



CONSISTENT, ROBUST HAIR REJUVENATION



A laser-assisted biomimetic growth factor protocol produced clinically significant, noninvasive hair restoration in a patient with treatment-resistant hair thinning.

BY CHRISTIE KIMBALL, MD

A substantial demand exists for effective, noninvasive hair restoration solutions. Hair restoration therapy remains a complex field, with patients responding inconsistently and often slowly to various treatments, including oral supplements, topical agents, injectables, and energy-based devices, along with combinations of these therapies. A treatment that is consistently effective for noninvasive hair restoration for both men and women of all ages has not been established. However, a protocol using laser-assisted drug delivery of a serum containing biomimetic growth factors has demonstrated promise at my practice as an effective solution across diverse populations. This treatment combines a biomimetic growth factor serum to nourish the hair follicles with a fractional, nonablative laser that creates microchannels in the scalp to enhance absorption and together, they have achieved clinically significant hair restoration.

The in-office serum (KeraFactorMD, KeraFactor by SkinQRI) and daily serum (Scalp Stimulating Solution, KeraFactor by SkinQRI) utilize a proprietary formulation of biomimetic growth factors, peptides, and nanoliposome coating that is designed to target scalp health and follicle stimulation. In vivo, the nanoliposome reduces the size of the active ingredients, facilitating delivery to the follicle through

the channel created by the laser, where the growth factors subsequently stimulate follicular progenitor cell proliferation and differentiation into follicular keratinocytes, promoting hair growth. A prospective study evaluated the efficacy and safety of the formulation, and results demonstrated statistically significant improvements in hair density, thickness, and strength, along with a reduction in hair shedding, after 90 days of use.¹

This case report corroborates those findings across all measured outcomes.

PATIENT PRESENTATION

A 34-year-old woman reported having previously had full, thick hair but experienced significant hair thinning beginning in 2012 and worsening through 2017. She described noticing her part becoming wider, her hairdresser commenting on hair thinning and loss and measuring a progressively widening part, and finding handfuls of hair being lost in the shower as the years went on. She eventually felt as if she barely had any hair left in her previously thick ponytail.

She sought out medical treatment in 2018, with her chief complaint being hair loss. During that period from 2012-2017, she had been a law student and took the bar exam, so she initially attributed some of her hair loss to stress; however, in late 2018, she was diagnosed with hypothyroidism and she started on

levothyroxine in early 2019. Her thyroid function labs were all within normal ranges on this treatment from 2019 to present day.

In 2020, she was also diagnosed with polycystic ovary syndrome (PCOS). She was started on metformin and reported that her physician tracked her weight and subjective hair growth without any change, and she was taken off metformin shortly thereafter, though she remained on levothyroxine. In 2019, she had also tried topical minoxidil for 6 months, followed by oral spironolactone and oral minoxidil for 2 years and then an oral supplement (Nutrafol) for 5 months, and she felt as if her hair was continuing to thin during that entire time, so she was taken off all of those by her physician at the time.

Despite medical management of her hypothyroidism and these other attempted interventions, she felt no improvement in her hair thickness until she saw me in clinic in 2025. Because her diagnosed medical conditions had been under control for years as defined by laboratory testing, she was ready to try more intensive treatments. Prior patient success at my practice with the combination of the serum and laser-assisted delivery gave both me and her confidence that the treatment could be effective in producing clinically significant improvement in hair thickness and health.



Figs 1-3. Three angles of pre-treatment and post-treatment views of a patient treated with a combination of biomimetic growth factor and a 1927-nm fractional, nonablative laser.

CASE METHODS

A procedure with a 1927-nm fractional, nonablative laser (LaseMD Ultra, Lutronic) was performed on a level 3 with 2 passes to the entire scalp in rows created approximately 1 cm or less apart. A full applicator of the in-office serum was then applied and an approximately 5-minute scalp massage was performed. The patient then received 6 minutes of low-level laser therapy (LLLT) at 650 nm to the treated areas. She was compliant with using the daily scalp serum along with twice-weekly shampoo and conditioner (KeraFactor Scalp Stimulating Shampoo and Conditioner, KeraFactor by SkinQRI). Five of 6 planned treatments had been completed as of the time this article was written. Figures 1 through 3 show pre-treatment and post-treatment views from 3 angles.

DISCUSSION

This case demonstrates rapid and uniform hair restoration using noninvasive technology.

Compared to industry standard treatments, including both surgical and nonsurgical options, the results are clinically notable. From the first treatment, hair density increased steadily—along with shine, texture, and scalp health. Outstanding patient compliance is undoubtedly one reason for successful results, and thorough patient education is vital in achieving notable improvements; however, this is an easy treatment for the patient because they are asked only to apply a serum once daily and use a specific shampoo and conditioner as part of their normal routine.

The ease of this treatment is wholly preferable to invasive surgical treatments that mandate significant downtime, which precludes many potential patients—and in this case, it would be hard to imagine a more effective surgical or nonsurgical outcome. The success of this treatment can be explained by its mechanism of action. The serum is absorbed via laser-created microchannels instead of other delivery mechanisms

such as microneedling or radiofrequency microneedling, and peptide signaling is synergistically enhanced through laser stimulation.

This case adds to the growing clinical support that the process detailed above may effectively fill the gaps between current noninvasive industry standards and surgical options while costing substantially less and being easier on the patient. Given the consistency with this process that I have observed in my patients, I suspect that further standardized studies may confirm large-scale reproducibility of these findings. ■

1. Taub A, Calderhead RG, Li J. Fractional Thulium Laser Combined with a Topical Growth Factor Serum Increases Hair Density and Thickness in Male and Female Androgenic Alopecia: A Pilot Study. *Hair Transplant Forum International*. 2022; March/April: 48-51.

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