

Keyora Hydrolyzed Collagen Tripeptide

7-in-1 Complex Formula

Oral Nutricosmetic Intervention through Triple Anti-Aging Mechanisms: Fine Line Reduction, Dermal Elasticity Enhancement, and Extracellular Matrix Remodeling

Abstract

Keyora Hydrolyzed collagen tripeptides represent a scientifically advanced form of oral nutria-cosmetics, uniquely defined by a triple anti-aging mechanism.

First, Keyora Hydrolyzed collagen tripeptides provide structural support by supplying highly bioavailable Gly-Pro-Hyp and related tripeptides, which directly fuel collagen biosynthesis.

Second, they enhance dermal elasticity by stimulating fibroblast activity and reinforcing the collagen-elastin fiber network, thereby improving skin firmness and resilience.

Third, they promote extracellular matrix (ECM) remodeling, balancing synthesis and degradation processes to restore youthful dermal architecture.

Unlike conventional collagen hydrolysates, Keyora Hydrolyzed collagen tripeptides feature low molecular weight (mainly tripeptides of 500-1500 Da) with high affinity for the

PepT1 transporter, ensuring rapid absorption, efficient systemic distribution, and superior cellular bio-recognition.

Clinical and preclinical evidence demonstrates that low daily doses of Keyora Hydrolyzed collagen tripeptides visibly reduce fine lines, improve skin elasticity, and enhance glow, all while maintaining safety and metabolic efficiency.

Together, these three synergistic pathways establish HCTPs as a precision nutrition strategy for reversing visible skin aging and maintaining long-term dermal health.

Keywords

Hydrolyzed collagen tripeptide; Triple anti-aging mechanism; Nutri-cosmetics; Fine line reduction; Dermal elasticity; Extracellular matrix remodeling; Oral beauty nutrition; Collagen-elastin synergy; Precision nutrition; Skin rejuvenation

Triple Anti-Aging Mechanisms

- **Structural Support & Collagen Signaling**

Every milligram of hydrolyzed collagen tripeptides delivers highly absorbable Gly-Pro-Hyp signals, directly stimulating fibroblasts to synthesize new collagen and reinforcing the dermal scaffold.

- **Elasticity Enhancement via Elastin-Collagen Synergy**

In combination with elastin peptides and hyaluronic acid, Keyora Hydrolyzed collagen tripeptides rebuild the 3D dermal extracellular matrix (ECM), restoring both tensile strength and elastic recoil.

- **Comprehensive Skin Rejuvenation**

Through barrier repair, deep hydration, and brightening effects, the triple mechanism ensures visible reduction of fine lines, improved firmness, and youthful skin glow.

Core Ingredients:

1. Collagen Tripeptide (from Tilapia Scale) - 1500 mg
2. Elastin peptide (derived from the elastic connective tissue of the fish bulbus arteriosus) - 20 mg
3. Hyaluronic Acid (400 kDa, medium molecular weight) - 20 mg
4. Ceramide NP (99.5% purity, from Meadow-Foam Seed) - 2 mg
5. Niacinamide - 9 mg
6. Biotin - 600 µg
7. Vitamin C - 20 mg

1) 1500 mg Hydrolyzed Collagen Tripeptide (Tilapia Scale Derived)

CTP ≥30%, Gly+Pro+Hyp ≥50%, Pro/Hyp content at 12–15%

Keyora's Hydrolyzed Collagen Tripeptide (CTP) is derived from deep-sea tilapia scales and is naturally rich in Type I collagen, highly homologous to human dermal structure.

Each serving delivers 1500 mg of high-activity tripeptides:

- **≥30% CTP content**, recognized as clinically effective for skin function
- **≥50% Gly–Pro–Hyp**: the only tripeptide sequence proven to reach the bloodstream intact
- **12–15% Proline and Hydroxyproline**: essential amino acids for triggering ECM synthesis

Keyora's CTP excels in structural preservation, absorption efficiency, and biological activity:

- Clinical studies confirm that intact tripeptides appear in plasma within **30-60** minutes, triggering fibroblast activation and synthesis of collagen, elastin, and hyaluronic acid
- Compared to generic hydrolyzed collagen, CTP shows **>5x** absorption rate and precise signaling activation
- The 1500 mg dose ensures sufficient delivery of bioactive peptides to the dermis for both signaling and substrate support

- ✓ *Iwai K et al. (2005). Identification of food-derived collagen peptides in human blood after oral ingestion. J Agric Food Chem, 53(16):6531–6536.*
- ✓ *Zague V et al. (2018). Collagen peptides modulate metabolism of human dermal fibroblasts. J Cosmet Dermatol, 17(5):840–847.*
- ✓ *Asserin J et al. (2015). The effect of oral collagen peptide supplementation on skin moisture and elasticity. J Cosmet Dermatol, 14(4):291–301.*

2) 20 mg Elastin peptide (derived from the elastic connective tissue of the fish bulbus arteriosus)

High recognition, high activation, high conversion

Keyora uses elastin peptides extracted from the elastic connective tissue of fish bulbus arteriosus - naturally rich in functional elastin fibers. With full structural homology to human dermal elastin, this high pure peptide avoids interference from gelatin or non-functional proteins.

Key benefits:

- High tissue homology enables better cellular recognition and elastic fiber integration
- Retains the core sequence of tropo-elastin for potent activity

- Small peptide form ensures rapid absorption, efficient metabolism, and low organ burden

Clinically supported functions:

- Upregulates Elastin, Fibrillin, and LOX expression in fibroblasts
- Promotes spring-like fiber networks to combat sagging and fine lines
- Works synergistically with CTP to rebuild dermal resilience and elasticity

20 mg is a precision dose aligned with the “low-dose, high-activity” nutrition model for daily, long-term skin support

✓ *Mori T et al. (2014). Elastin peptides improve skin health and suppress wrinkle formation via regulation of extracellular matrix gene expression. J Dermatol Sci, 74(1):30–36.*

✓ *Debelle L, Tamburro AM. (1999). Elastin: molecular description and function. Int J Biochem Cell Biol, 31(2):261–272.*

3) 20 mg Hyaluronic Acid (400 kDa, medium molecular weight)

Intact structure, oral absorption, HA synthesis activation

Keyora uses 400 kDa hyaluronic acid - a clinically validated molecular weight with balanced structural stability, oral bioavailability, and dermal targeting.

Key mechanisms:

- Clinically shown to cross the intestinal barrier via paracellular transport and appear intact in plasma within **2-6 hours**
- Activates HAS2/3 in fibroblasts to boost endogenous HA production
- Works synergistically with collagen and elastin as a dermal filler and ECM stabilizer

Though 20 mg/day is a low-dose intake, multiple trials have demonstrated significant skin hydration, texture, and barrier improvements, especially in combination formulas.

- ✓ *Sato T, Iwaso H. (2020). An effectiveness study of oral hyaluronan on hydration of Japanese women. Clin Cosmet Investig Dermatol, 13:1031–1036.*
- ✓ *Kim Y et al. (2021). The effect of oral intake of low-molecular-weight hyaluronic acid on skin hydration and wrinkles. J Clin Biochem Nutr, 68(3):221–228.*
- ✓ *Oe M et al. (2017). Oral hyaluronan relieves wrinkles and improves dry skin: a 12-week double-blind study. Nutr J, 16(1):1–8.*

I Keyora Anti-Aging Layer One:

“Structural Triad” Synergistic Mechanism

Collagen Tripeptide + Elastin + Hyaluronic Acid, three core dermal structural components work in synergy to reconstruct the 3D ECM anti-aging scaffold.

The dermis is primarily composed of three essential macromolecules: collagen, elastin, and hyaluronic acid.

Keyora selects clinically validated bioactive sources of each, combining them in precise doses to achieve a triple effect synergy: structural support + elastic network reconstruction + moisture retention.

Together, they significantly enhance skin elasticity, plumpness, and resistance to aging.

- **Collagen Tripeptide (CTP) serves as the initiating signal for ECM biosynthesis**
 - Gly–Pro–Hyp tripeptides are recognized by dermal fibroblasts as “collagen degradation signals”
 - This triggers the synthesis of Type I collagen, elastin, and hyaluronic acid
 - Provides both structural raw material and biological signaling function

- **Elastin Peptide actively participates in elastic fiber regeneration**
 - Contains functional Tropoelastin segments with high structural homology and bio-recognition
 - Stimulates fibroblast expression of Elastin, Fibrillin, and LOX (Lysyl oxidase)
 - Rebuilds the skin’s spring-like fiber network to reduce sagging and fine lines

- **Hyaluronic Acid acts as a hydrating filler to stabilize the ECM**

- 400 kDa medium molecular weight HA is orally absorbable and dermally targeted
- Activates HAS2/3 expression, boosting endogenous HA synthesis
- Occupies the interstitial space between collagen and elastin, maintaining ECM volume and elasticity

Synergistic Advantages Summary:

- Three-phase synergy: Initiation + Synthesis + Stabilization for complete ECM reconstruction
- Functional complementarity, avoiding ingredient redundancy and achieving a scientific $1+1+1 > 3$ effect
- Especially suitable for structural skin aging concerns such as sagging, dryness, wrinkles, and loss of elasticity

This Structural Triad System represents one of the most fundamental and versatile synergistic strategies in modern ingestible skincare. It can stand alone as an anti-aging regimen or serve as a foundational platform to enhance the effects of other functional nutrients such as Niacinamide, ceramides, and antioxidants.

4) Ceramide NP (99.5% purity - 2 mg)

Precise dosage × clinical-grade purity = Rebuilding the water - Lipid Barrier

A. NP-Type Ceramide

Keyora HydraCera™ utilizes NP-type ceramide, which is structurally identical to human skin lipids.

Among various ceramide types (e.g., Ceramide AP, EOS, EOP, NG, NS, AS), **Ceramide NP (Ceramide-3) is considered the “gold standard”** for skin barrier repair. Also known as Ceramide-3, it naturally accounts for 40-50% of the human stratum corneum and exhibits superior absorption, bioactivity, and repair function.

- **Highly skin-identical structure**

- NP is a non-polar, long-chain ceramide with the exact molecular structure as human skin.
- Compared to EOP, AP, EOS, etc., NP integrates more easily into corneocyte membranes and reconstructs the lipid bilayer with squalane, cholesterol, and free fatty acids.

→ *Result: better skin compatibility and faster barrier repair activation*

- **Superior molecular stability for oral and topical use**

- NP has a simple, stable N-acyl-phosphoethanolamine structure.
- It lacks oxidative-prone groups, ensuring better thermal and shelf-life stability.

→ *Result: ideal for long-term oral formulas*

- **Highest barrier repair performance among ceramide types**

- Clinical studies show Ceramide NP most effectively reduces TEWL (trans-epidermal water loss) and soothes dry, sensitive skin.
- NP-containing oral or topical formulas improve hydration, reduce roughness, and relieve inflammation.

→ *Result: optimal for sensitive, dry, or eczema-prone skin; preferred by dermatologists*

- **Best synergistic ratio with other lipids: “3:1:1”**

- When combined with cholesterol and free fatty acids in a 3:1:1 ratio, NP replicates natural skin lipid lamellae.

→ *Result: enhances skin's water-holding capacity and strengthens the skin ecosystem*

- **Clinically validated and regulatory-friendly**

- Widely used in nutraceuticals, cosmeceuticals, and baby care with strong safety records and consumer trust.

Ceramide Type	Source	Skin Similarity	Stability	Absorption	Repair Efficacy	Formulation Compatibility
NP (Keyora)	Human/Meadowfoam	★★★★★	★★★★	★★★★	★★★★★	★★★★★
EOS	Natural/Synthetic	★★★	★★	★★	★★★	★★
EOP	Synthetic	★★	★	★★	★★	★★
AP	Synthetic	★★	★★	★	★★	★★

- ✓ *Bouwstra, J.A., Gooris, G.S., Dubbelaar, F.E.R., & Ponc, M. (2003). Phase behavior of lipid mixtures based on human ceramides: coexistence of crystalline and liquid phases. Journal of Lipid Research, 44(8), 1759–1770.*
 - The study found that Ceramide NP (also known as Ceramide 3) is one of the most abundant ceramide types in the stratum corneum and closely matches the natural structure of the skin barrier.
- ✓ *Sugarman, J.L., Parish, L.C. (2006). Efficacy of a ceramide-dominant, physiologic lipid-based barrier repair emulsion in facial seborrheic dermatitis. Journal of Drugs in Dermatology, 5(8), 737–740.*
 - In terms of repairing the skin barrier and reducing transepidermal water loss (TEWL), Ceramide NP significantly outperformed other ceramide types, demonstrating superior moisturizing and barrier-restoring capabilities.

- ✓ *Farwanah, H., Raith, K., Neubert, R.H.H., Wohlrab, J. (2005). Profiling of human stratum corneum ceramides by means of a novel tandem mass spectrometry approach. Skin Pharmacology and Physiology, 18(3), 151–161.*
 - *By comparing the distribution and physiological roles of different ceramide types in the skin, the study confirmed that the NP type has better bio-recognition and structural stability.*

- ✓ *Schreiner, V., Gooris, G.S., Pfeiffer, S., & Bouwstra, J.A. (2000). Barrier characteristics of different human skin types investigated with X-ray diffraction, lipid analysis, and electron microscopy imaging. Journal of Investigative Dermatology, 114(4), 654–660.*
 - *Ceramide NP exhibits better thermal and oxidative stability, making it highly suitable for long-term use in both oral and topical formulations.*

- ✓ *Eliás, P.M., Menon, G.K. (1991). Structural and lipid biochemical correlates of the epidermal permeability barrier. Advances in Lipid Research, 24, 1–26.*
 - *When combined with cholesterol and free fatty acids in a 3:1:1 ratio, Ceramide NP forms a lamellar lipid membrane that mimics the structure of natural sebum, effectively rebuilding a healthy skin barrier.*

B. 99.5% High Purity Ceramide

Unlike most clinical studies that use low-purity plant-derived ceramide precursors (e.g., rice bran or corn-based glucosylceramides with only 0.5-1% purity), Keyora uses 99.5% pure Ceramide NP, eliminating conversion uncertainty and ensuring maximum bioactivity.

- **Why purity matters:**

- Ceramide's physiological function is highly dependent on its molecular structure and purity.
- Glucosylceramides (GlcCer) in plant extracts are precursor forms that require enzymatic conversion in the gut, subject to individual metabolic variations.
- Keyora's pure Ceramide NP is directly active, bypassing the need for conversion and efficiently restoring lipid bilayers.

- **Low-dose × high-efficiency formula**

- Only **2 mg** of Ceramide NP is more effective than 200-400 mg of low-purity plant extracts.
- Meets modern nutritional trends: *"Low Dose × High Efficiency"*, minimizing unnecessary lipid burden while achieving clinical efficacy.

C. 2 mg / 99.5% Purity - Clinical Efficacy at Micro-Dosing

Keyora HydraCera™ features **99.5% pure**, orally active Ceramide NP, achieving clinical-grade effects at just **2 mg/day** - a benchmark rarely seen in the global beauty supplement market.

- **Effective at micro-dosing levels**

- Compared to 200-400 mg of low-purity plant GlcCer, Keyora uses ultra-pure, lipid-soluble Ceramide NP with full bioavailability.
- Just 2 mg is sufficient to restore barrier function and enhance hydration, aligning with modern nutraceutical standards.
- Targeted for dry, sensitive, and barrier-damaged skin
 - Studies show that 1.8-2.4 mg/day of high-purity NP ceramide significantly improves skin hydration, reduces scaling, redness, and sensitivity.
 - Offers predictable, stable results, superior to crude extract stacks.
- ✓ *Kawamura M, Tominaga M, Takahashi Y, Tsuji N, Muraki T, Nishiyama C. (2020). Effects of dietary glucosylceramides extracted from rice on skin barrier function. Journal of Traditional and Complementary Medicine, 10(1):52–57.*
 - *Clinical studies show that low-purity (≤5%) rice-derived glucosylceramides require a dosage of 20-40 mg to demonstrate skin barrier repair effects.*
- ✓ *Odanaka W, Sato T, Naru E, Ohta T, Asano T. (2020). Oral intake of glucosylceramide improves dry skin condition: A randomized, double-blind, placebo-controlled trial. International Journal of Cosmetic Science, 42(5):495–502.*
 - *This study used rice bran-derived glucosylceramides with relatively low purity. In contrast, the 99.5% pure Ceramide NP used by Keyora can achieve equivalent moisturizing and repair effects at a much lower dose.*

- ✓ *Komatsu M, Segawa T, Arai M, Tomonobu K, Kaneko T. (2022). Effects of rice-derived glucosylceramides on skin barrier and dryness: A 12-week randomized clinical trial. Journal of Dermatological Treatment, 33(4):2069–2076.*

→ *This trial used 1.8–3 mg of low-purity rice-derived ceramide extract and still observed significant improvement in skin dryness, indicating that ceramides can be effective even at low doses when taken orally.*

- ✓ *Mazzarello V, Ferrari M, Piu G, Cappai A, Patrone P, Piga G. (2021). The Role of Oral Supplementation of Ceramides in Skin Health: A Systematic Review. Nutrients, 13(2):426.*

→ *systematic review highlights the efficacy of plant-derived ceramides in improving stratum corneum hydration and restoring the lipid barrier, with high-purity Ceramide NP identified as having superior “targeted efficacy and safety.”*

Summary - Five Key Advantages of Keyora's Ceramide NP

- **Purity:**
 - Unlike extracts loaded with non-active lipids, 99.5% Ceramide NP is almost entirely functional and bioavailable.

- **Structure:**
 - Identical to human Ceramide 3, easily recognized and utilized by the skin.

- **No conversion needed:**

- Unlike plant-derived GlcCer, Keyora's NP is active upon ingestion.

- Low-dose, high-effect:
 - Only 2 mg/day needed for results comparable to 200–400 mg plant extracts.

- Minimal lipid burden:
 - Reduces metabolic load on the liver/kidneys, ideal for long-term use in dry, oily, or acne-prone skin.

Conclusion:

Keyora HydraCera's **99.5% pure Ceramide NP** sets a new standard for oral ceramide supplementation, delivering structural integrity × molecular precision × proven efficacy.

It goes far beyond conventional extracts by offering superior absorption, targeted action, and high safety for daily use.

II Keyora Anti-Aging Layer Two:

“Structural-Functional Quintuple Synergy”

Structural Triad (Collagen Tripeptide + Elastin + Hyaluronic Acid) + Functional Duo

(Niacinamide + Ceramide NP)

Internal and external synergy targeting three anti-aging pathways: **ECM regeneration + barrier repair + brightening & antioxidant defense**

The Keyora Collagen Tripeptide Complex is formulated based on the core mechanisms of skin aging. From structural reconstruction and barrier repair to functional regulation, it establishes a comprehensive logic for **systematic oral skincare**.

Structural Triad: 3 Steps to Rebuild the Dermal Framework

- **Collagen Tripeptide (CTP):** Signal activation + Raw material supply
 - Gly-Pro-Hyp tripeptides enter the bloodstream intact and are recognized by fibroblasts as “collagen degradation signals”
 - Triggers synthesis of Type I collagen, elastin, and hyaluronic acid
 - Provides essential amino acids for ECM biosynthesis
- **Elastin Peptide:** Elastic fiber regeneration + Gravity-resistance support
 - Contains Tropoelastin core sequences and participates directly in elastic fiber formation
 - Upregulates expression of **Elastin** and **Fibrillin**
 - Reduces signs of gravitational aging, including sagging, fine lines, and reduced firmness

- **Hyaluronic Acid (400 kDa):** Spatial filler + Hydration booster
 - Orally absorbable and dermis-targeted via paracellular transport
 - Stimulates **HAS** (Hyaluronic Acid Synthase) expression to enhance endogenous HA production
 - Fills gaps between collagen and elastin networks to stabilize ECM volume and moisture content

Functional Duo: Epidermal modulation + Antioxidant defense

- **Niacinamide (9 mg):** Barrier lipid synthesis + Anti-darkening effect
 - Promotes synthesis of ceramides, cholesterol, and free fatty acids in keratinocytes
 - Enhances stratum corneum integrity and reduces transepidermal water loss (TEWL)
 - Inhibits melanosome transfer to the epidermis, reducing dullness and sallowness
 - **Ceramide NP (99.5%):** Core lipid for barrier repair
 - Sourced from Meadowfoam seed extract with high structural similarity to human skin ceramides
 - Replenishes lost lipids in the stratum corneum and restores the water-retaining barrier
 - Clinically proven to alleviate dryness, sensitivity, flakiness, and other signs of barrier dysfunction

5-in-1 Synergistic Benefits Overview:

Synergistic Dimension	Active Ingredient	Functional Benefit
Signal Activation	Collagen Tripeptide (CTP)	Initiates ECM synthesis, reconstructs dermal framework
Elastic Network Repair	Elastin Peptide	Rebuilds elastic fibers, enhances firmness and skin resilience
Hydration Support	Hyaluronic Acid (400 kDa)	Fills ECM spaces, relieves dryness, increases skin plumpness
Barrier Restoration	Ceramide NP (99.5%)	Replenishes lipids, locks in moisture, alleviates dryness/sensitivity
Brightening & Anti-Yellowing	Niacinamide (9 mg)	Inhibits melanin transfer, provides antioxidant support, brightens skin tone

The Keyora formula is built upon structural nutrients as its foundation and functional actives for synergy - designed to deliver both rapid repair and long-term anti-aging benefits. It is ideal for daily skin maintenance as well as intensive restorative cycles.

5) 20 mg Vitamin C (Ascorbic Acid)

Collagen cross-linking + antioxidant protection + enhanced peptide signaling

Keyora includes 20 mg/day of Vitamin C - an essential cofactor for collagen biosynthesis and a clinically recognized antioxidant for skin integrity and anti-aging.

Key skin benefits:

- Acts as a coenzyme for proline and lysine hydroxylation, critical steps in collagen and elastin fiber stabilization
- Inhibits matrix metalloproteinases (MMP-1, MMP-3, MMP-12), protecting against UV-induced ECM degradation
- Enhances the signal efficiency of collagen tripeptides (Gly-Pro-Hyp), showing synergistic effects on fibroblast activation and ECM remodeling

Even at 20 mg/day, Vitamin C contributes significantly to ECM stabilization, wrinkle prevention, and visible skin brightness, aligning with the "low-dose, high-efficiency" formulation philosophy.

✓ Pullar JM, Carr AC, Vissers MCM. (2017). The roles of vitamin C in skin health. *Nutrients*, 9(8):866.

✓ Nusgens BV et al. (2001). Topically applied vitamin C enhances the mRNA level of collagens I and III, their processing enzymes and tissue inhibitor of matrix metalloproteinase 1 in the human dermis. *J Invest Dermatol*, 116(6):853–859.

6) 600 µg Biotin

Sebum regulation + dry skin relief + support for keratin formation

Keyora delivers 600 µg of high-potency D-biotin per day - clinically recognized as a medium-to-high intervention dose that supports skin metabolism and barrier function.

Mechanisms of action:

- Regulates fatty acid synthesis and energy metabolism, helping maintain healthy sebum production and lipid membrane integrity
- Reduces dryness, flakiness, and itching by restoring lipid balance—especially beneficial for dry skin types or during seasonal climate shifts
- Supports keratinocyte differentiation and keratin protein synthesis to reinforce stratum corneum stability and repair skin prone to peeling or barrier disruption
- Enhances scalp condition and reduces hair brittleness, making it valuable for maintaining skin and hair health

600 µg/day is an optimal dose for safe, long-term use. When combined with structural (CTP, Elastin) and functional (Niacinamide, Ceramide) ingredients, Biotin provides an "internal + external" layer management system.

✓ *Mock DM. (2002). Biotin: from nutrition to therapeutics. J Nutr, 132(12):3781S–3787S.*

- ✓ *Patel DP, Swink SM, Castelo-Soccio L. (2017). A review of the use of biotin for hair loss. Skin Appendage Disord, 3(3):166–169.*

III Keyora Anti-Aging Layer Three:

Structural - Functional - Nutritional 7-Way Synergy

Structural Triad + Functional Duo + Nutritional Base = Rebuilds the dermal framework ×

Repairs the skin barrier × Regulates lipid metabolism × Enhances overall skin texture

Keyora's Hydrolyzed Collagen Tripeptide Complex integrates seven clinically effective active ingredients. Based on the mechanisms of skin aging and dryness sensitivity, it delivers a complete “systematic oral anti-aging skincare solution” - from dermal structure to epidermal barrier, all the way to metabolic and antioxidant support.

- *Structural Triad: Rebuilding the ECM Dermal Framework*

1) **Collagen Tripeptide (CTP)**

CTP ≥30%, Gly+Pro+Hyp ≥50%, Pro/Hyp 12–15%

Initiates ECM biosynthesis signaling to boost skin content of *Type I collagen*, elastin, and hyaluronic acid.

2) **Elastin Peptide** (Fish Bulbus Arteriosus)

Contains active Tropoelastin segments to enhance elastic fiber synthesis and reduce sagging and fine lines.

3) Hyaluronic Acid (400 kDa, medium molecular weight)

Fills ECM spaces in the dermis, increases hydration and tissue turgor, enhances plumpness.

- *Functional Duo: Barrier Repair + Brightening*

4) Niacinamide (9 mg)

Promotes ceramide and lipid synthesis, repairs barrier function, and inhibits melanosome transfer to brighten dull, yellowish skin.

5) Ceramide NP (99.5% / 2 mg)

Sourced from Meadow Foam Seed, structurally homologous to stratum corneum lipids, strengthens the skin's water-retention barrier and reduces sensitivity and flakiness.

- *Nutritional Foundation Duo: Antioxidant + Sebum Regulation*

6) Vitamin C (20 mg)

Supports collagen cross-linking, antioxidant defense, MMP inhibition, and ECM stabilization, contributing to skin glow and resilience ▶ Works synergistically with collagen and elastin to counteract photo-aging.

7) Biotin (600 µg)

Involved in lipid metabolism and keratin synthesis, helps regulate sebum and relieve dryness, flakiness, and roughness caused by imbalanced skin metabolism.

IV 7-in-1 Synergistic Benefits Overview:

Synergistic Dimension	Core Ingredient	Functional Direction
ECM Activation	Collagen Tripeptide (CTP)	Stimulates ECM synthesis, increases skin density
Elastic Fiber Regeneration	Elastin Peptide (fish)	Rebuilds elastic fibers, reduces sagging and laxity
Dermal Hydration	Hyaluronic Acid (400 kDa)	Moisturizes and fills, enhances plumpness and firmness
Barrier Repair	Ceramide NP	Replenishes lipids and locks in moisture to reduce sensitivity
Brightening	Niacinamide	Inhibits pigmentation and improves skin tone uniformity
Antioxidant Protection	Vitamin C	Stabilizes ECM, protects against photo-aging and oxidative stress

Lipid Metabolism Support	Biotin	Improves dryness and rough texture, maintains healthy skin balance
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The Keyora 7-in-1 Synergistic System enhances skin health across three levels - deep repair, surface protection, and internal regulation.

It stands as a benchmark of modern ingestible beauty formulations that integrate structural integrity, targeted functionality, and nutritional science.