



biochemistry

food&health

AnaGain™ Nu

Stimulating hair growth
and fighting hair loss



AnaGain™ Nu

Biological Source



The common garden pea (*Pisum sativum*) is a member of the *Fabaceae* or bean family. This pea is native to both the Mediterranean and the Near East regions and its culinary usage has been documented since the times of Ancient Egypt. Nowadays, peas are eaten fresh, as a cooked vegetable, and also in the form of young shoots or sprouts.

Pea shoots are especially vulnerable as they are not lignified. They have a very high amount of secondary plant metabolites in order to protect the plant from diseases, damage, pathogens, herbivores and extreme UV. Furthermore, they contain important nutrients such as adenosine, biotin and B-complex vitamins.

The pea shoots are grown indoors without soil in special bioreactors and the shoots are then extracted with 15% ethanol. The extract is transformed into a powder product by spray-granulation onto isomalt.

Hair Loss



During hair growth the follicles follow a cyclical and asynchronous growth phase. This cycle is made up of three distinct phases: anagen, catagen and telogen. Each hair passes through the phases independently from the neighboring hairs.

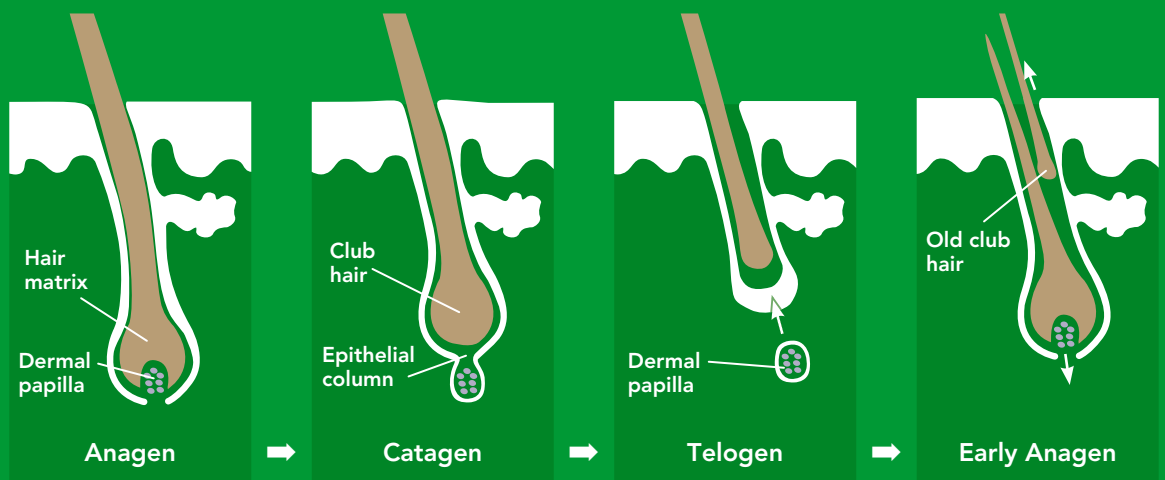
Hair loss problems, which are generally called alopecia, often are caused by an imbalance of the hair growth cycle that leads to a reduced number of growing (anagen) hair follicles combined with an increased number of degenerating (telogen) hair follicles. Causes of this include hormone levels, malnutrition, environmental factors and stress.

By the age of 50, at least 50% of men and approximately 25% of women are affected by hair loss.

Women experience diffuse hair loss and tend to lose the hair on the top of their heads.

Meanwhile, hair loss in men can be much more extensive, mainly affecting the temporal areas and the top of the head.

The Hair Growth Cycle



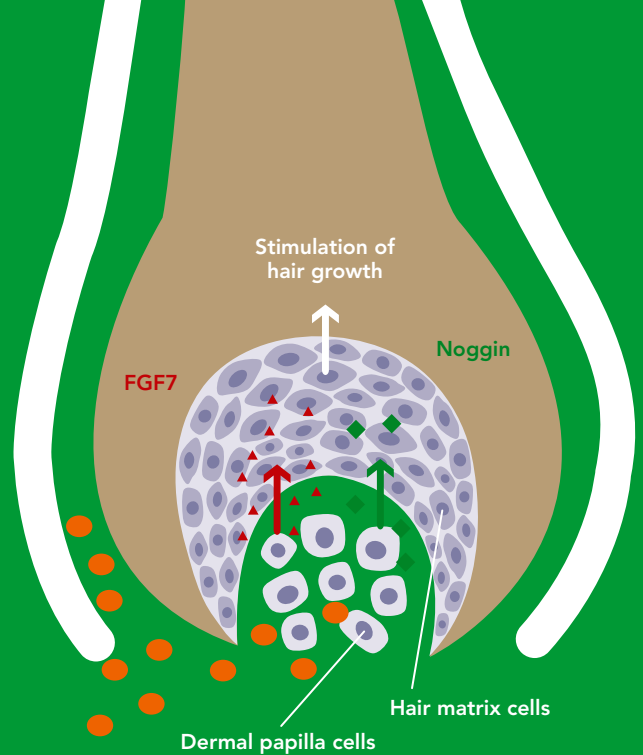
Mode of Action



AnaGain™ Nu was developed using a bioassay-guided approach based on DNA microarray technology.

AnaGain™ Nu stimulates specific signaling molecules in the dermal papilla cells which are required to initiate the growth of new hair:

- Noggin, a protein that shortens the hair telogen phase
- FGF7, fibroblast growth factor-7, which promotes the proliferation of the matrix keratinocytes at the beginning of a new anagen phase.



Bioassay Study Results

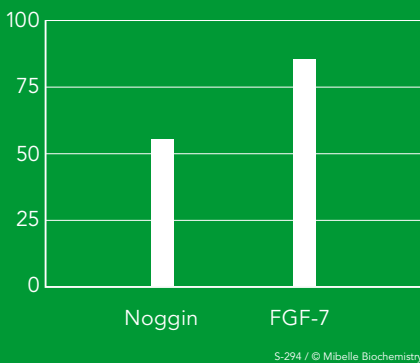


Gene expression analysis was conducted on plucked hair bulbs following a two week treatment with 2% AnaGain™ Nu.

The study results showed an up-regulation of Noggin by 56% and FGF-7 by 85%.

These results demonstrate that AnaGain™ Nu is able to stimulate the dermal papilla to induce the growth of a new hair.

Average expression upregulation in %



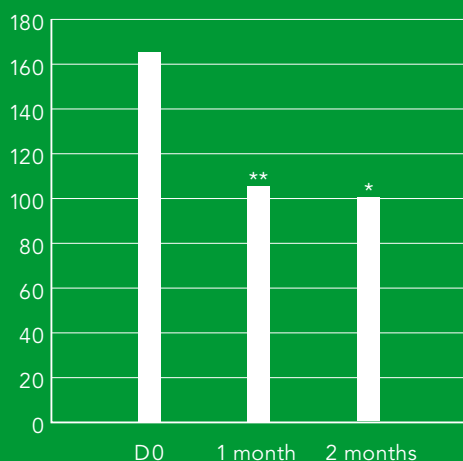
Clinical Study Results



The effects of AnaGain™ Nu on hair loss were evaluated on a test panel comprising 21 volunteers suffering from mild to moderate hair loss. 100mg of AnaGain™ Nu was taken on a daily basis by the volunteers in a drink of their choice for a period of two months. Hair loss counts were evaluated over three days – at the beginning of the study, following one month and after two months.

- AnaGain™ Nu showed a statistically significant hair loss reduction after one month (-34%) and two months (-37%)
- Visibly improved hair density
- Volunteers noticed the hair loss reduction and wished to continue the application

Evaluation of the mean number of fallen hairs



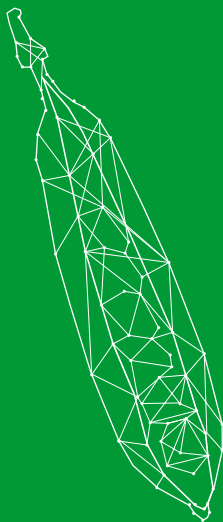
** p<0.0002 versus t0 * p=0.0002 versus t0

Suitable Product Applications

- Anti-hair loss
- Hair re-growth
- Anti-aging and hair care

Benefits

- A natural hair growth enhancer that is prepared from edible and organic pea shoots (*Pisum sativum*)
- A product that is developed by a bioassay-guided approach: Enhancement of FGF7 and Noggin expression balancing hair-growth cycle
- Efficacy clinical proven for oral and topic applications for both genders
- Suitable for dietary supplement applications; water-soluble for functional food applications



Product Attributes

- Water-soluble powder extract
- Neutral taste and odor
- Recommended daily dosage of 100mg

Recommended for

- Women with thinning hair
- Men with a tendency to lose hair in defined areas
- Men and women who lose more than 100 hairs per day

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