

For Enhanced Anchorage Of The Hair

**RESTORATIVE
PEPTIDE COMPLEX**

**VITAMIN
ESSENTIAL COMPLEX**

**ANTI-HAIR LOSS
TREATMENT**

**MINERAL
FERMENT COMPLEX**

Benefits and Product Features

Fights follicle ageing process to prevent hair loss. **NUTRIGROW** targets the main causes of alopecia: poor scalp micro-circulation, follicle atrophy caused by dihydrotestosterone and follicle ageing.

Re-starts the interrupted hair cycle to combat Alopecia, stimulates cell proliferation to reactivate production of anagen hair, and increases period of shortened anagen phase to prevent miniaturization and hair fall.

Definition

Biotinyl-GHK is a vitamin-bearing peptide, with a dual matricial and metabolic action. Biotinyl-GHK is a combination of the peptide Glycyl-Histidyl-Lysine with tissue repair activities, a member of the Matrikines series (MAQUART et al., 1999), and Vitamin H (Biotin). It targets better rooting of the hair in the skin to obtain enhanced adhesion (dermal papilla and hair follicle) with an improvement in the exchanges of chemical messengers at interface level. This enhanced interfacing will have a positive impact on the quality and duration of the anagen phase. Similarly, enhanced anchorage of the hair sheath and dermis should delay the onset of the telogen phase.

Oleanolic Acid From Olive Tree Leaves: Reduces dihydrotestosterone production by inhibiting 5 α -reductase type I and type II.

Apigenin, Flavonoid From Citrus: Improves blood irrigation of the hair follicle.

Hexapeptide-11: Hexapeptide-11 is a biofermented peptide. In a gene microarray study conducted on human dermal fibroblasts, it was found that topical treatment with Hexapeptide-11 was able to upregulate the Androgen Receptor gene (AR) indicating that the peptide appears capable of binding to the Androgen Receptor much the way testosterone will. This suggests that Hexapeptide-11 can influence the principal biochemical path ways responsible for converting young velus hair into mature terminal hair.

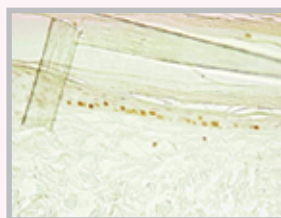
Sugar-Beet Betaine (Trimethylglycine) has been shown in vitro to stimulate the production of collagen in human dermal fibroblasts. Improving the production of collagen in the skin helps to strengthen the extracellular matrix where the hair bulb principally resides.

Fruit Extracts Isolated From Sugar Cane, Lemon And Apple offer natural exfoliating action through the action of α -hydroxy acids promoting cell renewal on the scalp.

Green Tea Extracts which are known to contain important and beneficial isoflavones protect the scalp from both oxidative stresses and UV radiation.

In-Vitro Studies

INCREASE OF MITOSIS RATE: Study of root sheath keratinocytes after a 14-day culture of hair follicle. Mitotic marker Ki67 was used to evidence cell growth activity. Biotinyl-GHK (2 ppm) stimulates Ki-67 expression, indicating enhanced cell proliferation. For the control bulb, the results showed a decrease in mitotic keratinocytes on day 14 of culture, reflecting cell aging.



Ki67 mitosis Control D14



Ki67 mitosis Biotinyl-GHK D14

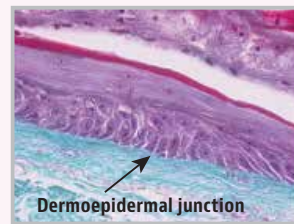
ACTIVATION OF GENE EXPRESSION (BIOALTERNATIVES study): Nutrigrow Active Complex activates numerous genes involved in tissue repair mechanisms (DNA-array on 3D SkinEthic® epidermis).

Gene	Activity	Activation
Laminin Binding Protein	Adhesion	+146 %
Acetyl CoA transferase	Cell metabolism	+137 %
Cytokeratins 10	Differentiation	+154 %

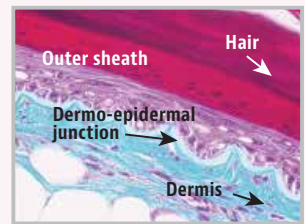
STIMULATION OF HAIR ANCHORING: Morphological observation after 14 days of culturing showed, in the control, a dermoepidermal junction, on the outer sheath side, that was flattened and had lost its basal lamina.

In contrast, when the hair follicle was incubated with Biotinyl-GHK for 14 days, the basal lamina persisted and was clearly drawn showing its sinusoidal character. These two findings reflect a strongly adherent and living dermoepidermal junction.

Morphological Observation



Control: 14 Days



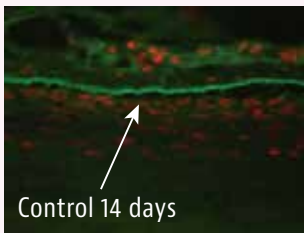
Treated: 14 days

STIMULATION OF THE ADHESION PROTEINS OF THE ROOT SHEATH AND DERMAL PAPILLA:

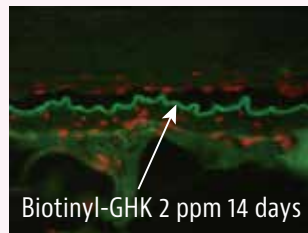
Laminin V and Collagen IV are revealed by immunofluorescence. Biotinyl-GHK stimulates adhesion proteins (Collagen IV and Laminin V) responsible for anchorage in the dermis.

Adhesion Molecules	T14 Control	T14 Nutrigrow's Active Complex
Laminin V	+	+++
Collagen IV	+	++++

Laminin V

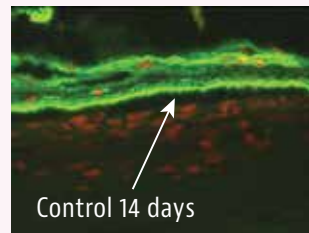


Control 14 days

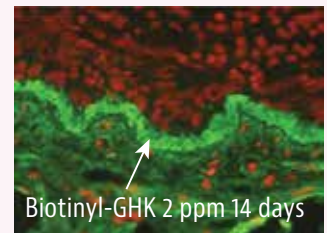


Biotinyl-GHK 2 ppm 14 days

Collagen IV



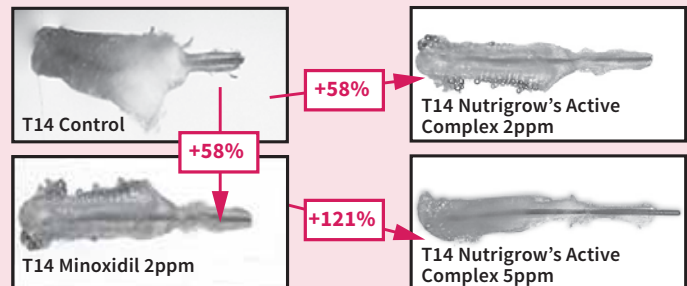
Control 14 days



Biotinyl-GHK 2 ppm 14 days

STIMULATION OF HAIR GROWTH:

Under exposure to Nutrigrow Active Complex, 58% more growth than that of the control was obtained and the growth was similar to that observed in the presence of 2 ppm Minoxidil® (10 µM). With 5 ppm Biotinyl-GHK, the growth was 121% greater than that of the control.



HAIR FOLLICLE MORPHOLOGICAL STUDY:

After 4-month treatment, hair bulb cells are highly structured and differentiated. The root sheath is thicker and ensures optimum anchoring.



Root sheath of an anagen hair



Hair bulb of a telogen hair

In Vivo Studies

Four-month placebo-controlled clinical trial (Laboratoires DERMSCAN)

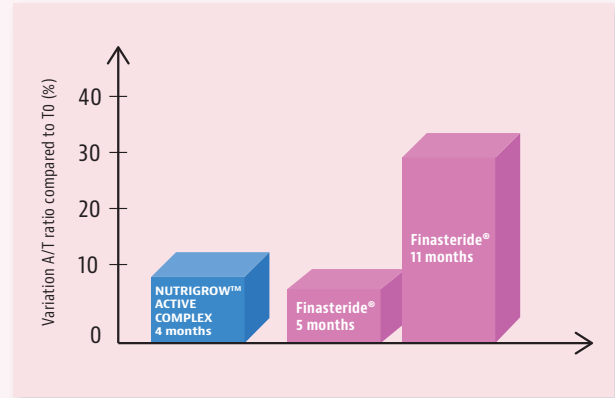
35 male volunteers with alopecia (Tmean=28%) applied the treatment (18 volunteers) or a placebo (17 volunteers) twice daily for 4 months.

Videotrichogram		
A/T (Mean Value)	NUTRIGROW™ Active Complex	Placebo
T0 Day	2,84	2,61
T4 Months	3,13	2,54

In the treatment group, 67% of the subjects presented with an improvement in A/T ratio and, for 3 subjects out of the 12 improved, the **A/T increase was 31.2, 33.5 and 46.3%, respectively.**

In contrast, in the placebo group, there was a trend toward a decrease in anagen hairs. The volunteers showed a marked improvement in the proportion of anagen phase hairs, significantly superior compared to T0 (+10%, p<0.05). The placebo is inactive. The comparison with the data published for the Finasteride® by oral administration shows that Nutrigrow Active Complex treatment has also a remarkable activity.

In fact, a moderate 8% variation of A/T ratio (compared to T0) is reported for Finasteride® after 5 months, variation increasing strongly to reach 33% after 11 months.



Variants & How to Use

On a moist or dry scalp, spray enough amount of the serum to dampen the area of application where hair loss has occurred. Apply the serum twice a day. Gently massage the serum into the desired area for 2-3 minutes so that the scalp thoroughly absorbs the serum. Do not rinse hair.

The NutriGrow Serum Kit contains three 60 ml bottles numbered 1 to 3. Each bottle contains a sufficient amount of serum for a fourteen-day application. However, for long hair, one bottle may be enough to apply over a period of ten to eleven days.

NutriGrow serum should be used regularly for four and a half months (3 Kits). Noticeable results will start to occur after 6 to 12 weeks of application. To maintain and improve the positive results obtained over the four and a half months of application, it is recommended to continue applying NutriGrow serum two or three times a week to guard against any hair loss, to protect hair follicles and to nourish hair cells.



ANTI-HAIR LOSS & FASTER HAIR GROWTH SHAMPOO, CONDITIONER

Available Variants: For Dry & Normal Hair & For Greasy Hair

300 ml



ANTI-HAIR LOSS & FASTER HAIR GROWTH SERUMS

180 ml



ANTI-HAIR LOSS & FASTER HAIR GROWTH SERUM AND SHAMPOO
"VALUE PACK"

300 ml+180 ml