

Cellular Renewal Assay

**Abstract:**

**ACB Modified Pomegranate Enzyme PF** was evaluated for its ability to accelerate cell renewal by means of a wash off skin pigmentation assay protocol.

Skin cells are frequently exposed to ultraviolet light damage and other chemical and environmental aggregates. Their death and replacement through cellular renewal processes minimize the potential longer-term harmful effects of these exposures. Aiding in the processes of cellular renewal can improve the skin's physical appearance as well as function as a protective barrier.

Dermal Dye Max™ was used to induce skin pigmentation. The active ingredient in Dermal Dye Max™ is dihydroxyacetone (DHA), also known as glycerone, and is a simple saccharide.

**Materials:**

- A. Equipment:** DermaLab Skin Combo (Pigmentation Probe) Pipettes
- B. Reagents:** Dermal Dye Max™ (Alpine Valley Naturals); Cetaphil Gentle Cleanser for All Skin Types; Glycolic Acid (positive control)

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## Methods:

Volunteers, male and female, between the ages of 20 and 45 and who were known to be free of any skin pathologies participated in this study. Derma Dye Max™ was applied to four identified test patches on the volar forearm. The dye was left to develop for 24 hours prior to baseline readings. A fifth skin patch was identified as the skin baseline control and no dye nor treatment were applied to this site. Post dye development and prior to the initial application, baseline DermaLab pigmentation index readings were taken for all five identified sites.

Approximately 0.2 g of each cleanser treatment, 5% glycolic acid positive control, 5% **ACB Modified Pomegranate Enzyme PF**, and the gentle cleanser base formula were applied in a circle motion for 30 seconds to three 2cm x 2cm respective locations on the volar forearm. Each location was then thoroughly rinsed with warm water and patted dry with a paper towel. All cleanser formulations and the base control were adjusted to a direct pH of 4.3 – 4.8. The fourth test site was left untreated as a dye baseline test site. Readings were taken every 24 hours until the active test site returned to baseline. After each daily reading, treatment of each respective test site was performed following the same parameters listed above.

Lotion Sample	pH
5% Glycolic Acid	4.7
5% ACB Modified Pomegranate Enzyme PF	4.6
Gentle Cleanser Base Control	4.4

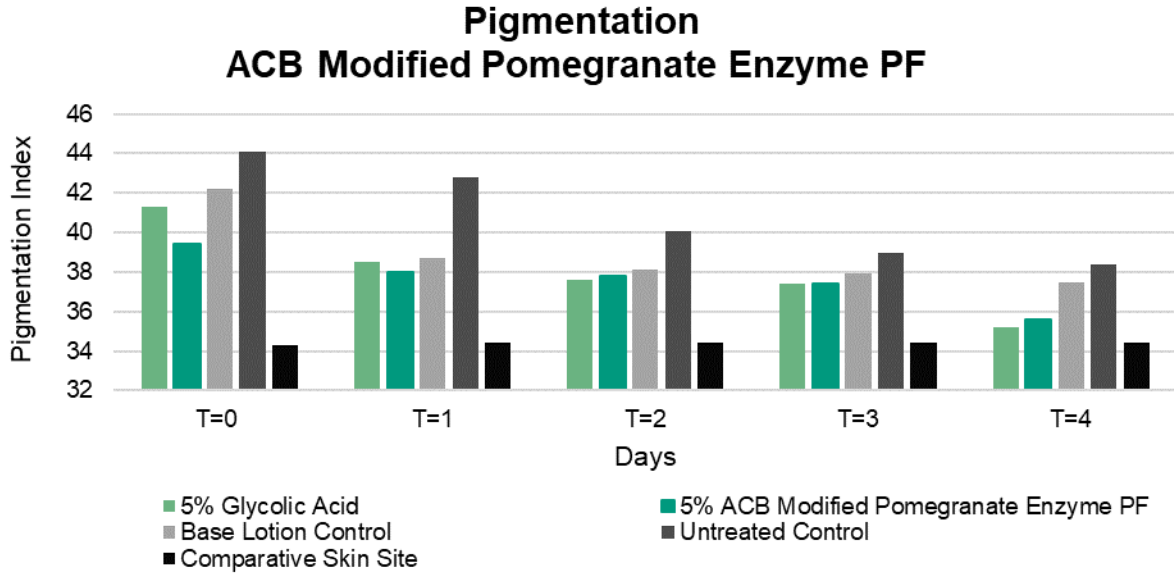
## Results:

**ACB Modified Pomegranate Enzyme PF** was able to return the test site to baseline pigmentation readings in 5 days.

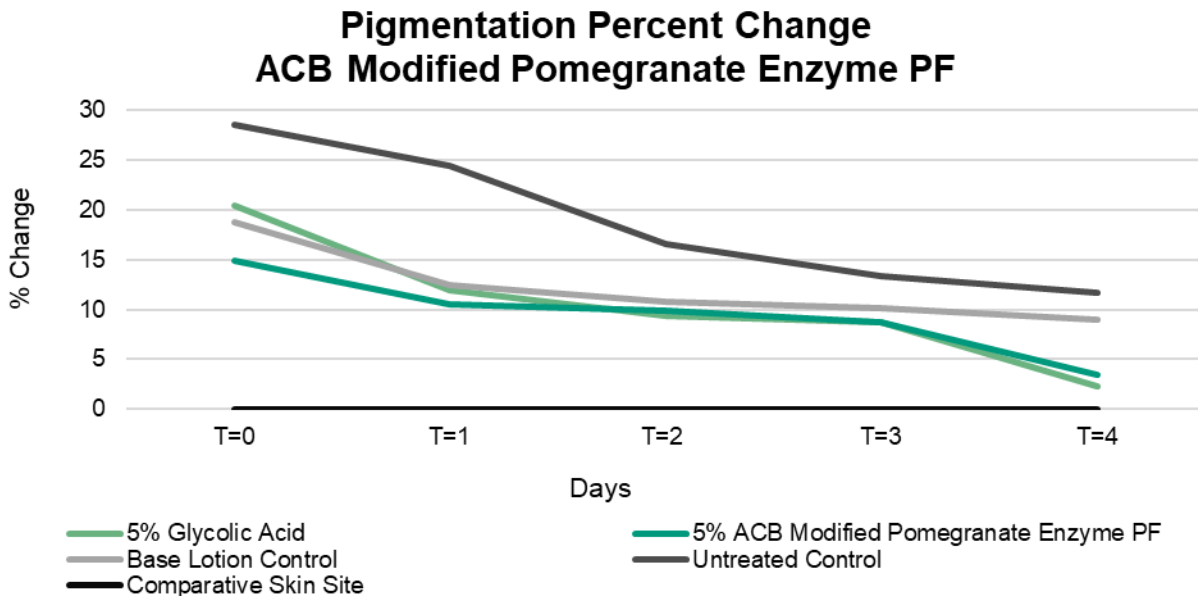
Pigmentation percent change was calculated for all four dye location test site readings for each respective day, using the equation below.

$$\text{Percent (\%) Change} = \frac{\text{Pigmentation Index}_{\text{sample Site}} - \text{Pigmentation Index}_{\text{skin Control Site}}}{\text{Pigmentation Index}_{\text{skin Control Site}}} \times 100$$

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**Figure 1:** Pigmentation Index Readings



**Figure 2:** Percent Change in Pigmentation

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## Discussion:

The results indicate that **ACB Modified Pomegranate Enzyme PF** is capable of increasing cellular renewal when compared to the untreated skin dye control site. Cellular renewal is beneficial for visibly improving skin tone and texture as well as aiding in the skin's function as a protective barrier from harmful chemical and environmental exposure that can lead to premature aging.

As seen in Figure 2, **ACB Modified Pomegranate Enzyme PF** had the greatest percent change reduction back to baseline when compared to all other test controls. **ACB Modified Pomegranate Enzyme PF** performed comparably to the glycolic acid positive control in the induction of cellular renewal and was able to return skin to the untreated baseline pigmentation readings. **ACB Modified Pomegranate Enzyme PF** induced a 96.5% change in pigmentation over the course of 5 days compared to the glycolic acid positive control, which induced a 97.7% change in pigmentation. It can therefore be concluded that at normal use concentrations, **ACB Modified Pomegranate Enzyme PF** contributes to cellular renewal, indicating a healthier, more vibrant skin tone and helping to reverse the signs of aging.