

Nanoguard B Product Guide

nanoguard B[®] **NEW!** Growth Phase Activator[™]

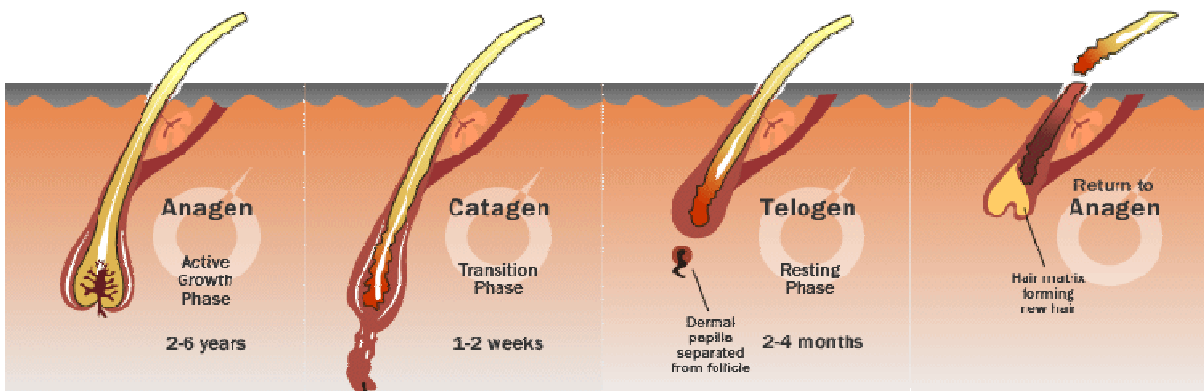
Solution to be applied daily

- **Inhibits activity of 5 alpha-reductase II**
(-31% using 2.5% Nanoguard B active)
 - **Increases synthesis of VEGF**
(+30% using 0.5% Nanoguard B active)
 - **Stimulates cell metabolism**
(+44% using 1% Nanoguard B active)
 - **Increases Anagen hair density**
(+18% using 10% Nanoguard B active)



Introduction to Nanoguard B active

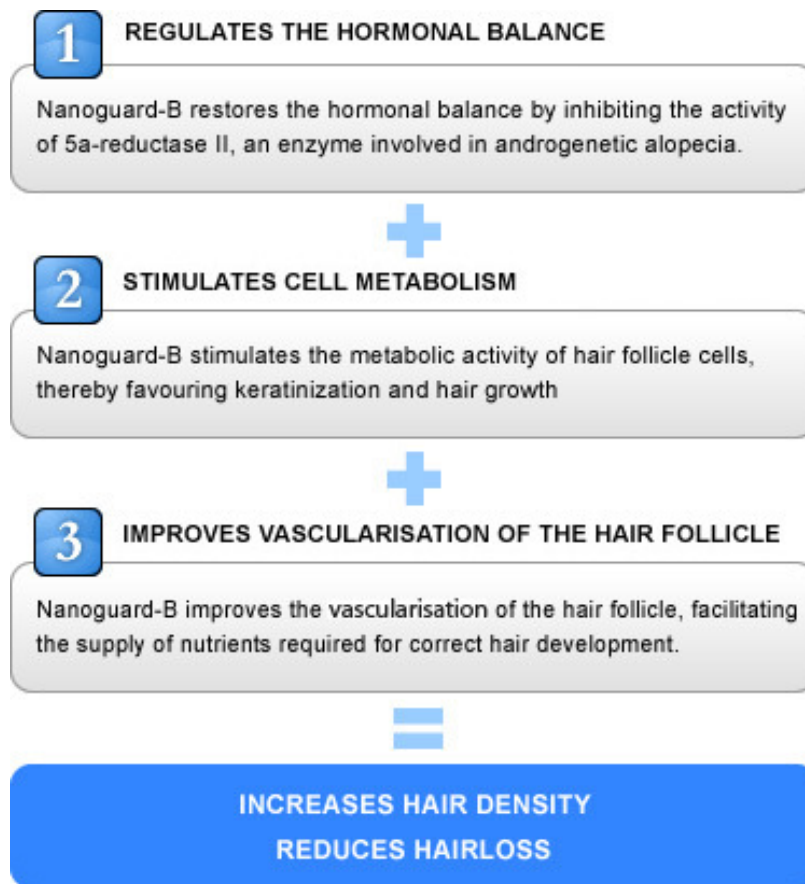
Before you can understand how Nanoguard-B works, it is important to know about the hair follicle's life cycle. Each hair goes through this cycle independently of all other hairs on the scalp.



The average human scalp contains between 100,000 and 150,000 hairs. These grow from the follicle or root, underneath the skin. The hair is 'fed' by blood vessels at the base of the follicle, giving it the nourishment it needs to grow. Each hair goes through a growth cycle independent of the other hairs on the scalp.

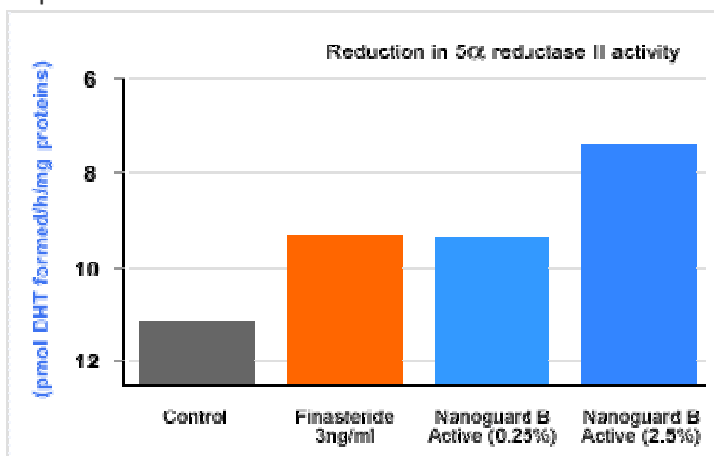
At any given time, approximately 90% of the hairs on the head are in the growth phase, or '**Anagen**', while the other 10% are in the resting phase, or '**Telogen**'. The Anagen phase lasts between 2-6 years, after which the follicle goes through a brief transition phase ('**Catagen**') and enters the resting phase, which lasts from 2-4 months. After the Telogen phase, the hair falls out naturally and is replaced, returning the hair to the Anagen phase. 'Shedding' occurs only after the return to the Anagen phase and on average 50-100 telogen hairs are shed every day. This is normal hair loss and accounts for the hair loss seen every day in the shower and with hair combing.

In addition to a twice-weekly shampoo Nanoguard A, which has patented anti-DHT properties, new Nanoguard-B is a once-daily aqueous solution applied directly to the scalp with three additional properties clinically proven to increase hair density and reduce hair loss:



1 Regulates the hormonal balance

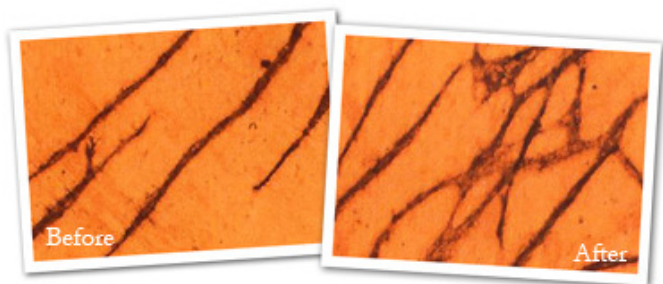
Hair follicles in the cases of androgenetic alopecia show an abnormally high level of DHT, an androgen converted from testosterone by the enzyme 5a-reductase. By inhibiting 5a-reductase activity, Nanoguard B severely limits the transformation of T into DHT, thereby limiting the cause of androgenetic alopecia.



Nanoguard B active tested at 0.25% on human fibroblasts shows a significant inhibiting effect on 5 Alpha-reductase II activity (-18%). This effect is comparable with a reference compound, finasteride. By inhibiting the activity of this enzyme, the Nanoguard B active limits the transformation of testosterone in 5 Alpha-DHT which is responsible for the follicles miniaturization characteristic of androgenetic alopecia.

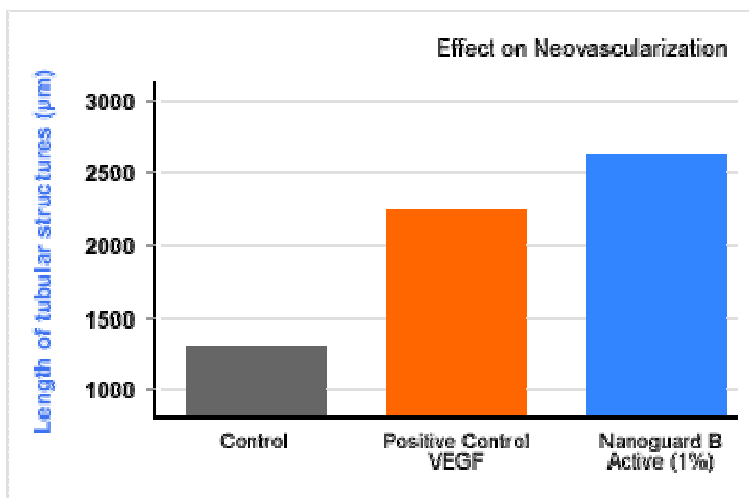
2 Improves vascularisation of the hair follicle

Formation of the vascular system near the follicle is an important and necessary factor in the development of hair. VEGF (vascular-endothelial growth factor) is one essential growth factor & has been shown to stimulate both *neovascularisation*, also known as *angiogenesis* (new blood vessel growth) and *vascular permeability* (the capacity of a blood vessel wall to pass through small molecules, like water or nutrients).



Photograph depicting Nanoguard B (1%) active effect on angiogenesis.

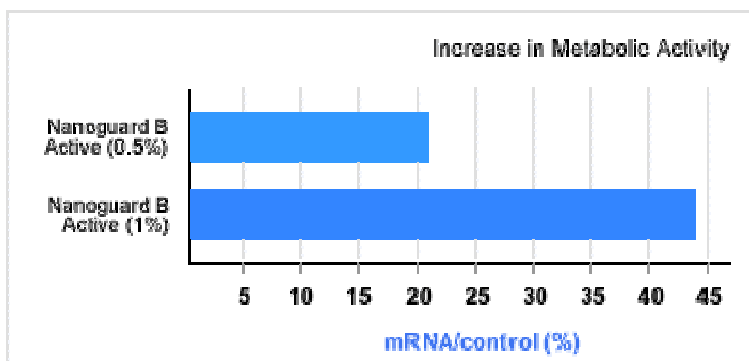
Nanoguard B increases VEGF by over 30%, as well as making the existing vascular system around the hair follicle denser, which is necessary to provide follicles in the Anagen phase with the nutrients required for hair growth.



Nanoguard B active tested at 0.25%, 0.5% and 1% increases formation of vessels from the existing system. Nanoguard B active favours angiogenesis and thus facilitates the supply of oxygen and nutrients that are essential for cells during the anagen phase, during which cellular activity is very intense.

3 Stimulates cell metabolism

Cells in the Anagen phase are dividing continuously to support the formation and growth of hair. Therefore the metabolic activity of the cells around the hair follicle needs to be at a maximum for the formation of healthy hair growth. Nanoguard B provides zinc, iron and growth peptides to stimulate and boost metabolic activity in the hair bulb cells, favouring the growth of hair.



Nanoguard active (1%) favours the expression of mRNA coding for type 1 transglutaminase, a marker of keratinocyte differentiation. By boosting the metabolic activity of cells, an important process in the anagen phase, Nanoguard B stimulates hair growth

Evaluation of the effect of Nanoguard B on reducing hair loss

After 44 days of daily application of the product Nanoguard B

Total hair density decreased slightly

The density of hair in the anagen phase remained stable

The Anagen/Telogen ratio increased considerably (+85.8%), resulting from a decrease in the quantity of hair in the telogen phase.

After 86 days of daily application of the product Nanoguard B

Total hair density increased by 11.9% compared to day 1. This increase was statistically significant.

The density of hair in the anagen phase increased by 17.1% compared to day 1. This increase was statistically significant

The Anagen/Telogen ratio increased by 117.7% compared to day 1. This increase was statistically significant.

Questions and Answers

How to use Nanoguard B?

We recommend using about 1.5ml of Nanoguard B per full application (this is about 10 strokes).

There is a guideline down the side of the bottle with approx. 5ml intervals to give an indication to the user of how much product is remaining.

Try to apply the product as directly as possible to the scalp, parting the hair and touching the nozzle to the scalp.

Gently squeeze the bottle and 'draw' a line (about 5 cm) across the thinning area. This needs to be repeated about 10 times across the area in question.

Allow to dry before applying further products.

Why should I use Nanoguard B at night?

Published research suggests that DHT levels are generally higher at night and since Nanoguard B is only used once per day, we recommend night time use although it may be used at any time.

Can I use Nanoguard B along with Nanogaine?

Since Nanoguard B and Nanogaine combat hair loss in two different ways, it might be beneficial to use them both simultaneously. Nanoguard B inhibits the conversion of Testosterone to Dihydrotestosterone (DHT), which has proved to be detrimental to the hair follicle. Nanogaine, on the other hand, works by releasing a Nobel Prize Nitric Oxide Molecule (NO) to inhibit the Superoxide and Sebum Output, also highly damaging to the hair follicle. Using both products may highly optimize the anti-hair loss and re-growth effect. Best is to applying Nanoguard B first, wait until it's fully absorbed and then applying the night Nanogaine solution.