

UNLOCKING THE SKIN'S POTENTIAL TO REMAIN YOUTHFUL THROUGH AGE-REPAIR DEFENSINS[®]

With extensive clinical data, the 3-step DefenAge[®] physician-dispensed skincare system has emerged as a regenerative powerhouse



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DEFENAGE IS A SKIN CARE BRAND ON a mission. The three product anti-aging system contains peptides called Age-Repair Defensins[®] to rejuvenate skin naturally and effectively. These patent-pending peptides are the first of their kind and available exclusively in DefenAge skincare. Defensins work via a natural mechanism of action with stem cells in the body to create new skin. DefenAge has been shown through clinical studies to address signs of aging on a global scale in 6 weeks; including reduction in visible pores, wrinkles, skin's tone and oiliness, and improvement of skin evenness, hydration, firmness, texture, and clarity.

The mechanism of DefenAge differs entirely from other skin care products and ingredients. Miami dermatologist, skincare researcher and Founder of Skin Type Solutions, Leslie Baumann, MD, explains, 'LGR6+ stem cells reside in the hair follicle. When the skin is wounded, immune cells release defensins which activates LGR6+ to repopulate the epidermis. A new technology using topically delivered defensins has been shown to activate these same LGR6+ stem cells. This results in rejuvenation of the epidermis through formation of new basal stem cells and new keratinocytes.'

Uncovering the keys to defensins

In 2004, Nikolay Turovets Ph.D. CEO of Progenitor Biologics, LLC., the parent company of DefenAge, commenced his journey into the comprehensive study

of stem cells. My impression of this development was that it was so revolutionary that it could potentially change the way physicians cure diseases. I was passionate about being involved in the stem cell field, so I joined a team of stem cell researchers to work on therapies to cure age-related blindness, diabetes, and degenerative liver diseases. I moved to San Diego, CA, because it is one of the world's centers for stem cell research. I was fortunate to be on cutting edge of stem cell research while developing the world's first and largest UniStem Cell Bank of parthenogenetic stem cell lines. I was working on a novel therapy for retinitis pigmentosa at the time and soon began to develop a novel anti-aging technology based on dormant resource (hidden preserve) of our own body. With a Ph.D. in cancer biology

and with my experience as a clinical embryologist, I have focused my career exclusively on stem cell research,' he adds.

Dr. Darius Mehregan, a renowned dermatologic histopathologist at Wayne State University Physicians Group in Dearborn, MI, performed

histopathology analysis of skin biopsies taken in DefenAge's multicenter study. 'The good news was that the regimen showed results similar to those seen from retinol treatment, without signs of inflammation. The better news was that there was no increase in the number of proliferating cells in the skin, thus differentiating defensins technology from growth factors that stimulate mass proliferation. The data from Dr. Mehregan proved that defensins, which is the core proprietary technology of DefenAge, provides a different mechanism of action from retinol and growth factors, while

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being effective and potentially safer,' he says.

'With the DefenAge topical skin care range, [the] company were able to bring this breakthrough age-reversing technology to consumers for the first time. The defensins technology is based on peer-reviewed research and has been extremely well accepted by dermatologists and plastic surgeons as a paradigm shift in the market,' he says.

The science behind the technology

Dermatologist and researcher Dr. Amy Taub of Advanced Dermatology of Lincolnshire, IL, has been leading the DefenAge Comprehensive Multicenter Clinical Study along with Drs. Vivian Bucay and Gregory Keller. She has looked into the data very deeply to fully understand the analysis and effects of this new skincare technology.

According to Dr. Taub, 'We recently completed a multicenter clinical trial with 45 patients which was double-blinded and placebo controlled that showed a

statistically significant improvement in epidermal thickness, fine and coarse wrinkles, melanin, and pores. This sounds almost too good to be true with no evidence of irritation and some good safety markers, yet it was a rigorous study that will be published soon. We recommend the DefenAge system for almost any patient since it reduces oiliness and the appearance of pores but does not cause dryness or irritation. I especially love it for skincare newbies, as it is easy to give them the kit and add a sunscreen. For most sophisticated skin care users, I may recommend the 8-in-1 BioSerum as a replacement for growth factor products or in addition to them. Clinically, patients love it and see a difference very quickly, which really helps with compliance,' says Dr. Taub

Plastic surgeon Gordon H. Sasaki, M.D., F.A.C.S. in Pasadena, CA, introduced DefenAge to his patients over 2 years ago. 'In our experience, it resulted in significant skin improvement to their wrinkles, texture, pigmentations, pores, and thickness within six weeks without any remarkable side-effects. The keys to these effects were attributed to direct actions of naturally occurring peptides, known as α - and β -defensins, that are produced by

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keratinocytes and other cells within the skin to directly stimulate LGR6-positive master stem cells. Progenitor Biologics, LLC has created a synthesized version of defensins as matrikine-like peptides that can penetrate the skin's barrier to affect progenitors of all skin cell lines. The recent multicenter double-blind controlled study demonstrated statistically significant results at 6 and 12 weeks. An ongoing IRB-approved trial in our office hopes to extend these findings,' he says.

Dermatologist Natalie M. Curcio, M.D., MPH, FA.A.D. in Nashville, TN, has also been an avid user of the DefenAge system in her practice. 'I read all of the publications on defensins so that I could become very comfortable with the technology, understand their benefits, and be able to compare and contrast the products with products containing growth factors and micropeptides. Defensins >

DefenAge 3-step system

Step 1

2-Minute Reveal Masque

- Delivers rapid skin-brightening and refining effects with a blend of ultrafine Sugar Crystals and Triple Enzyme resurfacing
- Helps the other products in the range penetrate the epidermis more effectively

Step 2

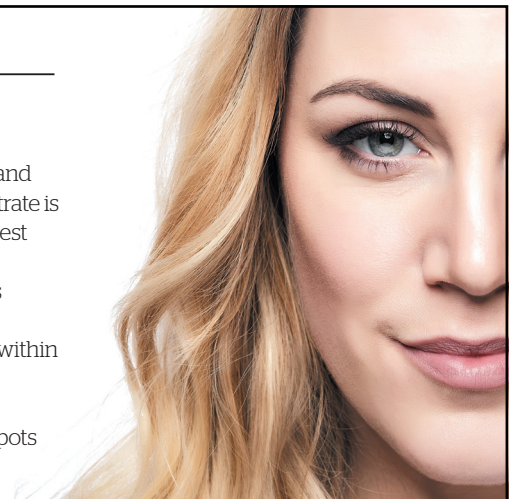
24/7 Barrier Balance Cream

- Ultra-hydrating lightweight cream infused with Age-Repair Defensins, multi-action barrier repair and brightening ingredients
- Enhances absorption of 8-in-1 BioSerum

Step 3

8-in-1 BioSerum

- Designed to activate and energize, this concentrate is infused with the highest daily percentage of Age-Repair Defensins
- Within days, visibly rejuvenates the skin; within weeks, minimizes appearance of lines, wrinkles, pores, age spots and redness



VISIBLE PORES

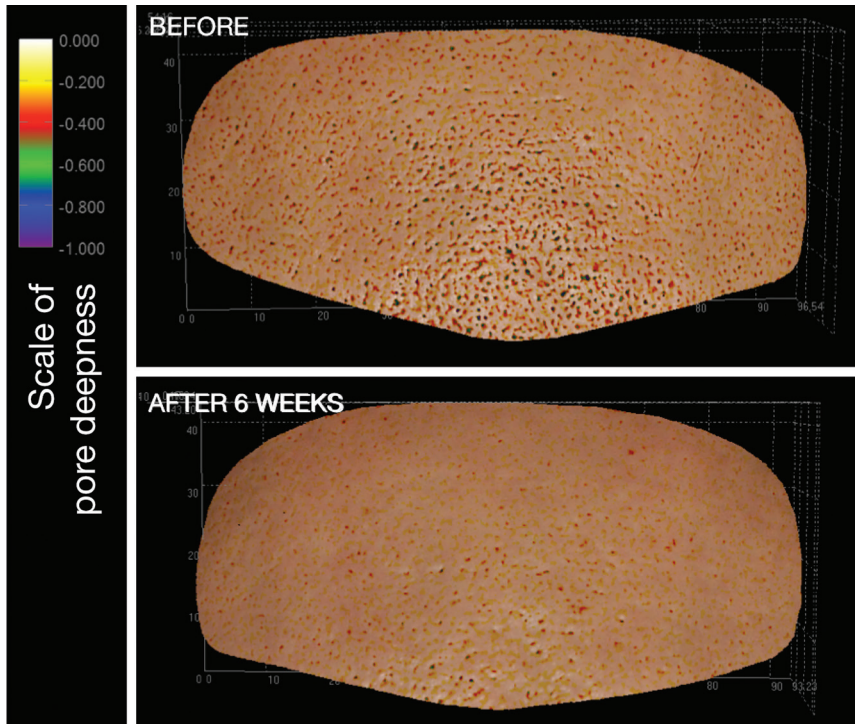


Figure 1 Participant #51. Individual results may vary. Photos have not been retouched. Pores have been automatically selected and highlighted by the QuantifiCare Clinical System

▷ are antimicrobial peptides (released by neutrophils in wounds). They act through a “natural mechanism” or signaling pathway. Our body uses this natural mechanism when it heals wounds in the skin. The defensins in DefenAge are synthetic copies of human α - and β -defensins. (ie. not human-derived). They are not growth factors. Defensins are smaller, penetrate faster, and are more readily absorbed as compared to growth factors,’ she says.

Dr. Gregory Chernoff of Chernoff Cosmetic Surgery in Santa Rosa, CA, elaborates on his enthusiasm. ‘With cellular medicine, regenerative therapy, and stem cell technology

Clinical results witnessed by Dr Curcio

- Dryness – ultra-hydrating (yet light-weight) formulation
- Texture – revives youthful texture and increases smoothness
- Wrinkles – minimizes fine lines and wrinkles
- Laxity – restores firmness and elasticity of youthful skin
- Pigment – improves discoloration, brightens skin tone and increases clarity
- Redness – calms inflammation, redness, and sensitivity (including in rosacea)

increasing in popularity, I was intrigued with the science surrounding DefenAge. Utilizing peptide technology (defensins) to stimulate LGR6 stem cells to signal production of new basal stem cells and new keratinocytes, is science not found in other products. Patients aged 18 to 90, male and female, have tried the product, and are on their second and third cycles of buying it. The results are consistent. Improvement in tone and quality of skin, blemish reduction, and softening of static lines and rhytids.’

Additionally, Dr Chernoff has initiated a prospective study using DefenAge in active acne patients, wound healing, striae, and scar therapy. Initial results in all of these challenging patients are very impressive. The acne limb is a formal side-by-side facial control study and I will publish results in the next six months. Anecdotally, I believe the defensins have a positive anti-inflammatory effect in the sebaceous unit as well as on LGR6 cells. The wound healing limb is looking at open non-healing diabetic ulcers and surgical wounds with the product initiated immediately postop and after initial consultation for ulcer,’ he says.

DefenAge in clinical practice

In record time, many leading physicians from all specialties have embraced this new development, available exclusively through physicians in the U.S. market.

‘DefenAge has been a game changer in my practice. It is well known that bioactive peptides have become the newest technology in skin care and skin recovery. DefenAge, with its bioactive defensin-peptides, truly transforms the skin by stimulating the entire epidermis to turn over at a faster rate and to increase the thickness. This product has more clinical studies than many other products on the market, demonstrating the effects it has on the skin which are impressive. Over time I think it stimulates collagen production and increased blood flow as my patients see improved pigmentation, decreased number of

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pores and fine lines, and an overall glow to their skin. I see the best results in patients showing age related skin conditions with fine lines, enlarged pores, loss of texture and overall dullness of the skin. DefenAge alone can transform the skin, but when used in conjunction with other systems, it turbocharges the response and improvement over an even shorter time period. It is the only product I personally use on a regular basis,’ says dermatologist Steven L. Swengel, MD, of REFINED AESTHETIC in Los Gatos, CA.

Some patients seem to like DefenAge because of its simplicity. They can use the 24/7 Barrier Balance Cream plus 8-in-1 BioSerum twice daily as their main anti-aging products and then simply add a sunscreen and an anti-oxidant serum. Other patients are combining DefenAge with a micropeptide and/or growth factor product to optimize the benefits of both technologies. They typically use the DefenAge products at night and then use a micropeptide and/or growth factor product in the morning, in addition to a sunscreen and anti-oxidant serum. DefenAge addresses many signs of skin aging on a global scale. With DefenAge, skin can naturally turn back the clock,' says Dr. Curcio.

'DefenAge skincare has given us a remarkable tool to improve the appearance of skin. In our experience, sustainable results are seen quickly. My initial experience was treating only my left forearm, keeping my right arm as a control. Within 5 days, a noticeable difference in the texture and color of my arms could be seen. I continued to use the product on my arm for 6 weeks, the results of that treatment are still apparent years later. Showing the effects of DefenAge on my arm has been an impressive way to demonstrate the efficacy of the product line,' says Janice Pastorek, BSN, RN in New York City. 'DefenAge is one of our most requested brands.'

Another growing application for this technology is following microneedling procedures performed with guns, rollers, stamps, as well as RF energy-based devices. Many physicians, including plastic surgeon Bryan G. Forley in New York City, report that they have seen a pronounced effect post microneedling and decreased downtime for patients. Dr. Curcio notes that she uses DefenAge in combination with fractional ablative resurfacing with radiofrequency systems such as Fractora™ by InMode. 'Patients typically are using the products before the procedure and then resume application 48-72 hours post-procedure when the skin fine holes in the skin have completely closed,' she adds.

What next for DefenAge?

Several key line extensions utilizing the Age-Repair Defensins technology are in the pipeline for 2018 and beyond, but Dr. Turovets is keeping that information close to the vest for now.

'I am honored to have some of the most respected doctors and researchers as investors in our company. It was [an] act of real trust in the unique performance of the technology. I met with all of them personally, we talked about science, initial clinical data, how we built the company and why. They tried the products, saw results, and then decided to invest,' he says. 'The technology of Age-Repair Defensins is my latest development, but I do not believe it will be the last. I will continue do what I do best; I want to keep discovering new things and bring them to the market.'

► [Find out more at Defenage.com](http://Defenage.com)

► **Figure image 2** © courtesy Gregory Keller, MD, FACS
3 © courtesy Amy Forman Taub, MD

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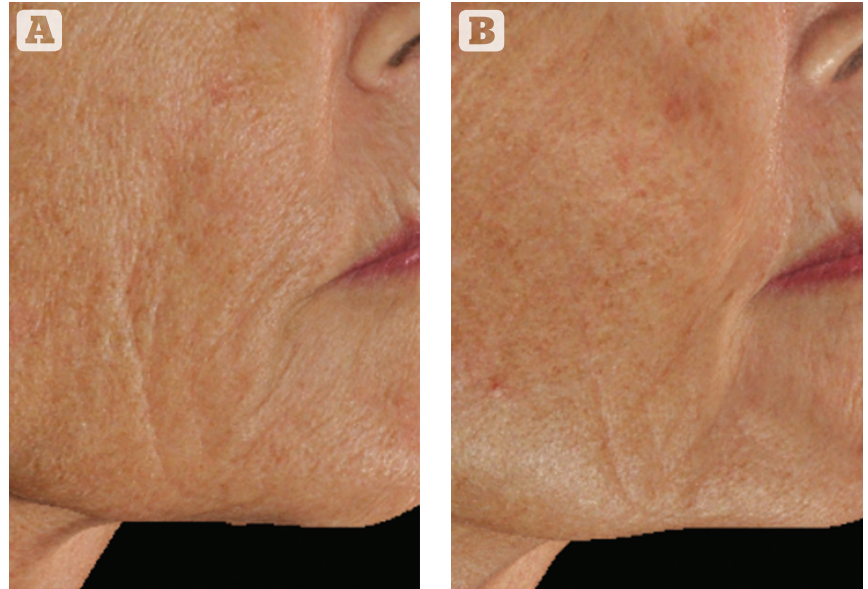


Figure 2 (A) Before, and (B) 4 weeks after DefenAge Clinical Power Trio treatment. Photos have not been retouched

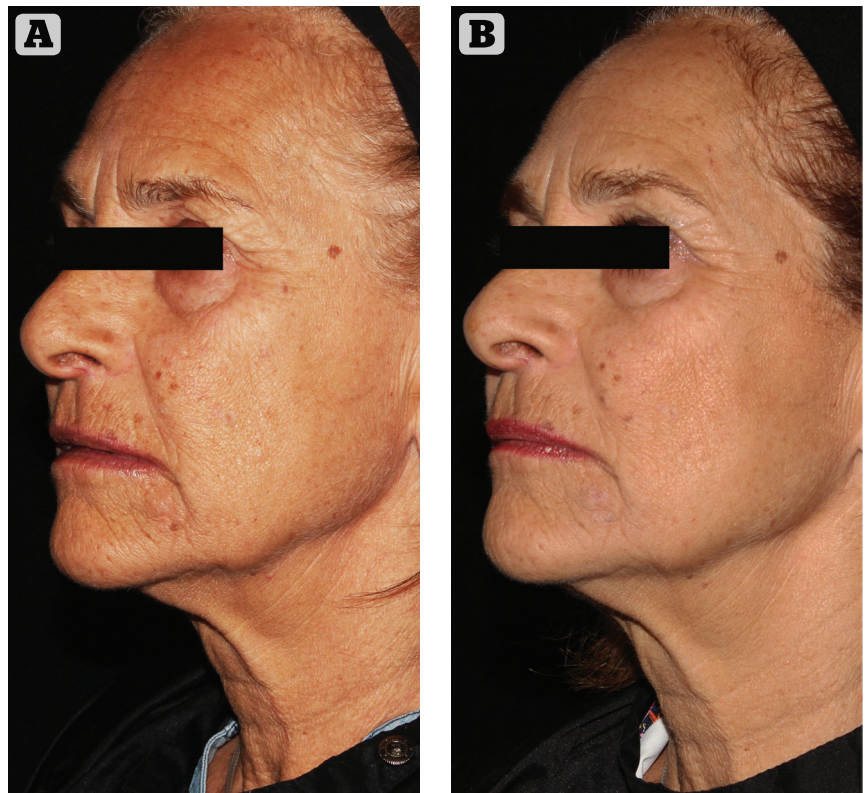


Figure 3 (A) Before and (B) 12 weeks after DefenAge Clinical Power Trio treatment. Photos have not been retouched