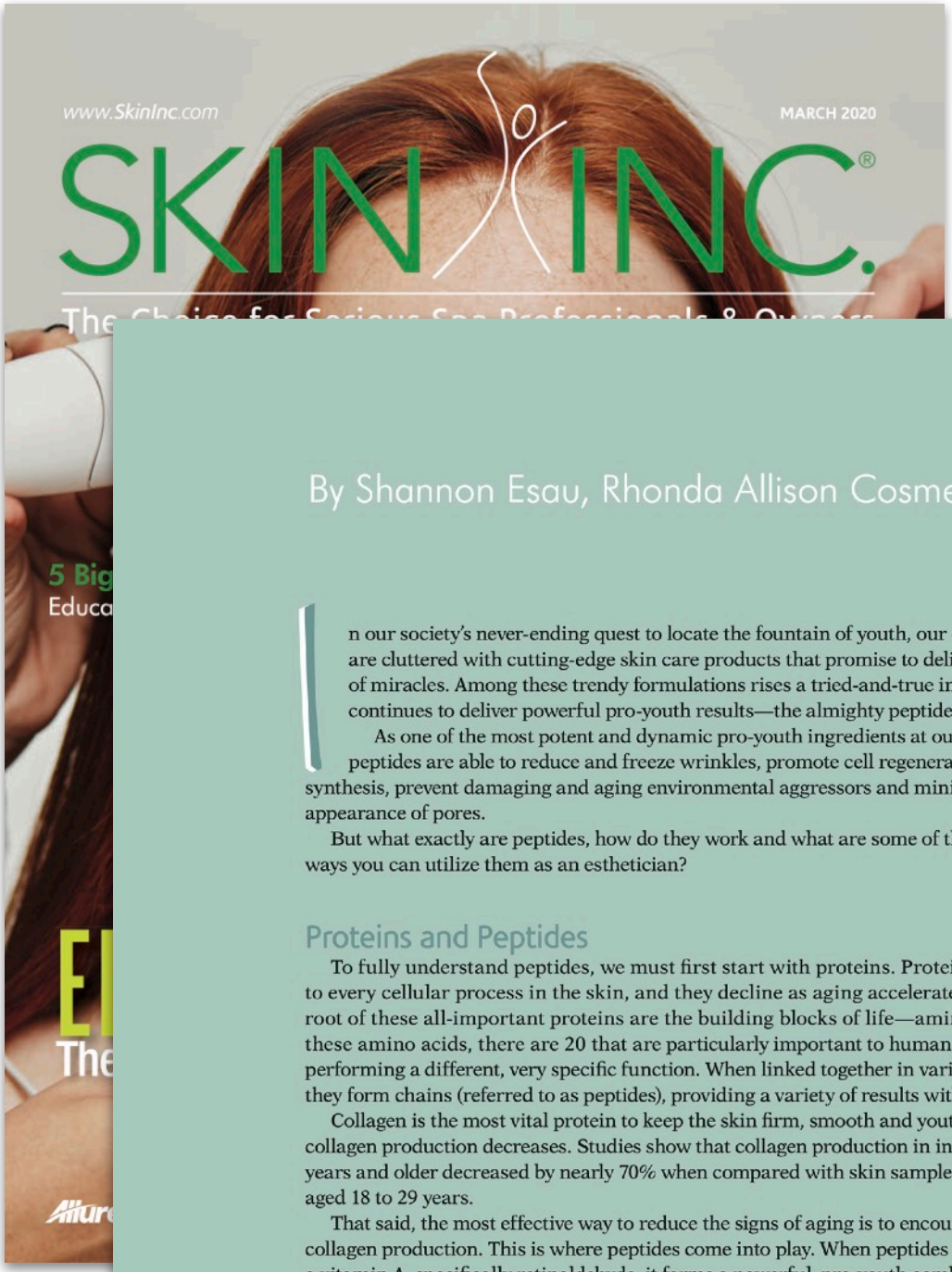

By Shannon Esau, Rhonda Allison Cosmeceuticals

In our society's never-ending quest to locate the fountain of youth, our clients' paths are cluttered with cutting-edge skin care products that promise to deliver a multitude of miracles. Among these trendy formulations rises a tried-and-true ingredient that continues to deliver powerful pro-youth results—the almighty peptide.

As one of the most potent and dynamic pro-youth ingredients at our disposal, peptides are able to reduce and freeze wrinkles, promote cell regeneration and collagen synthesis, prevent damaging and aging environmental aggressors and minimize the appearance of pores.

But what exactly are peptides, how do they work and what are some of the most effective ways you can utilize them as an esthetician?

Proteins and Peptides

To fully understand peptides, we must first start with proteins. Proteins are crucial to every cellular process in the skin, and they decline as aging accelerates. At the root of these all-important proteins are the building blocks of life—amino acids. Of these amino acids, there are 20 that are particularly important to human biology, each performing a different, very specific function. When linked together in various sequences, they form chains (referred to as peptides), providing a variety of results within the skin.

Collagen is the most vital protein to keep the skin firm, smooth and youthful. As we age, collagen production decreases. Studies show that collagen production in individuals 80 years and older decreased by nearly 70% when compared with skin samples from people aged 18 to 29 years.

That said, the most effective way to reduce the signs of aging is to encourage the skin's collagen production. This is where peptides come into play. When peptides are paired with a vitamin A, specifically retinaldehyde, it forms a powerful, pro-youth combination that stimulates cellular regeneration while simultaneously strengthening the skin.

Peptides at Work

As the body's largest organ, the skin is a complicated system with many essential tasks. Each of its functions must work seamlessly together to regulate the body's temperature, maintain hydration and protect against toxins, bacteria and infection, and this is just the beginning. Peptides are instrumental in helping carry out these functions, largely because they are crucial to wound healing and skin regeneration.

Studies have proven that some peptides behave as a natural regulatory mechanism in which the peptide acts as a signal. If the skin is damaged for any reason, structural proteins are destroyed and peptides are released. They begin to stimulate fibroblasts (the building blocks of collagen) by signaling the skin to produce more protein, which is the body's natural response to wound healing.

As it relates to skin care, applying messaging or signaling peptides causes the protein

to become more abundant, cells are strengthened and wrinkles are minimized and relaxed. Peptides can be categorized by three specific functions they perform in the skin: "wrinkle minimizers," "wrinkle relaxers" and "skin tighteners." It should be noted that every chain of amino acids will produce a different ability or function, as not all peptides do the same thing on the skin or in the body.

Peptide Types

As mentioned, the 20 amino acids that are essential to cellular function bond in various sequences to form different peptide chains. It can be overwhelming to think of all the possible combinations, so let's start with the basics by identifying the **Five Main Peptide Bond Lengths** often used in skin care formulations.

From these bonds, countless peptide strands are formed, which can be categorized into four families, each with a different function.

Carrier peptides. This family of peptides supports the delivery of another ingredient into the cell receptor site. They act as messenger or signaling peptides. These peptides bind with the cell receptor site and signal the cell to stimulate the production of proteins, supporting collagen production, skin elasticity and firmness.

Neurotransmitter (or freezing) peptides. Muscle contractions are inhibited by blocking messages from being transmitted or received. Therefore, the action of muscle contraction is weakened, and the wrinkle is not formed. These are commonly referred to as the "Botox" peptide.

Rejuvenating peptides. These peptides perform various duties from signaling to stimulating collagen production and inhibiting neuron transmission to reduce muscle contractions. They also provide antioxidant and anti-inflammatory support, healing, exfoliation and are matrix metalloproteinase inhibiting (MMPs).

5 MAIN PEPTIDE BOND LENGTHS

- **Tetrapeptides:** 4 amino acids
- **Pentapeptides:** 5 amino acids
- **Hexapeptides:** 6 amino acids
- **Oligopeptides:** 2 to 20 amino acids
- **Polypeptides:** Small peptides made up of 20 to 100 amino acids

Powerful Peptides

Some of the notable peptides incorporated in today's cutting-edge pro-youth products include the following:

Palmitoyl tripeptide-38. This next-generation peptide stimulates six constituents of the skin including collagen, fibronectin and hyaluronic acid to smooth wrinkles from the inside and rebuild the skin. It also supports the repair of photodamaged skin and defragmented collagen.

Palmitoyl tetrapeptide-7. This messenger peptide improves tissue elasticity, firms and tightens to smooth skin contours, and it stimulates collagen production to reverse loose skin tissues.

Palmitoyl oligopeptide. Find this tripeptide in skin care to enhance the production of natural skin molecules like collagen and glycosaminoglycans, thicken and restore flexibility to extra-dermal matrix and reduce the appearance of dark eye circles.

Palmitoyl tripeptide-5. This small peptide mimics the human body's ability to produce collagen via tissue growth factor (TGF). It also stimulates collagen synthesis, actively removes wrinkles and has skin-firming and moisturizing properties. This peptide is also considered to be an effective alternative to collagen injections.

Palmitoyl tripeptide-3. Known as a freezing peptide, this peptide mimics the peptide found in viper venom to inhibit muscle contraction and expression lines, reducing the appearance of fine lines and wrinkles while also improving the skin's texture and elasticity.

Acetyl hexapeptide-30. Similar to the above, this new peptide works in the same manner to inhibit the neurotransmitter that stimulates muscle contractions, encouraging muscle relaxation and reducing wrinkle formation.

Palmitoyl hexapeptide-14. This mega anti-wrinkle active works through various pathways to reverse

Serums infused with peptides penetrate the skin more effectively than creams.

and prevent the signs of aging. It rebuilds the extracellular matrix by improving collagen biosynthesis and fibroblast proliferation and by inhibiting destructive MMPs.

Chrono peptide. Activating the circadian genes, chrono peptide mimics sun exposure to correct biological rhythms that have become sluggish.

rh-Oligopeptide-1 (epidermal growth factor). Composed of 53 amino acids, epidermal growth factor stimulates cellular proliferation and strengthens cells. It is also a key component to wound healing in the skin.

There are numerous other powerful peptides being used, as well as promising next-generation peptides continually being introduced.

Peptide Support

In addition to all of the types and functions of peptides, one must also consider the carrier and delivery systems. Peptides are smaller in molecular structure; however, the overall formulation can optimize the delivery deeper into the layers of the skin. Liquids and serums infused with peptides will always penetrate more effectively than a cream that sits on the surface of the skin.

Peptides may be further enhanced by combining them with one another or with other intelligent ingredients such as retinaldehydes, L-ascorbic acids (derivatives of vitamin C) and advanced stem cell technology. Some examples of rejuvenating ingredients that work well with peptides include those that provide antioxidant and anti-inflammatory support, including those listed below.

Arnica. Speed wound healing and reduce inflammation.

Pyruvic acid. Supply energy to the cells.

Thermus thermophilus ferment. From a deep-sea microorganism, this assists in ATP production, supports healthy oxygenation and protects against environmental stressors.

Glucosamine HCI (D). Provide anti-inflammatory and anti-glycation support

Glycine soja. This antioxidant and matrix metalloprotease inhibitor with amino acids promotes collagen and elastin synthesis.

Omega 6 essential fatty acids (linoleic and oleic acid). Provide anti-inflammatory, skin-building benefits.

Retinaldehyde. As previously noted, this form of vitamin A will stimulate cellular regeneration without irritation often associated with vitamin A. When paired with peptides, it forms a powerful pro-youth combination.

Keep in mind, this is not an exhaustive list. It will come down to finding the right combination for each unique skin. However, these tried-and-true ingredients are powerful in supporting the integrity of healthy cells and providing critical support to pro-youth efforts when combined with peptide formulations.

In the Treatment Room

Incorporating peptides into your clients' treatments is a remarkable way to achieve pro-youth results, especially in a facial setting. A serum containing the messenger peptide Matrixyl 3000 can be added to a firming and setting mask that contains L-ascorbic acid, beta glucans,

hyaluronic acid and lactic acid. The skin will be toned, firmed, lifted and infused with plumping peptides and hydration and the effects will last up to a week. It's the perfect menu addition for those clients seeking a "wow" factor treatment for a special event.

A series of three nourishing peptide peels over a two-month time frame to correct, soften, smooth and perfect the skin can also offer serious corrective results. A rejuvenating tripeptide, amino acid and a high percentage of encapsulated retinol is an excellent combination for this effective series of progressive peels. The tripeptide complex communicates with cells in the extracellular matrix to promote optimal cell growth. This peel series also nourishes the dermis with the encapsulated retinol, providing rich resources for the epidermis. It can be performed on any skin condition, including aging, acne, rosacea and pigmentation.

When the goal is to restore the skin to optimum health or achieve a youthful appearance, it's also important to discuss lifestyle habits with your clients. Proper sleep, stress management and a healthy diet will further support the work you're doing in the treatment room to achieve lasting results. Additionally, and to no one's surprise, one of the biggest contributors to aging is the sun. The best defense against aging is prevention and using sun protection with an SPF 30 or higher that contains natural blockers, like zinc oxide.

It's Never Too Late

Peptides are vital to our cellular function. As we age and collagen production decreases, they become even more important fixtures in our skin care regimens. This leads me to my final point—it's never too late to begin using peptides and other intelligent ingredients to rejuvenate depleted, photodamaged skin. These are powerful ingredients and, when paired with healthy lifestyle choices, can work wonders at mitigating the effects of aging and support a youthful appearance. With the right combination of quality, science-backed ingredients and proper preparation, topical ingredients that incorporate peptides work wonders to rebuild healthy, vibrant skin.

Shannon Esau is the CEO and national educator at Rhonda Allison Cosmeceuticals. She brings more than 20 years experience in the esthetic industry. Esau owned skin care salons in the Dallas/Ft. Worth area, has studied chemistry in skin care formulations and has been mentored by Rhonda Allison for decades. www.RhondaAllison.com and www.REDmethod.com