Personal Care

LactoPro CLP

Macronutrient Complex for Skin Nutrition

INCI Designation: Lactobacillus/Milk Solids/Soybean (and) Oil Ferment (and) Cyclodextrin
SAP Code#: 121680

Key Product Attributes

- Moisturizing
- Skin Nourishing
- Improves fine lines and wrinkles
- Revitalizing

Product Information

Recent discoveries evolving from the studies of skin metabolism and cellular activities have shown that the skin has its own system of nutrition which is based on the same nutrients that are involved in general nutrition, i.e. the macronutrients – proteins, lipids and carbohydrates, as well as the micronutrients such as vitamins, minerals and trace elements.

While all these essential building blocks are supplied to the skin via the bloodstream, it has been found that they can be supplied and readily utilized following topical application as constituents of skin care products. Lonza Personal Care has developed the skin macro-nutrient complex, LactoPro CLP, which is readily assimilated by the dermal structures when formulated in suitable cosmetic vehicles. LactoPro CLP supplies carbohydrates, lipids and proteins combined in the scientifically established proper nutritional ratios. All building blocks of the complex are derived from natural organic sources which are:

- Carbohydrates: from milk extract such as disaccharides as well as from plants such as complex carbohydrates;
- Lipids: from vegetable sources such as saturated and unsaturated fatty acids;
- Protein: from milk extract such as caseins.
- In addition, the complex is rich in organic calcium and Vitamins A and D.

Nature Meets Biotech

Utilizing Lonza's biotechnological expertise, these naturally derived ingredients- Lactobacillus, milk solids and soybean oil-are fermented and spray-dried to produce LactoPro CLP, a unique product that has proven moisturization and anti-aging benefits.

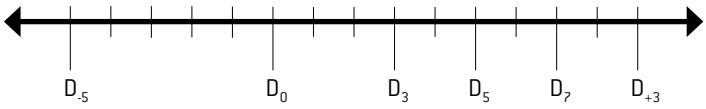
In vivo Efficacy Study

The efficacy of LactoPro CLP was evaluated in a double blind *in vivo* study conducted by AMA laboratories over seven days. 5% LactoPro CLP was formulated in a simple emulsion (Figure 1. Formula A) and evaluated against a placebo formulation (Figure 1. Formula B). The skin's trans-epidermal water loss was measured using a Servo Med Evaporimeter while elasticity was measured using a modified Diastron rheometer. A post treatment evaluation was also carried out three days after the last application using the same exact method and instruments.

Formulation Used for the *in vivo* Study

Ingredient	INCI Name	A	B
Demineralized H_2O + LactoPro CLP	Water Lactobazillus/Milk Solids/Glycine Soja (Soybean) Oil Ferment & Cyclodextrin	10.00 5.00	15.00 –
Demineralized H_2O + Germaben II	Water Propylene Glycol & Diazolidinyl Urea & Methyl Paraben & Propyl Paraben	64.49 1.00	64.49 1.00
Brookswax D	Cetearyl Alcohol & Ceteareth 20	1.50	1.50
Brookswax P	Emulsifying Wax NF	1.50	1.50
Lipomulse 165	Glyceryl Stearate & PEG-100-Stearate	5.00	5.00
Cetearyl Alcohol	Cetearyl Alcohol	1.00	1.00
Mineral Oil 70 vis.	Mineral Oil	6.00	6.00
Finsolv TN	C12-15 Alkyl Benzoate	3.00	3.00
Ivarbase 3210	Cetearyl Alcohol &Acetylated Lanolin Alcohol	1.00	1.00
Na_3EDTA	Trisodium EDTA	0.01	0.01
DC 200 0.65cs	Dimethicone	0.50	0.50

Fifteen subjects went through a 5-day washout period before applying the two test products (one on each inner forearm) three times daily. Readings were taken on Day 0, Day 3, Day 5 and Day 7. Skin elasticity and trans-epidermal water loss were measured and recorded. The subjects were requested to report back into the clinic 72 hours after the last application to complete the post-application study.



In vivo Study Results

Elasticity

LactoPro CLP was found to significantly increase skin elasticity by 15% after only five days of application (Figure 2) . Post treatment evaluation shows that when treatment with LactoPro CLP was discontinued, it had no detrimental effect and the skin went back to its original state.

***In vivo* Skin Elasticity Study**

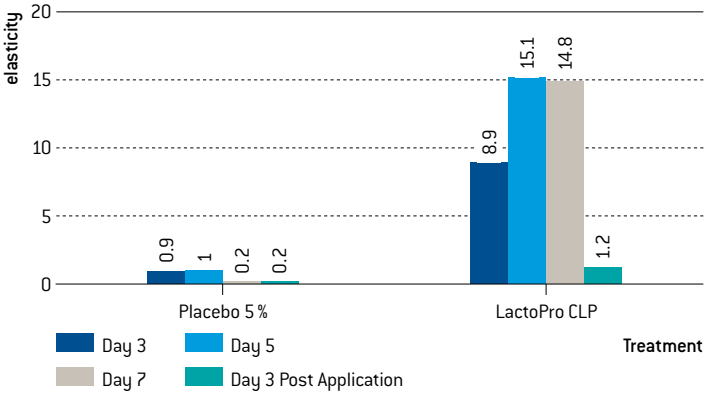


Fig. 2

TEWL (trans-epidermal water loss)

In this study, 5% LactoPro CLP formulated in a simple emulsion was found to significantly decrease trans-epidermal water loss immediately by 13.8% after only 24 hours and by 28.5% after only 7 days of continuous use (Figure 3). The area treated with the placebo did not show any beneficial changes in Trans-epidermal water loss (TEWL) measurements at all. Post treatment evaluation shows that when LactoPro CLP was discontinued, it had no detrimental effect and the skin went back to its original

In vivo TEWL Study

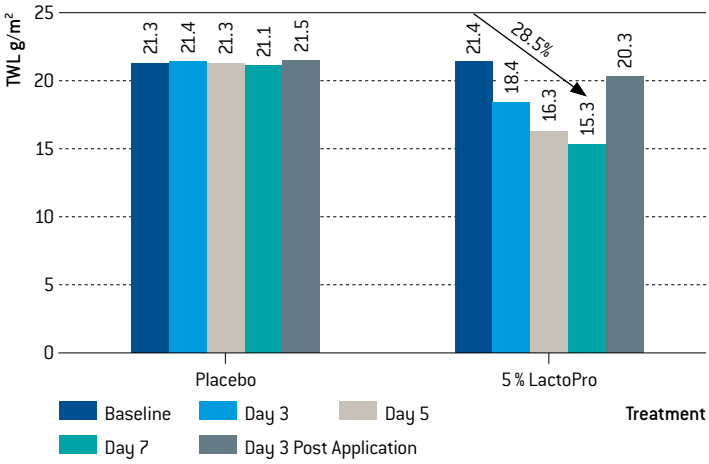


Fig. 3

Cosmetic Applications

LactoPro CLP can be formulated as a component of all types of cosmetic products such as creams, lotions, ointments, etc. as well as hair products such as rinses or leave-on conditioners, since no incompatibilities with common cosmetic raw materials have been encountered. LactoPro CLP is an excellent moisturizer with texturing and vitalizing properties. It produces visible results after only short-term use, exhibiting a reduction in the appearance of dry fine lines, improved elasticity of the skin and a healthier, youthful look.

Conclusion

In this *in vivo* study, we have found and proven that 5% LactoPro CLP in a simple emulsion is able to have a statistically significant improvement on skin elasticity by 15% after only 5 days. Treatment with 5% LactoPro CLP reduces skin's TEWL by over 28% after one week.

Appearance	Off-white powder
Odor	Very slight, characteristic
Protein Content (Kjedahl)	25.0–35.0 %
Carbohydrate Content (HPLC)	45.0–60.0 %
Microbial Content	500 opg Maximum, No Pathogens
Recommended Use Level	1–5 %

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