

CIRCADIA®

Peptide, Stem Cells, and Vitamins



Circadia by Dr. Pugliese

Michael Q. Pugliese

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Intelligent Ingredient Technology

We achieve optimal skin health, by providing formulations that are deeply rooted in science partnered with the best of nature



Pure Botanicals



Innovative Peptide Technology



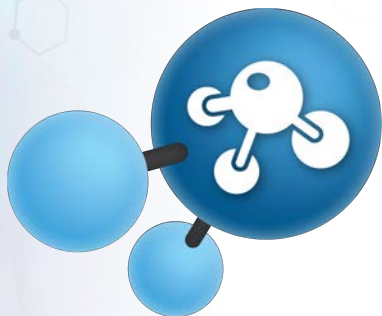
Unique Stem Cell Technology



Second Generation Vitamins

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What are peptides?

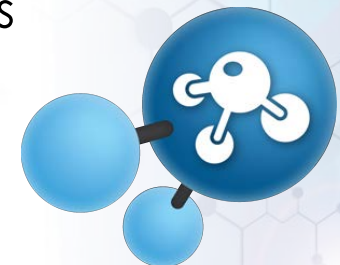


PEPTIDES

Peptides are biochemical structures composed of amino acids linked in what is known as the peptide bond.

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Peptide Families

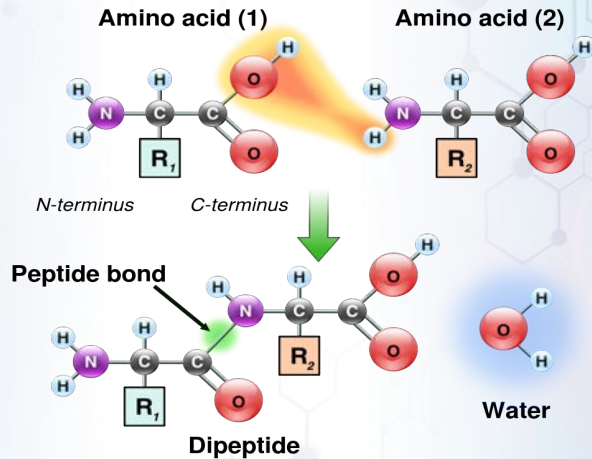


PEPTIDES

- Carrier peptides
- Signal peptides
- Neurotransmitter inhibiting peptides
- Enzyme modulating peptides

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Peptides



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Amino Acids

L-Alanine – Skin conditioning agent and an essential amino acid in the conversion of proteins into energy, through the glucose metabolic pathway.

L-Glycine – Building block of collagen formation and the most plentiful amino acid in the body. While not an essential amino acid, since the body is able to synthesize it, it is a critical component in the synthesis of purines, an essential component of DNA.

L-Lysine – Heals while it soothes inflamed areas. L-Lysine is a necessary amino acid for all protein in the body. L-Lysine is critical for calcium absorption, as a muscle protein, essential in recovering from surgery, and in the body's production of hormones, enzymes, and antibodies.

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Amino Acids

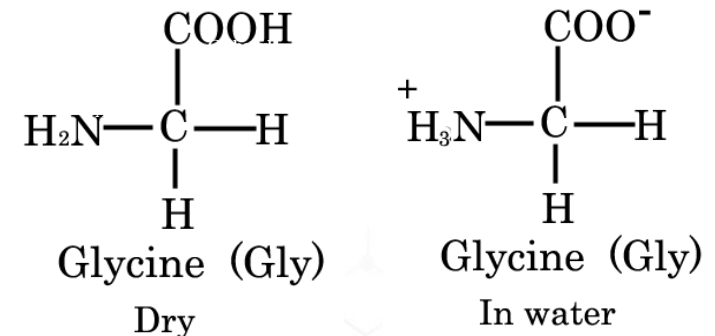
L-Proline – Essential amino acid that is required to make collagen fibers. It is the precursor of hydroxy proline and essential component of collagen cross-linking. It aids in wound healing, and in maintaining a youthful appearance of skin.

L-Threonine – Anti-oxidant stabilizer and an essential amino acid in building proteins. Threonine can be converted to pyruvate and use in the Krebs cycle, but it's more common role is in building proteins and acting as a antioxidant stabilizer. The body cannot synthesize it is essential amino acid.

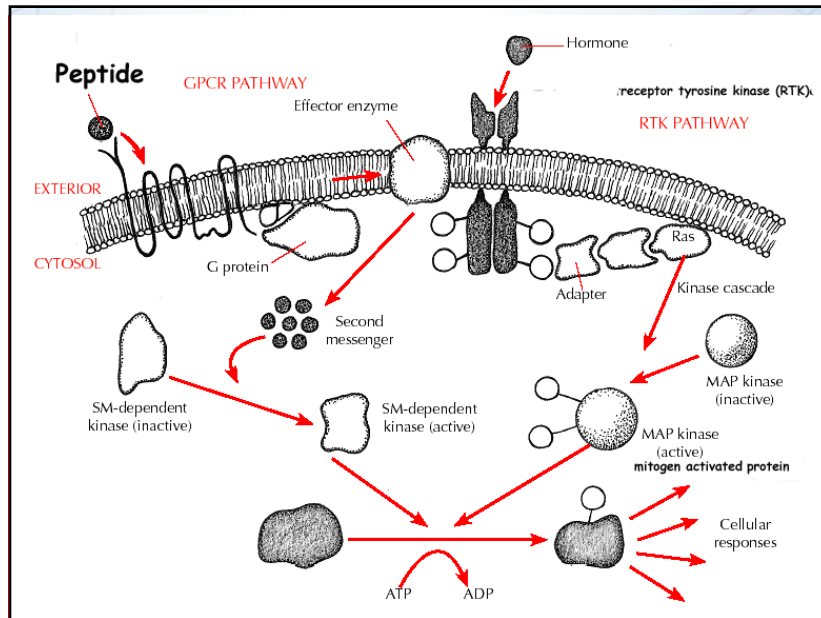
L-Valine – Reduces inflammation, but is an essential amino acid for building proteins. It is one of the three branched chain amino acids and is hydrophobic. It is widely used by muscle builders to increase muscle mass.

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amino acid structure



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Peptide Technology

Preventhilia™ (Diaminopropionoyl Tripeptide-33) – Tetrapeptide that prevents the damage caused directly or indirectly by UV radiation to DNA and proteins, thus preventing photo-aging

Matrixyl™ (Palmitoyl Pentapeptide-4) – Helps stimulate collagen synthesis and elastin. The action is very similar to retinol without the irritation.

Matrixyl™ 3000 (Palmitoyl Oligopeptide and Palmitoyl Tetrapeptide-7) – Helps repair damaged tissues

Matrixyl™ Synthe 6 (Palmitoyl Tripeptide-38) – Evens out skin, relieves and smoothes wrinkles by stimulating constituents of skin matrix and dermal-epidermal junction (i.e. collagen I, II, IV, fibronectin, hyaluronic acid, and laminin 5)

Matrixyl™ Morphomics- Influences cellular and dermal energy, reducing the appearance of vertical lines.

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Peptide Technology

Eyeliss™ (Hesperidin Methyl Chalcone and Dipeptide-2 and Palmitoyl Tetrapeptide-7) – Hesperidin methyl chalcone is a bioflavonoid that helps to decrease capillary permeability thus reducing fluid deposition and puffiness.

Haloxy® (Palmitoyl Oligopeptide and Palmitoyl Tetrapeptide-7) – Two peptides work in conjunction to improve firmness and tone of the eye area. Chrysin and N-hydroxysuccinimide stimulate the clearance of deposited blood pigments and solubilize iron for elimination respectively, resulting in the reduction of dark circles

Argireline® (Acetyl Hexapeptide-8) – A peptide alternative to botox that attenuates muscle contraction preventing the formation of fine lines and wrinkles

Snap 8 (Acetyl Octapeptide-3) – Reduces depth of wrinkles caused by contraction of muscles of facial expression

Inyline® (Acetyl Hexapeptide-30) – Reduces depth of wrinkles caused by contraction of muscles of facial expression

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Peptide Technology

dGlyage® (Tripeptide 9) – Reduces DNA damage resulting from fenton reaction products and reduces metal-mediated A.G.E. formation

Progelin™ (Trifluoroacetyl Tripeptide-2) – Reduces progerin synthesis, MMP and elastase inhibitor, increases syndecan, contracts collagen to reduce signs of aging including sagging and wrinkles

Chronocyclin® (Glutamylamidoethyl Imidazole) – Anti-aging, enhances expression of circadian genes, optimizes cell defenses and renewal activities, and Vitamin D transformation

L-Carnosine – Di-peptide that has anti-glycation properties

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Peptide Technology

HYDRATING

Diffuporine™ (Acetyl Hexapeptide-37) – Boosts Aquaporin-3 which promotes inner hydration mechanisms and water movement from the basal layer of epidermis and to the stratum corneum, rejuvenating the skin by improving barrier function, collagen I synthesis and cellular proliferation

SENSITIVE

Telangyn™ (Acetyl Tripeptide-33) – Decreases facial redness and other skin disorders caused by the release of interleukins, reducing redness, dilated blood vessels, tissue degradation and post-inflammatory

Delisens™ (Acetyl Hexapeptide-46) – Down regulates PAR-2 thus reducing discomfort of pain and itching occurring in sensitive skin and restoring damaged barrier integrity, also increasing hydration, improves scaling, smoothing and softness in very dry skin

Thermostressine™ (Acetyl Tetrapeptide-22) – Helps fight cellular stress and increases HSP70 levels to prevent further stress

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Peptide Technology

BRIGHTENING

Melanostatin® 5 (Nonapeptide-1) – Skin whitening peptide antagonist alpha-melanocyte stimulating hormone (α -MSH) blocking tyrosinase activation

B-White™ (Oligopeptide-68) – Reduces MITF (microphthalmia-associated transcription factor) to decrease constitutive and facultative pigmentation pathways. Decreases tyrosinase activity and melanin synthesis to reduce overall skin pigmentation

ACNE

Bodyfensine® (Acetyl Dipeptide-3) – Human β -defensin-2 and -3 mimetics that reinforce skin's natural immunity and lower risk of possible infections from external agents

GranActive™ Acne (Oligopeptide -10) – a patented anti-microbial peptide from plant amino acid that promotes healthy skin tone

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Stem Cells Technology



STEM CELL
TECHNOLOGY

Plant stem cells and their use in cosmetics has skyrocketed in the last five years. We will now look at where they come from, how we obtain them, what are they doing, what type of results we can expect.

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Stem Cells Technology

How are they harvested?

Leaf of alpine rose is wounded to induce callus formation

Callus cells are transferred to agar plates

The developed callus with its stem cells is harvested and further cultivated on agar plates until complete dedifferentiation of the cells and generation of a homogenous culture



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Why stem cells?

- Marketing
- Renewable resources
- Highly functional molecules



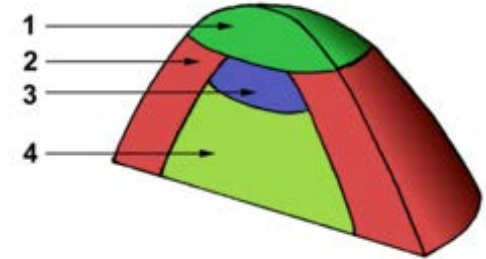
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Where and How Do We Get Plant Stem Cells?

They come from certain parts of the plant known as the apical meristems. There are several:

The Shoot Apical Meristem

The Root Apical Meristem



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Stem Cell Technology

Lilac Stem Cell Extract (Malodextrin and Syringa Vulgaris) – Rich in verbascoside with strong anti-inflammatory activity and effectiveness against p. Acnes.

Gardenia stem cell extract (Gardenia Jasminoides) – Rich in moisturizing phytosterols and polysaccharides, along with antioxidative phenylpropanoids (e.g. feruloyl-6-glucoside), protects the skin's extra-cellular matrix from degradation by MMPs and stimulates collagen production.

Marrubium Stem Cell Extract (Marrubium vulgaremeristem) – Rich in phenylpropanoids (i.e. forsythoside B and verbascoside) which are defensive molecules that protect the skin against oxidants and activate the skin's self-defense systems.

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Stem Cell Technology

Grape Stem Cell Extract (PhytoCell Tech Solar Vitis) – Protects against oxidative and UV damage, shown to delay cell senescence.

Edelweiss Stem Cell Extract (Leontopodium Alpinum) – Preparation of Leontopodium Alpinum meristem culture that provides antioxidant activity, anti-hyaluronidase activity, and anti-collagenase activity. Thus it is shown to reduce wrinkle depth by 15% around the eye after only 20 days of treatment.

Apple Stem Cell Extract (Malus Domestica) – Liposomal preparation from stem cells of a rare Swiss apple known for its longevity. Increases vitality, delays senescence, and combats chronological aging in skin cell. The extract has been shown to help skin stem cells maintain their characteristics and their capacity to build new tissues. It also has been shown to delay aging and have an anti-wrinkle effect.

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Vitamins



VITAMINS

A vitamin is an essential nutrient that the body cannot produce. Therefore it must be obtained from an outside source, normally from diet or a supplement. Many vitamins have key functions in the skin.

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Functions of Vitamin A

- Vision
- Cellular Gene differentiation, transcription, morphogenesis
- Immune response
- Growth-Skeletal
- Fertility-Male and Female

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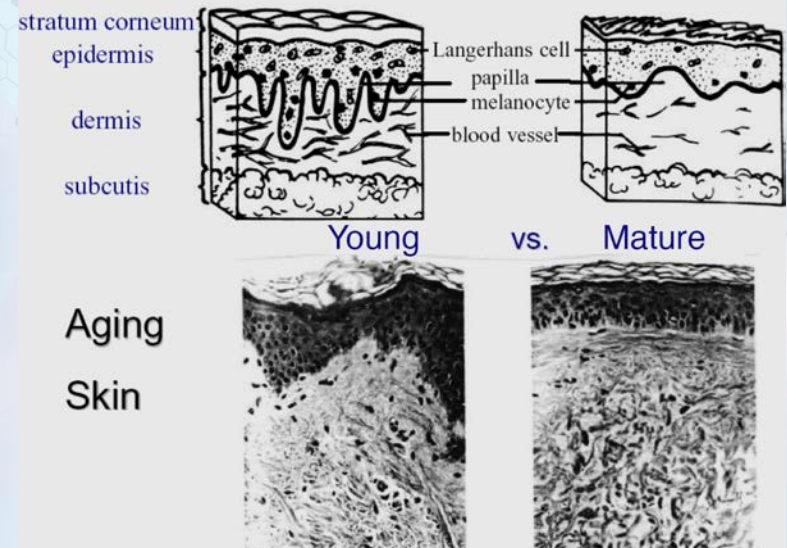
Vitamin A and Skin

- Cell differentiation (plumps epidermis), compacts stratum corneum
- Increases collagen and elastin
- Reduce collagenase
- Protects against ultraviolet damage

How Vitamin A Works

- Vitamin A is a hormone that aids in cell transcription.
- To function it has a receptor in the cell.
- The receptor guides the vitamin A to DNA

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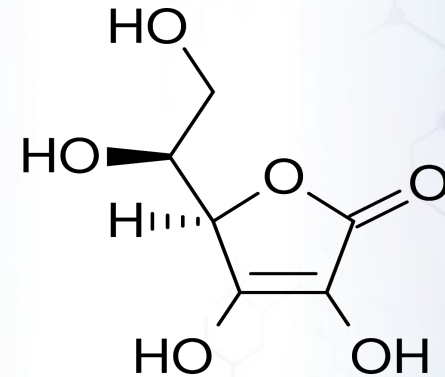
Vitamin C

- Vitamin C is a water soluble reducing agent.
- Helps stabilize unstable molecules.
- Assists in the formation of collagen.
- Works as a Tyrosinase inhibitor.



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Ascorbic Acid



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Free Radical Damage



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Forms of Vitamin C

- Ascorbic Acid
- Ascorbyl Palmitate
- Magnesium Ascorbyl Phosphate
- Sodium ascorbyl phosphate
- Ascorbyl Glucoside
- Aminopropyl ascorbyl phosphate
- Tetrahexyldecyl Ascorbate
- Ascorbyl Lactoside

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Vitamin C Reversal Serum

Skin Type Indications:
All Skin Types

Benefits:

- Hyaluronic Acid Base
- Highly stable form of Vitamin C
- Fights free radical damage
- Brightening
- Firming

Key Ingredients:

Magnesium ascorbyl phosphate 10% - Highly stable form of vitamin C, antioxidant & inhibits the breakdown of collagen

Sodium hyaluronate- (multiple weight HA) binds moisture and soothes

Panthenol - (provitamin B5) regenerative, soothing



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Advanced Professional Skincare

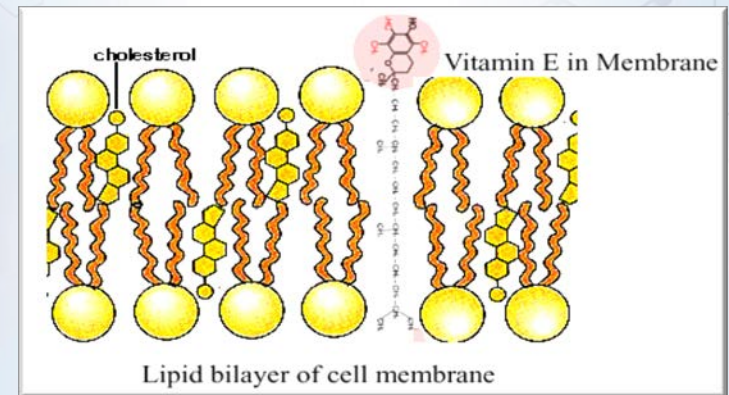
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Vitamin E

Tocopherol is the most widely used form of vitamin E and comes from the greek words for tokos meaning "childbirth" and pherein meaning "to carry".

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Vitamin E in the Cell



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Tocopherols

There are many natural sources of tocopherols but the vast majority use in cosmetics are synthesized.

Most of which is racemic alpha-tocopheryl acetate and also tocopheryl nicotinate and tocopheryl linoleate.

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Tocotrienols

They have a very flexible unsaturated carbon chain making them more easily incorporated into the cell membrane.

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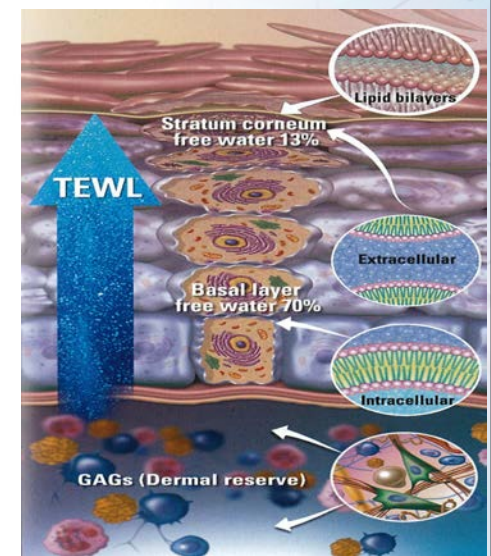
Role of Vitamin E and Skin

- Protection from UV light damage.
- Maintenance of barrier function and cell membrane.
- Treating hypertrophic scarring.

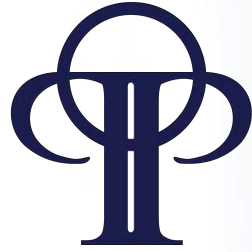
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The Barrier

The skin is a delicate balance of both oil and water soluble materials. One of our most important focuses in promoting skin health is the maintaining of the lipid barrier.



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