INNOAESTHETICS

INNO TDS

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INNOAESTHETICS

Hair Treatment

ALOPECIA

INNOAESTHETICS

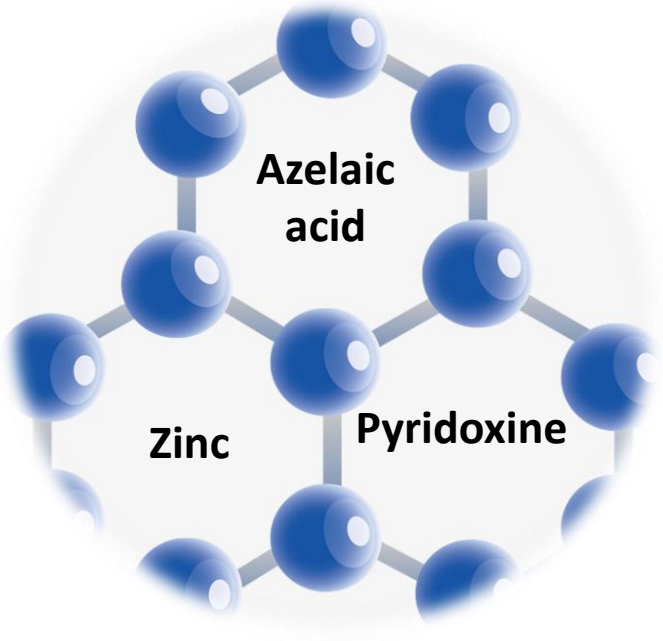
INNO-TDS HAIR LOSS CONTROL

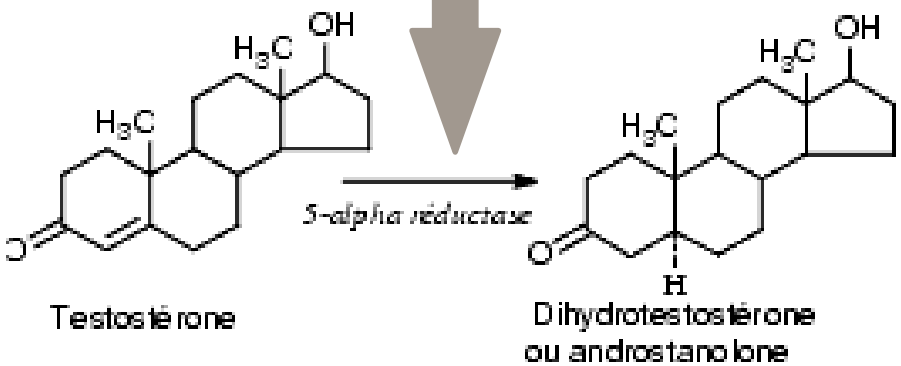
Stimulates hair growth cycle, increases its thickness and provides adequate nutritional supplement for the hair follicle.

Inhibits 5 alpha reductase preventing hair loss

- Decreased blood flow
- Excess sebum secretion
- Low microcirculation of the scalp
- Oxidative stress
- Loss of hair growth stimulation

Activity on 5 alpha reductase

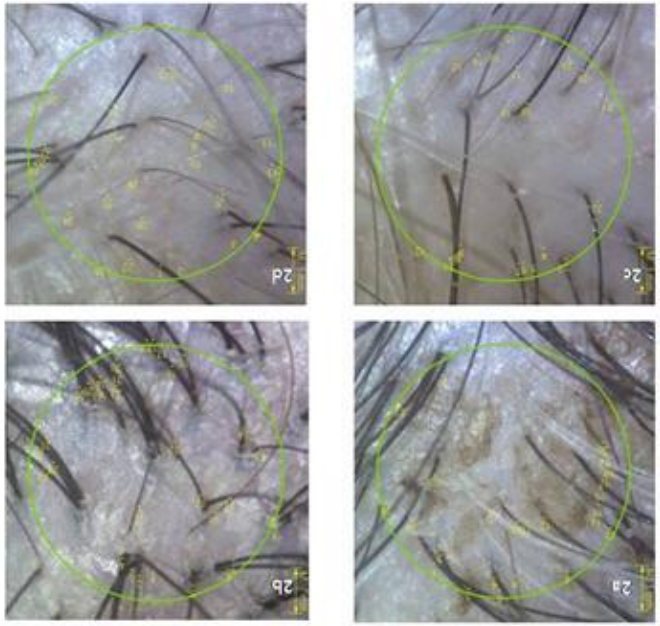




D.Stamatiadis, Marie-Claire Bulteau-Portois, Irene Mowszowicz. Inhibition of 5a-reductase activity in human skin by zinc and azelaic acid. *British Journal of Dermatology* (1988) 119, 627-632.

Serenoa serrulata

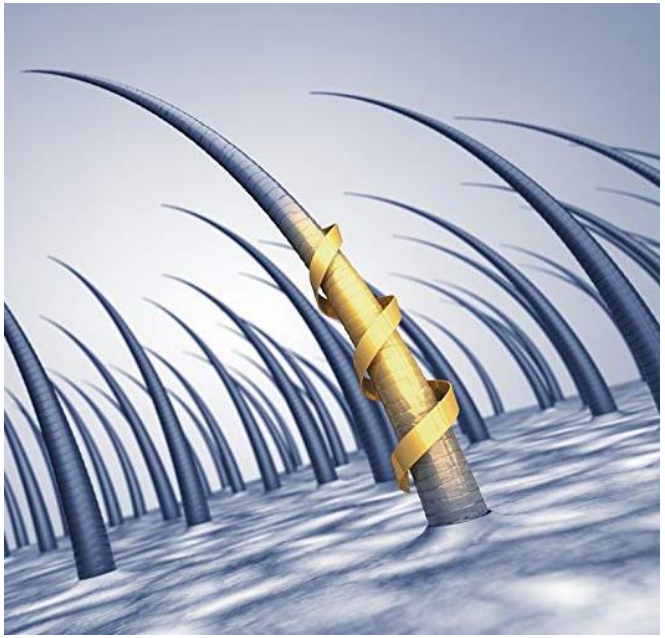
- It has a 5a-reductase inhibitory effect.
- The active substances responsible for this effect are its fatty acids, which constitute 90% of its extract and are rich in lauric acid and myristic acid.



Penugonda K, Lindshield BL. Fatty Acid and Phytosterol Content of Commercial Saw Palmetto Supplements. Nutrients 2013; 5: 3617-3633.
Pais P. Potency of a novel saw palmetto ethanol extract, SPET-085, for inhibition of 5α-reductase II. Adv Ther 2010; 27: 555-563.

Aminexil

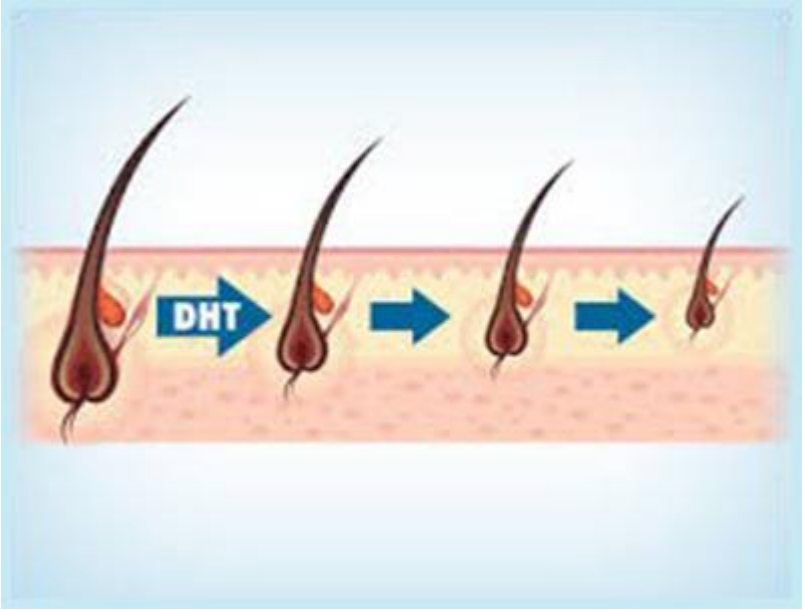
- It helps reduce the rate of hair loss by not altering the structure of collagen.
- Maintains the elasticity of the tissue surrounding the hair root.
- Reduces accelerated root aging by counteracting fibrosis and stiffness of collagen leaves.



Orasan MS, Bolfa P, Coneac A, Muresan A, Mihu C. Topical Products for Human Hair Regeneration: A Comparative Study on an Animal Model. Ann Dermatol, 2006; 28(1): 65 – 73.

Caffein

Counteracts the miniaturization induced by dihydro-testosterone in the hair follicle



Inhibits Phosphodiesterase

↓

Increase cAMP levels

↓

Promotes proliferation through the stimulation of cellular metabolism.

Fischer TW, Hipler UC, Elsner P. Effect of caffeine and testosterone on the proliferation of human hair follicles *in vitro*. Int J Dermatol. 2007;46:27–35.

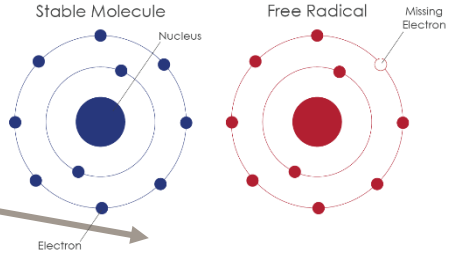
Antioxidation

GHK, copper tripeptide

High affinity for Cu

GHK-Cu chelate

Antioxidant, anti-inflammatory, regenerative properties



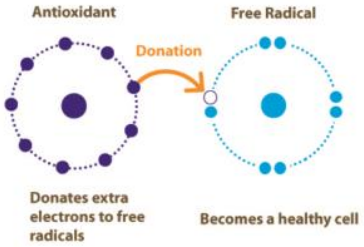
Stimulates the activity of superoxide dismutase.

Modulates iron levels

Decreases lipid peroxidation

Gluthatione

Neutralizes peroxide radicals



Naziroglu M, Kokcam I. Antioxidants and lipid peroxidation status in the blood of patients with alopecia Cell Biochem Funct. 2000 Sep;18(3):169-73.

Demonstration of the efficacy and safety of INNO TDS HAIR LOSS CONTROL in the treatment of androgenetic alopecia in men.

- N = 50 male patients.
- X = 38.72
- Alopecia classified as Norwood Hamilton types III, IIIv, IV, V and VI.
- Exclusion criteria: coexisting systemic diseases, scars or ulcers on the scalp, loss of hair of a non-androgenic type, hair transplant performed in the last 8 months, that has received or receiving any other treatment that could affect hair loss in the last 6 months, such as, for example: inhibitors of 5-α-reductase, minoxidil, hormones, corticosteroids or cytotoxics.
- The therapeutic protocol was established in a session with INNO-TDS Hair Loss Control every 7 days, for 8 weeks.
- 2 ml of the solution was applied with point-to-point technique in the frontoparietal area.

Demonstration of the efficacy and safety of INNO TDS HAIR LOSS CONTROL in the treatment of androgenetic alopecia in men.

Effectiveness:

- Hair count in an area of 3 cm2 at the apex of the scalp at weeks 12 and 24, compared with the initial count.
- Hair restoration: week 12 and 24. The hair was classified as:

a) Vellus if the width was less than 30 µm.
b) Intermediate if the width was between 30-60 µm.
c) Terminal if the width exceeded 60 µm.

- Satisfaction with the treatment was measured using the researcher's photographic evaluation questionnaire, which uses a seven-point rating scale, ranging from "very diminished hair growth" to "very increased hair growth", centered on "no change“.

Demonstration of the efficacy and safety of INNO TDS HAIR LOSS CONTROL in the treatment of androgenetic alopecia in men.

AGA staging (%)	Value
III	22
IIIa	6
IIIv	10
IV	26
Iva	6
V	18
VI	10

Lemmo L, Rodriguez H, García Guevara V. Demonstration of the efficacy and safety of INNO TDS HAIR LOSS CONTROL in the treatment of androgenetic alopecia in men.

Primary efficacy end-point analyses: average hair count

ANOVA repeated measures	F	P value
	17.2937	4.02E-07**

Post hoc analysis

Week	Mean hair count (95% CI)	Compared	P value
0	1,736.369 (1,666.325, 1,806.341)	0 vs 12 weeks	1.18E-05**
12	1,795.854 (1,725.86, 1,865.848)	0 vs 24 weeks	1.19E-06**
24	1,821.715 (1,751.721, 1,891.71)	12 vs 24 weeks	0.130756

*Significant, **highly significant.

Investigator photographic assessment questionnaire. A photographic evaluation by the investigators confirmed there was a slight improvement in hair appearance from the 12th week compared to the baseline.

Friedman's test	Q	P value
Anterior	52.57291667	3.83651E-12**
Vertex	52.71875	3.56672E-12**

Wilcoxon–signed rank test				
Area	Week	Median*	Compared	P value
Anterior	0	4	0 vs 12 weeks	1.79E-06**
	12	5	0 vs 24 weeks	5.18E-09**
	24	5	12 vs 24 weeks	0.001377**
Vertex	0	4	0 vs 12 weeks	4.77E-07**
	12	5	0 vs 24 weeks	5.18E-09**
	24	5	12 vs 24 weeks	0.005418**

*Median 4 = no change, 5 = slight increase. **Highly significant.

Before

4 sessions of Hair Loss Control

8 sessions of Hair Loss Control

Before

8 sessions of Hair Loss Control

Before

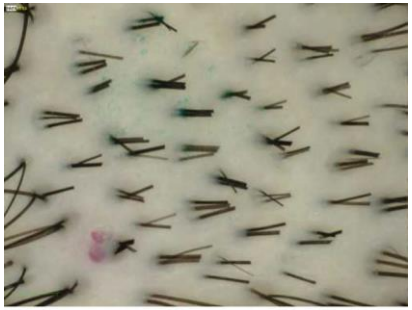
8 sessions of Hair Loss Control

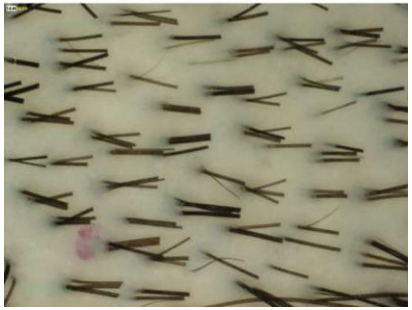
INNO TDS HAIR VITAL

Stimulates the hair growth cycle, increases its thickness and provides adequate nutritional supplements for the follicle.

Adenosine

- Positively regulates vascular endothelial growth factor (VEGF).
- Increases the expression of fibroblast growth factor-7 (FGF-7).
- It significantly stimulates the lengthening of the hair fiber.

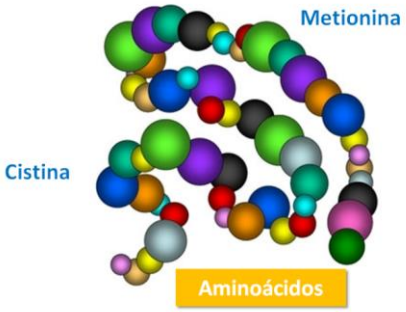




Li, M., Marubayashi, A., Nakaya, Y., Fukui, K., Arase, S. Minoxidil-induced hair growth is mediated by adenosine in cultured dermal papilla cells: possible involvement of sulfonylurea receptor 2B as a target of minoxidil. J. Invest. Dermatol, 2001. 117, 1594–1600.
Iino, M., Ehama, R., Nakazawa, Y., Iwabu-chi, T., Ogo, M., Tajima, M., Arase, S. Adenosine stimulates fibroblast growth factor-7 gene expression via adenosine A2b receptor signaling in dermal papilla cells. J. Invest. Dermatol, 2007. 127, 1318–1325.

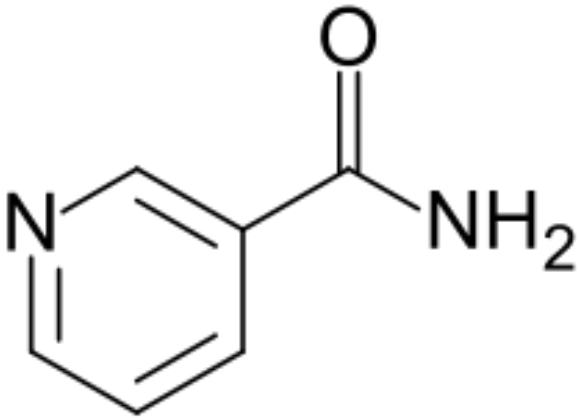
Amino Acids

- Cysteine: is the main amino acid that makes up keratin.
- Arginine: is the precursor of nitric oxide, which improves vasodilation and blood circulation in the hair follicles.
- Methionine: It is a good antioxidant, source of sulfur, essential to avoid alopecia.
- Taurine: it is located in the hair bulb, so that if there is a lack of taurine it would cause weaker and thinner hair, susceptible to falling out.



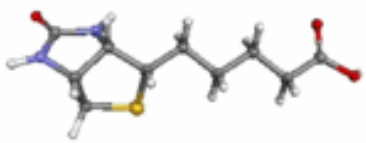
Niacinamide

- The main bioactive form of niacin, nicotinamide adenine dinucleotide (NAD), plays a central role in the metabolism of cellular energy.
- The skin has been shown to contain niacin receptors that stimulate the release of leptin, and calcium homeostasis and subsequent regulators in the leptin pathway are involved in skin homeostasis and the hair follicle cycle.



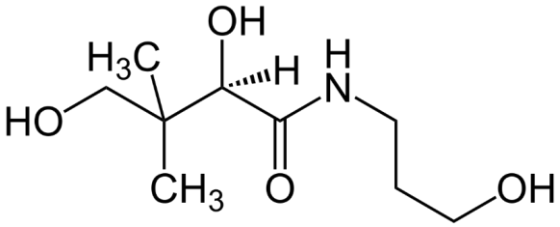
Draelos ZD, Jacobson EL, Kim H, Kim M, Jacobson MK. A pilot study evaluating the efficacy of topically applied niacin derivatives for treatment of female pattern alopecia. *Journal of Cosmetic Dermatology*, 2005; 4, 258– 261.

Vitamins



Biotin: helps metabolize carbohydrates, fatty acids and proteins.

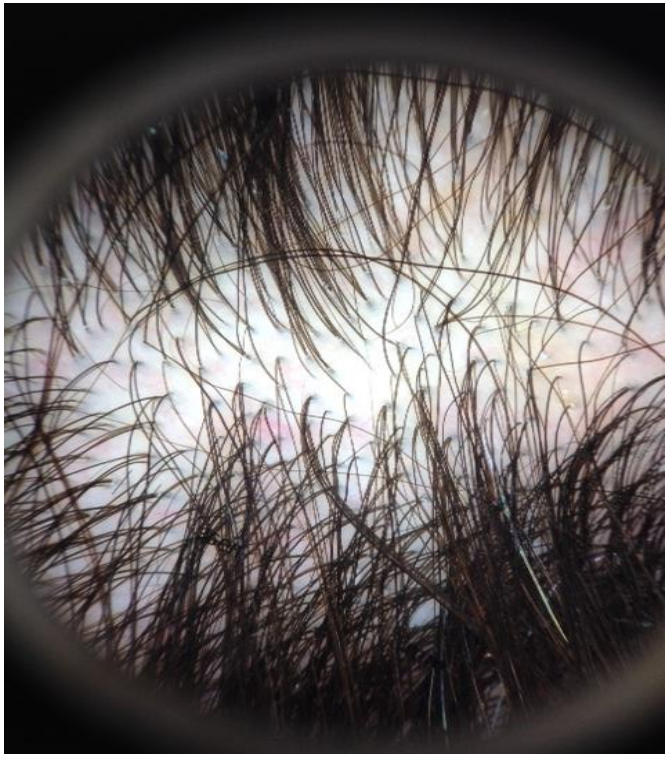
Panthenol: helps keep the keratin in good condition by hydrating it.



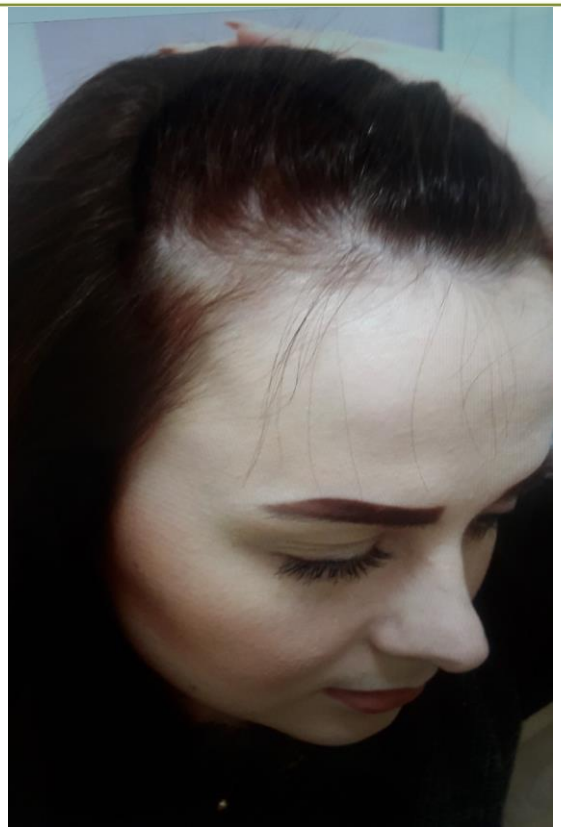
Before

After 8th treatment of Hair Vital

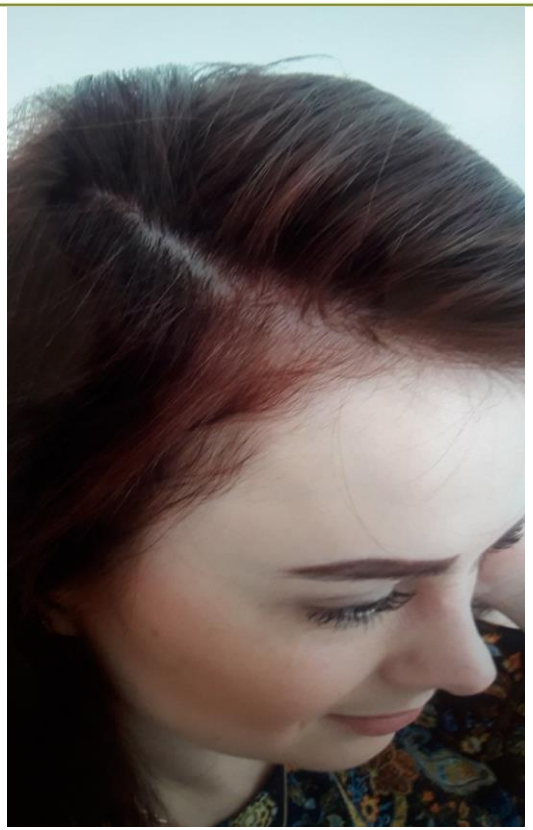
Before



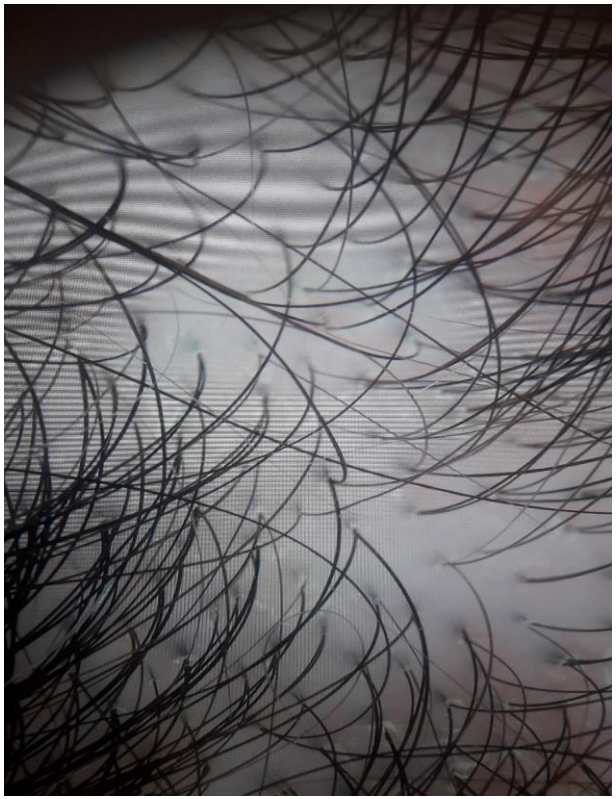
After 8th treatment of Hair Vital



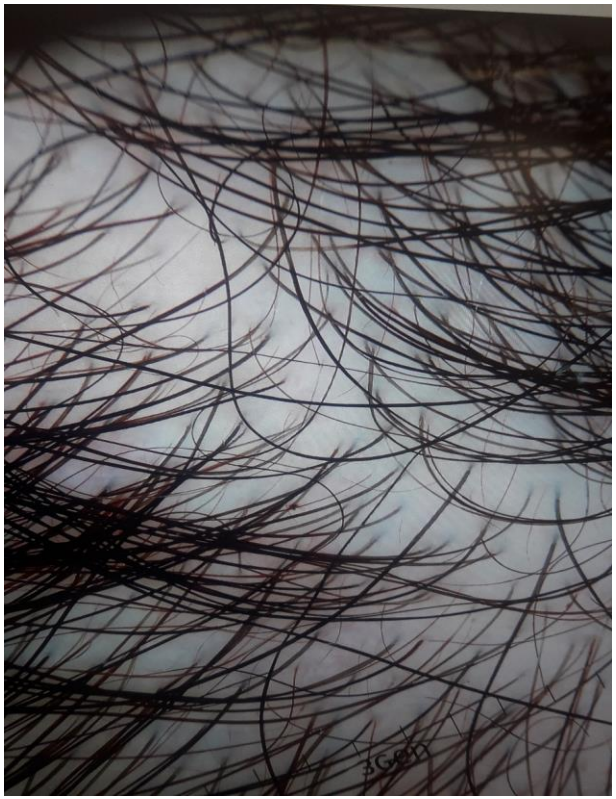
Before



After 8th treatment of Hair Vital



Before



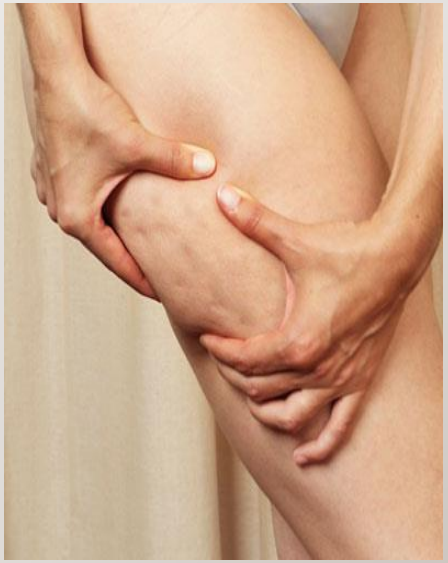
After 8th treatment of Hair Vital

Body Treatments

CELLULITE

INNOAESTHETICS

Cellulite



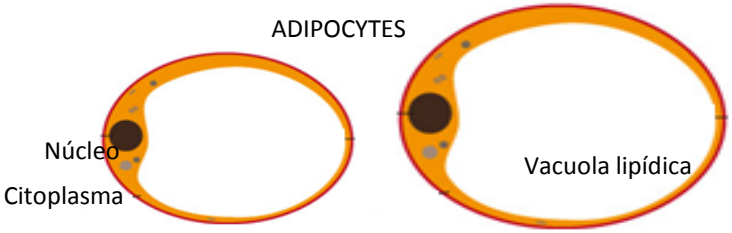
Dermopaniculosis vasculopathic

Fibro Sclerotic Edematous Panniculitis

It is a change in the structure-function of the hypodermis fibroadipose complex

Cellulite

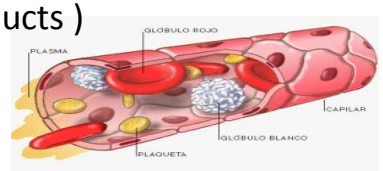
CELLULITE 4 Basic components	1	Intracellular
	2	Extracellular
	3	Toxic
	4	Vascular



1 Intracellular components
(↑ cell size)

2 Extracellular component
(↑ interstitial fluid)

3 Toxic Component
(↑ Toxic products)



4 Component Circulatory
(↑ capillary permeability)

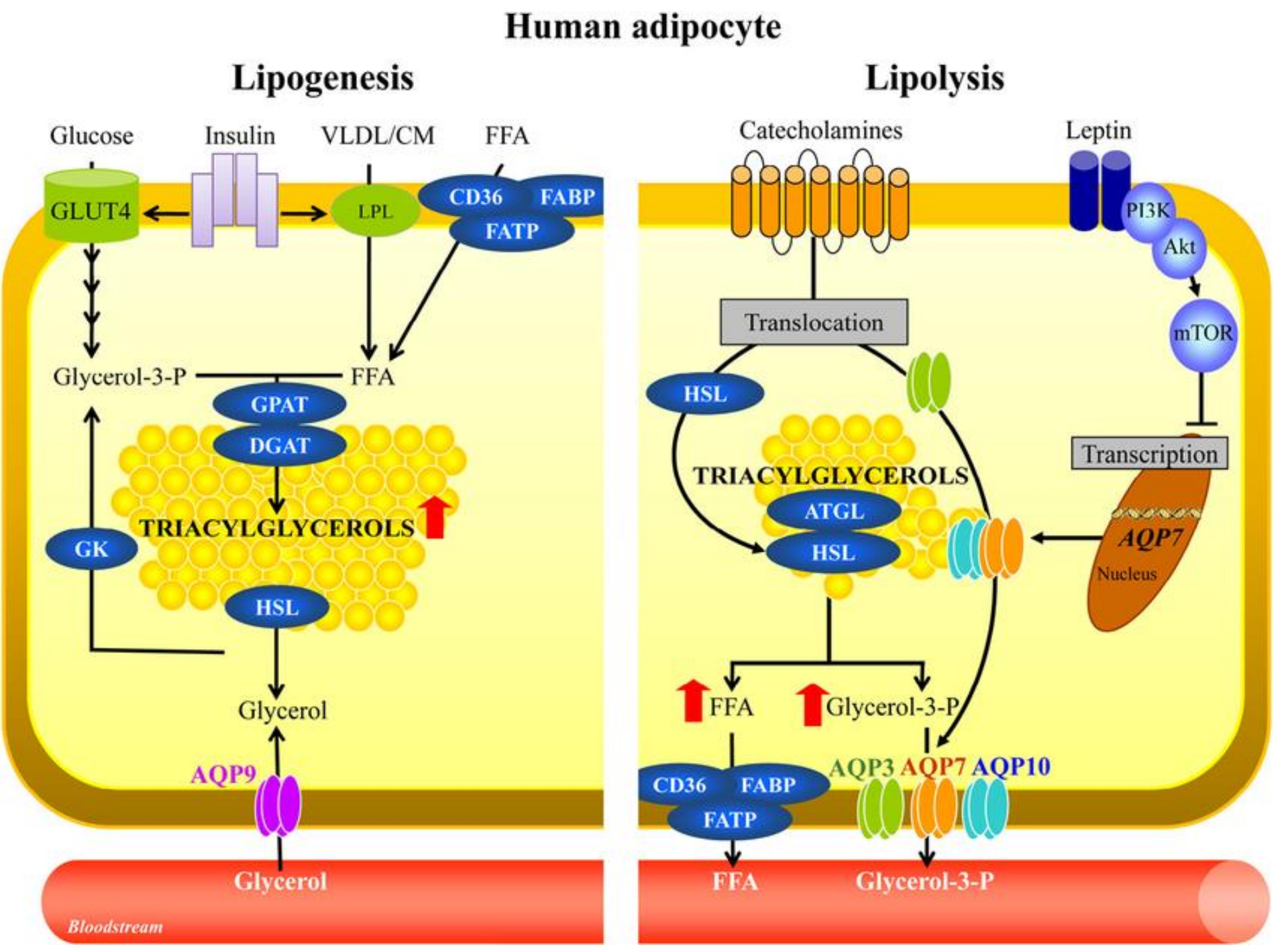
INNO-TDS SLIMMING

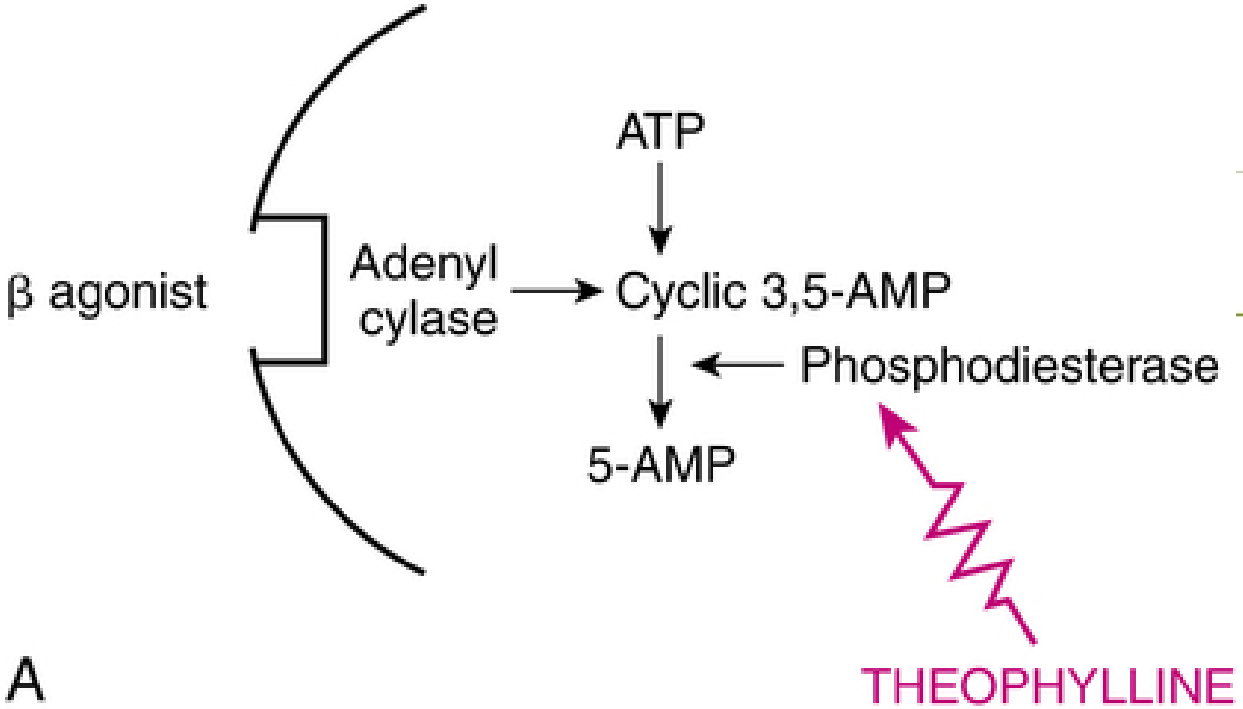
Mixture which is mainly treating the problem of "cellulite" when the main issue is adiposity and fibrosis

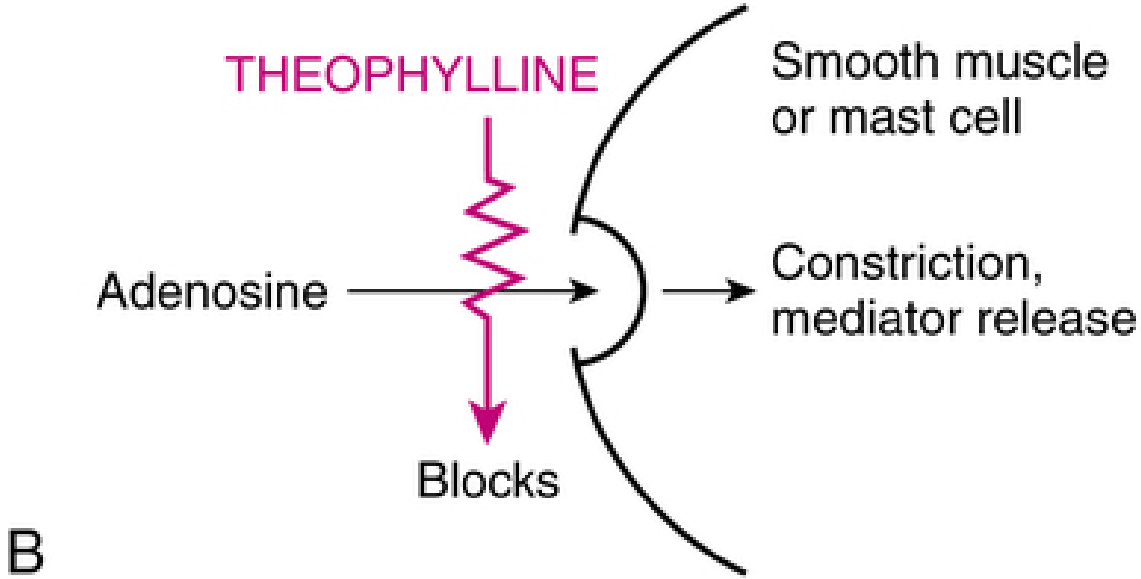
Active Ingredients

- Carnitine
- Caffeine
- Silicium
- Rutin

pH 5.5-6.0

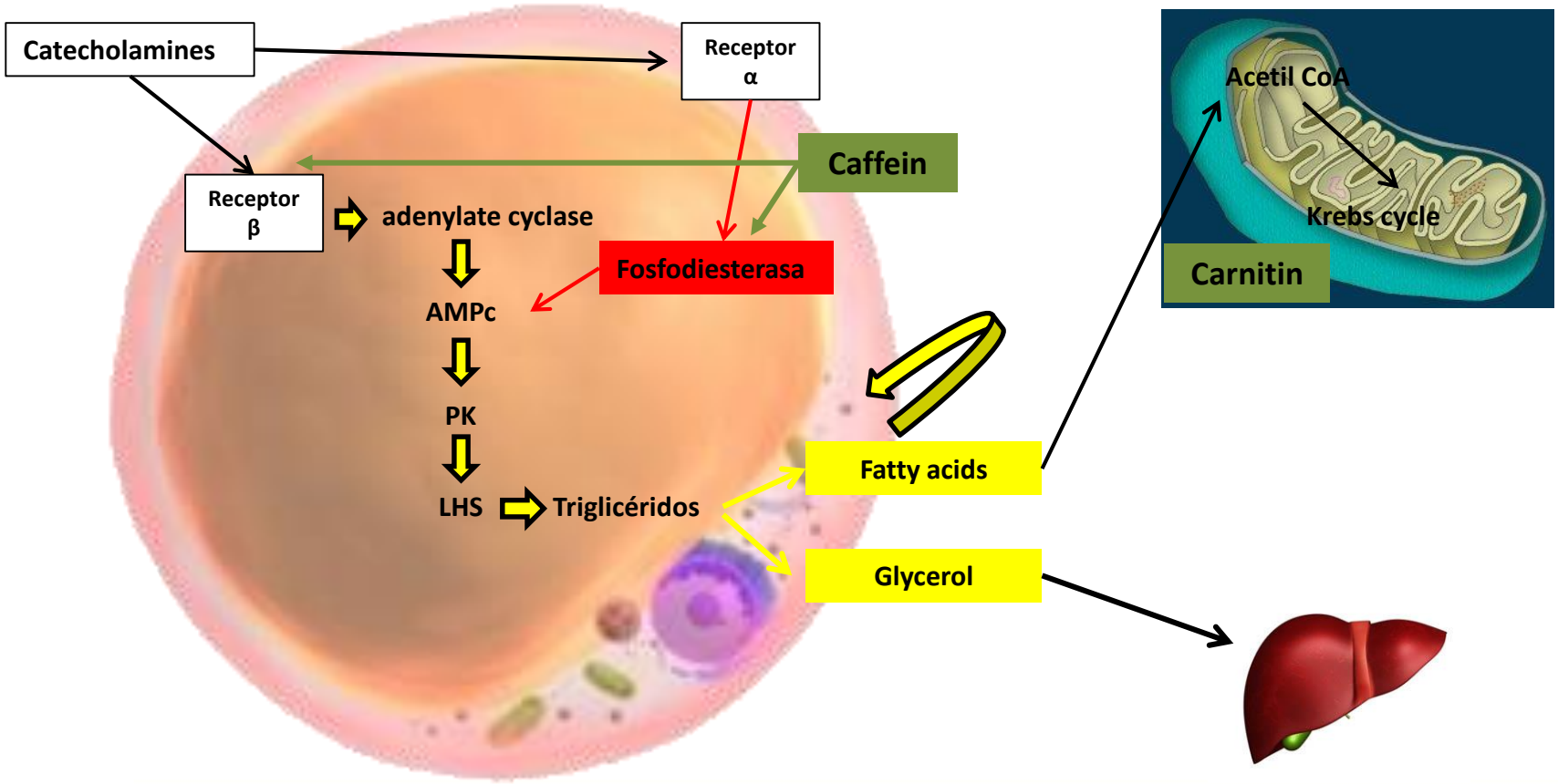

Human adipocyte
Lipogenesis
Glucose
Insulin
VLDL/CM
FFA
GLUT4
LPL
CD36
FABP
FATP
Glycerol-3-P
FFA
GPAT
DGAT
TRIACYLGLYCEROLS
GK
HSL
Glycerol
AQP9
Glycerol
Bloodstream
Lipolysis
Catecholamines
Leptin
PI3K
Akt
mTOR
Translocation
HSL
TRIACYLGLYCEROLS
ATGL
HSL
Transcription
AQP7
Nucleus
FFA
Glycerol-3-P
AQP3
AQP7
AQP10
CD36
FABP
FATP
FFA
Glycerol-3-P





Inhibits phosphodiesterase, increasing the intra-adipocyte pool of cAMP.
Blocks α1 adrenergic receptors.
Sensitizes the action of catecholamines on β adrenergic receptors.

Caffein & Carnitin



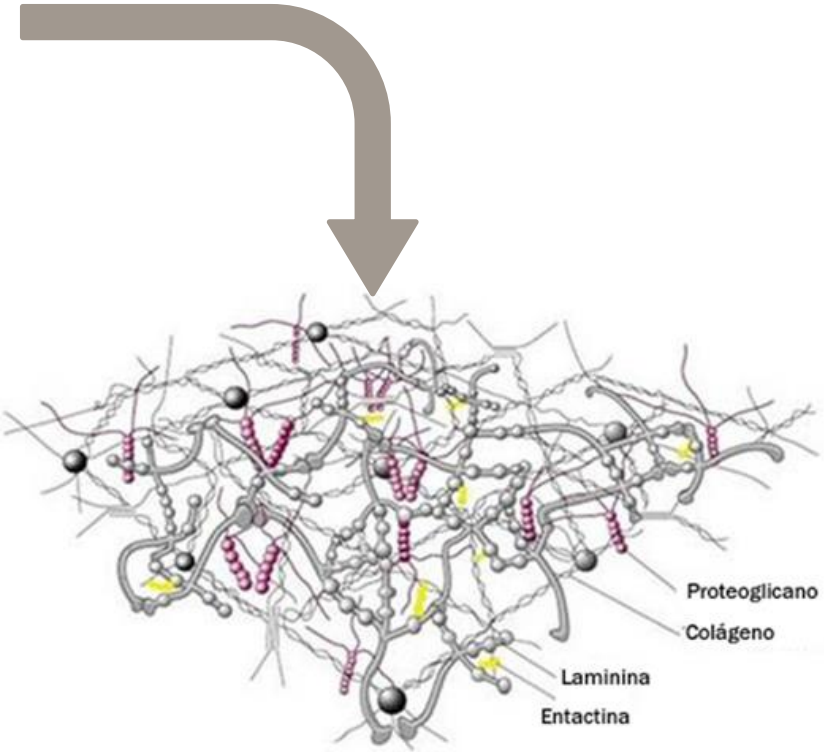
Velasco, M. V.; Tano, C. T.; Machadosantelli, G. M.; Consiglieri, V. O.; Kaneko, T. M.; Baby, A. R. Effects of caffeine and siloxanetriol alginate caffeine, as anticellulite agents, on fatty tissue: histological evaluation. Journal of Cosmetic Dermatology, v. 7, n. 1, p. 23-29, 2008.

- Modulates lipid metabolism and β oxidation.
- It transports chains of fatty acids to the mitochondria using them as an energy source.
- Increases the oxidation of fatty acids.
- It maintains a high activity of the enzyme pyruvate dehydrogenase.It acts as an antioxidant of the lipid membrane.

Mak-Soon Lee. L-Carnitine stimulates lipolysis via induction of the lipolytic gene expression and suppression of the adipogenic gene expression in 3T3-L1 adipocytes. J Med Food 2006; 9(4): 468-473.
Kalaiselvi T., Panneerselvam C. Effect of L carnitine on the status of lipid peroxidation and antioxidants. J. Nutr. Biochem. 9:575-581. 1998.

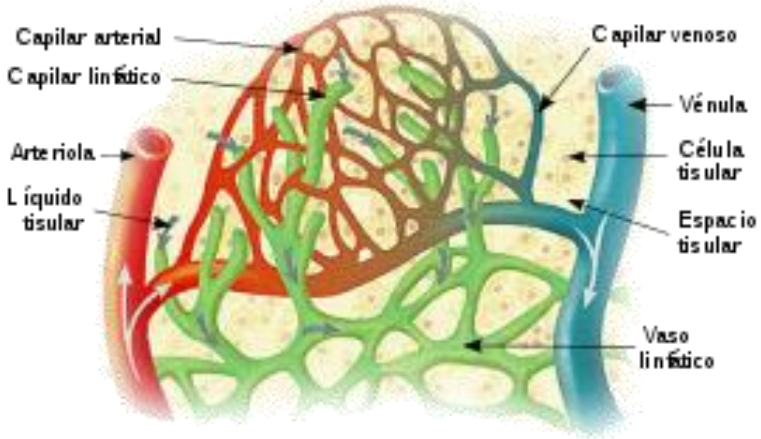
Organic Silicium

- It is a structure element of the connective tissue.
- Regulates and normalizes metabolism and cell division.
- Avoids the destruction of macromolecules of the connective tissue.
- Stimulates and regulates fibroblast mitosis.
- Inhibits the formation of free radicals.
- Possess protective activity of blood vessels.
- Inhibits glycation.
- Facilitates lipolysis.



Claff C. A translator's guide to organic chemical nomenclature. *Tran J* 2003; 5: 7–57.

Rutin



- **Phlebotonic.**
- **Regulates the synthesis and degradation of proteoglycans.**
- **Inhibits platelet aggregation.**
- **Facilitates Erythrocyte deformation.**

Marinello Roura J. Gesto Castromil R. Patología venosa. Guía de diagnóstico y tratamiento del Capítulo Español de Flebología.
Bonet Monné S. Evidencias de efectividad de los flebotónicos en el tratamiento de la insuficiencia venosa crónica. FMC. 2003;10:711-9.

Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition.

- N = 53 female patients.
- X = 29.26 years.The degree of severity of cellulite was evaluated with the Nürnberger-Muller scale.
- Thigh circumference, height and body weight were measured, and body mass index (BMI) was calculated.
- All patients received anti-cellulite treatment with Inno TDS Slimming at a rate of 6 treatments at 7-day intervals.
- The product was administered using the point-to-point technique, administering 0.02 ml at each point with 30G x 4 mm needle.
- During each treatment, the patients were administered 10 ml of the product.
- No local anesthesia was used.

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition.

- The biopsy was taken with the use of a No. 11 scalpel.
- The anatomical piece was fixed, the corresponding cuts were made and hematoxylin eosin was used for its staining.
- It was handled for the analysis, optical microscope Oxion.Ox 3047, Objectives Corrected to the Infinity of Contrast of Phases ICS 4X, 10X, 40X, 100X Oil.
- Thermographic examination with Cellutest Tablet ..
- Photographic documentation was collected using Nikon 3300 lens 18-140 camera.
- Statistical analysis with Statistica 8.
- The Shapiro-Wilk W test, the Student's T test and the Wilcoxon signed rank test were used.
- The α level of 0.05 was considered statistically significant.

Physical examination parameters

Parameters	X before therapy (T0)	X after therapy (T1)	Student´s t-test(t)/ Wilcoxon´s test T	p
Weight (Kg)	63,75	63,45	t=1,30	0,207
BMI (kg/m2)	26,32	24,38	t=8,72	≤0,0005
Thigh circumference (cm)	56,85	55,30	t=8,07	≤0,0005
Nürnberger-Muller´s scale	2,95	2,4	T=0	0,002

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

- Average reduction of the thigh circumference of 1.55 cm, which was a statistically significant change.
- By Nürnberger-Muller Scale there was a significant decrease from the average severity of 2.95 at the beginning to 2.4 at the end of the treatment.
- Average improvement of 1 degree demonstrated in 61.90% of the participating women.
- The average level of satisfaction expressed on the scale was 7.95, which suggests that the results of the treatment were satisfactory.
- 15 of the 53 patients treated (28.30%) indicated that their level of satisfaction with the treatment was below the mean level.
- Only 7 patients (13.24%) reported pain during treatment and 13 patients (24.52%) presented superficial hematomas that resolved in the following days.

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

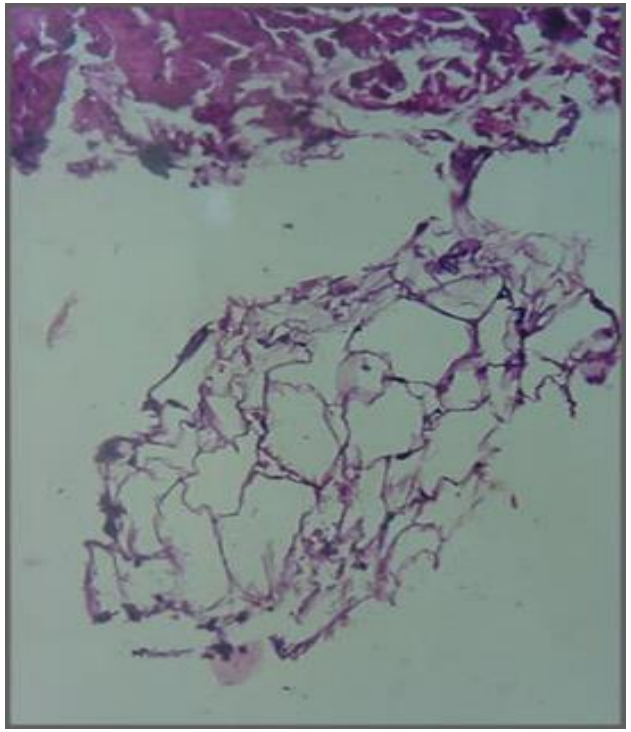
Parameters studied by contact thermography and biopsies

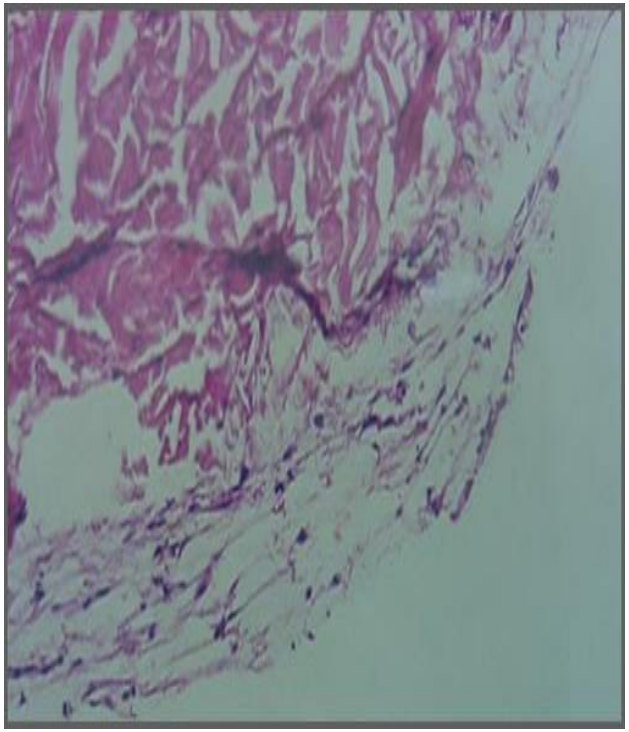
TEST	Parameters	Before treatment (T0)	%	After treatment (T1)	%
	Thermographic Stadium I	12	22,64	32	60,38
Thermography	Thermographic Stadium II	37	69,81	19	35,85
	Thermographic Stadium III	4	7,55	2	3,77
	Stadium I	0	0	8	15,09
Pathological	Stadium II	25	47,17	39	73,58
anatomy	Stadium III	26	49,06	4	7,55
	Stadium IV	2	3,77	2	3,77

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

- An important improvement of the panniculopathic picture is demonstrated with the treatment of 6 sessions of INNO TDS Slimming.
- The number of cases diagnosed as thermal plate I was increased by 37.74%.
- The histological studies show 15.09% of the patients in stage I after the end of treatment and the number of patients with stage II pathological classification increased to 73.58%.
- Before treatment, 52.83% of the patients were in advanced stages III and IV, reducing to 11.32%.
- As expected, the two cases in stage IV remained without histological changes, which describes their irreversible nature.

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016





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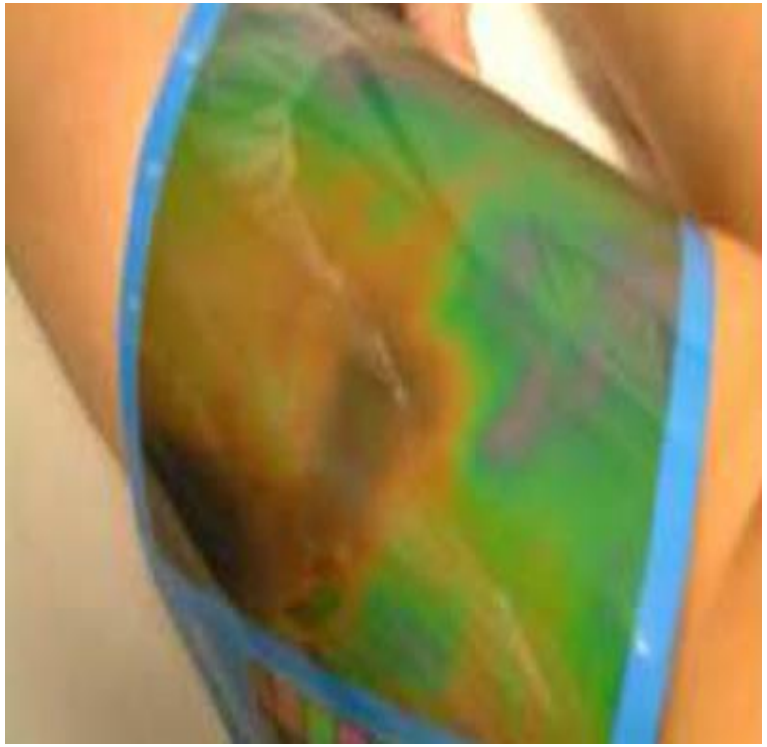
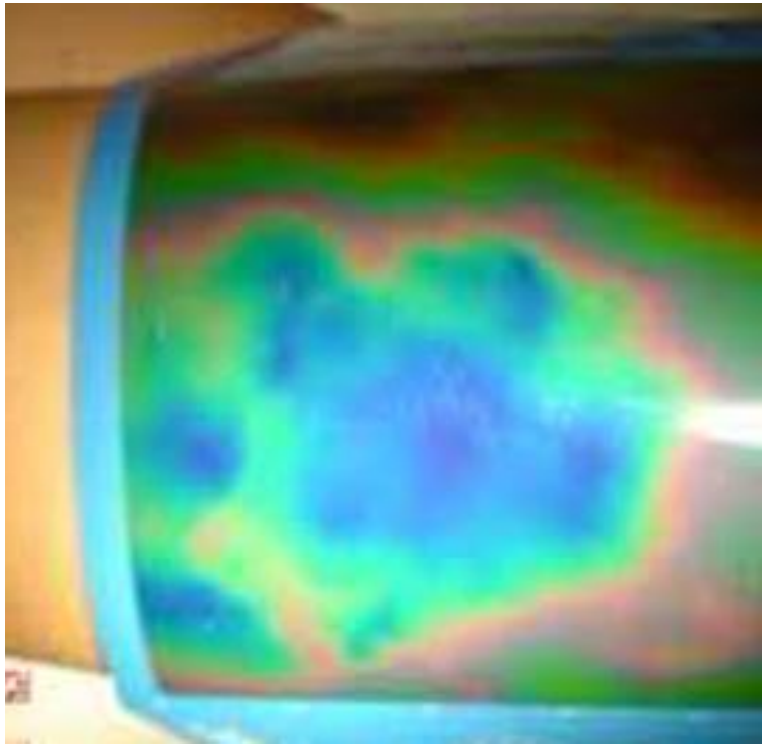




Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

Crevillen MS, García Guevara V. Evaluation of the Effectiveness and Safety of INNO TDS Slimming applied through mesotherapeutic technique to improve the cellulite condition. 2016

INNO-TDS CYNARA PLUS +

Out treatment targets venous insufficiency in situations where water retention is the fundamental problem

Active Ingredients

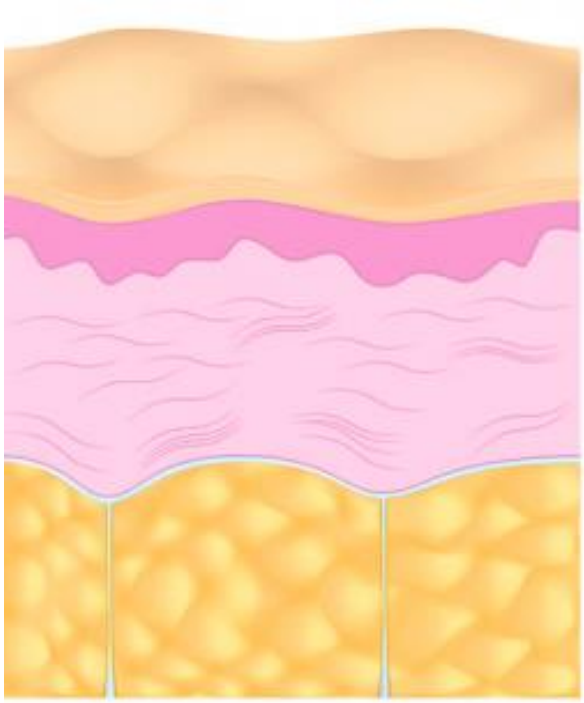
- Cynara Ext.
- Centella Asiática
- Melilotus Ext
- Silicium
- Rutin

pH 5-5.5

Cynara scolymus

Contains flavones, mainly apigenin and luteolin glycosides, which have been reported to act as phosphodiesterase inhibitors.

Powerful antioxidant activity attributed to phenolic compounds.

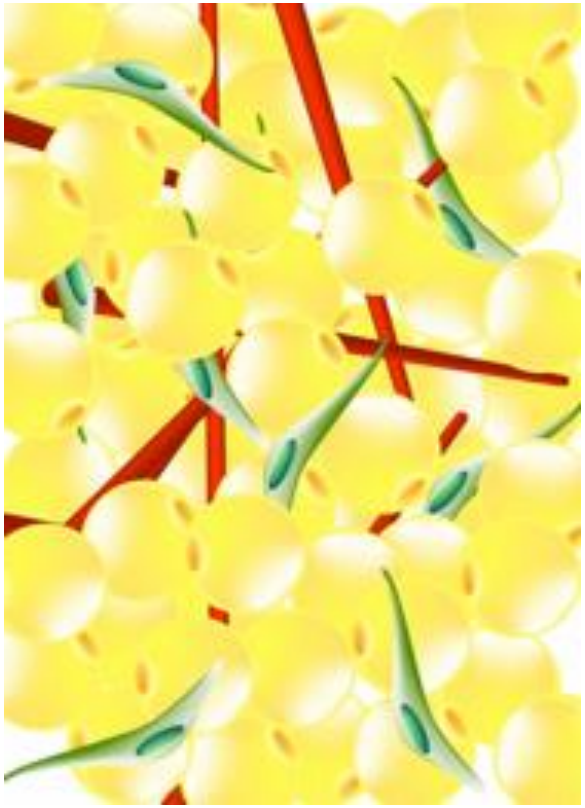


Increases the activity of the human eNOS promoter, the expression of eNOS mRNA and the eNOS protein expression.

It recovers the basic pH of the tissue and returns the balance to the structure of adipose tissue.

Huige Li, Ning Xia, Isolde Brausch, Ying Yao, Ulrich Förstermann. Flavonoids from Artichoke (*Cynara scolymus L.*) Up-Regulate Endothelial-Type Nitric-Oxide Synthase Gene Expression in Human Endothelial Cells. The Journal of Pharmacology and Experimental Therapeutics. 2004. Vol. 310, No. 3

Centella asiatica



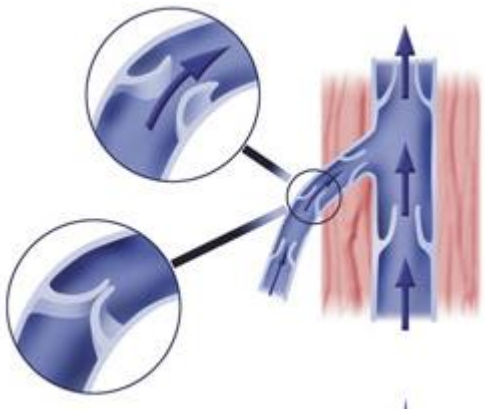
Play an important role in reducing the activity of reactive oxygen species (ROS) in the body system.

It has lipolytic activity.

Improves the synthesis of collagen.

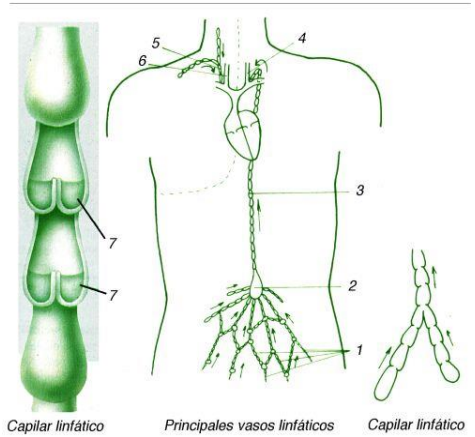
Hashim P, Sidek H, Mohd Helme M. Helan, Sabery A, Palanisamy UD, lham M. Triterpene Composition and Bioactivities of *Centella asiatica. Molecules* 2011, *16*, 1310-1322

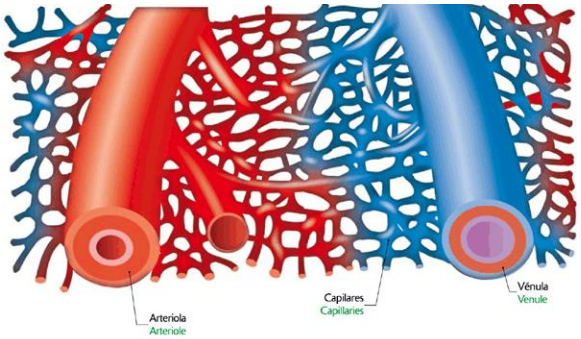
Melilotus Ext.



Venotonic

- Stimulates linfagion.
- Effect linfoquinetico.





- Relaxes the precapillary sphincter.
- It improves blood flow.

INNO-TDS FIRMING

Combination of active ingredients intended for the treatment of skin sagging.

Active Ingredients

- DMAE
- Silicium
- Lipoic acid
- Acetylcisteine

pH 7.5 – 8.0

Dimetilaminoethanol

Natural protective membrane.

Improves repair capacity, making it more resistant to organic stress.

Prevents cell destruction and the consequent formation of proinflammatory mediators.

Mechanism of Action: EPIDERMAL

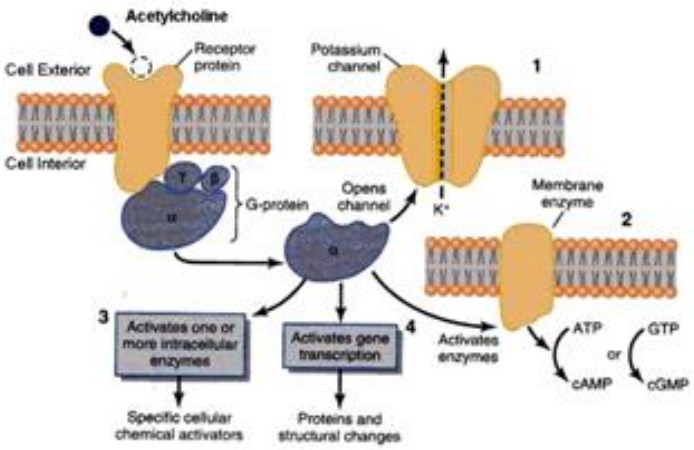
•Keratinocytes can move due to the cytoplasmic actin and myosin.

•Acetylcholine acts locally in the skin, such as a hormone that can also be a "messenger" stimulating the dermis.

•Moreover, it is assumed that inhibits formation DMAE and favors the elimination of lipofuscin, a waste aged cellular metabolism of fatty acids.

Uhoda I, Faska N, Robert C, Cauwenbergh G. Piérard GE. A thorough study of the face on the skin tension effect of 2-dimethylaminoethanol (Deanol) has convinced. Skin Res Technol 2002 Aug;8(3):164-7

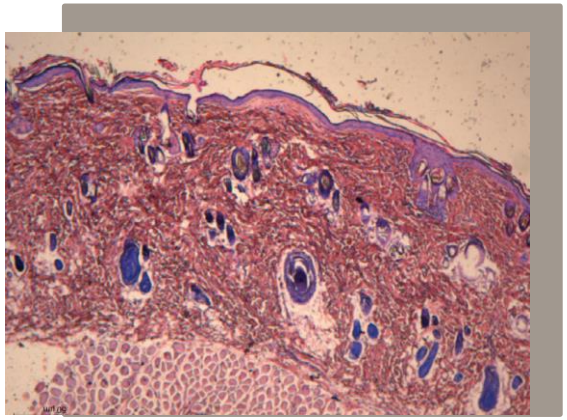
- Acetylcholine as a ubiquitous molecule resembling a cytokine that regulates basic cellular processes such as proliferation, differentiation, locomotion and paracrine and autocrine secretion.
- DMAE has been shown to be safe and effective ($p < 0.05$) in the mitigation of frontal lines and fine periorbital wrinkles, and in the improvement of the shape and fullness of the lip and the general appearance of skin aging.

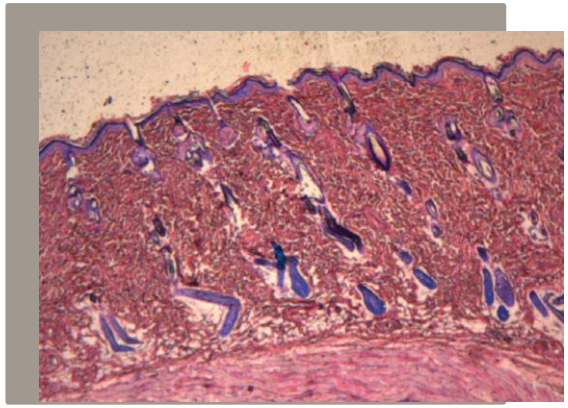


- Muscarinic acetylcholine receptors have been localized in keratinocytes, melanocytes and dermal fibroblasts, whereas nicotinic acetylcholine receptors have been found in keratinocytes.
- Potential anti-inflammatory effect and a documented increase in the firmness of the skin with possible improvement in the underlying facial muscle tone.

Grossman R.The role of dimethylaminoethanol in cosmetic dermatology. Am J Clin Dermatol. 2005;6(1):39-47.

- Elevates the epidermal and dermal thickness.
- It disposes to the dermal fibers of collagen closely.
- It produces a positive regulation on the catabolism of collagen in the repair and reconstruction of the skin.





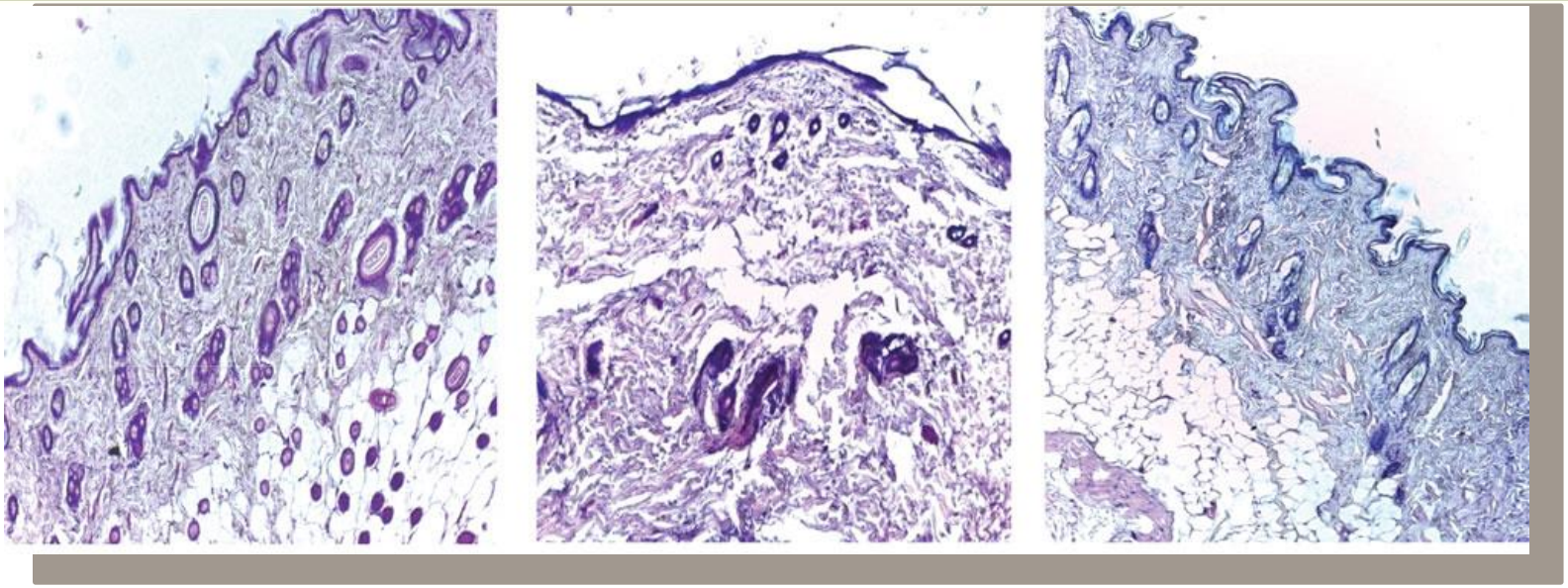
Liu S, Chen Z, Cai X, Sun Y, Zhao C, Liu F, Liu D. Effects of Dimethylaminoethanol and Compound Amino Acid on D-Galactose Induced Skin Aging Model of Rat. The Scientific World Journal Volume 2014.

Alpha Lipoic Acid

- Because of its dual solubility (in water and lipids), penetrates easily in all cell structures.
- Biochemical action similar to the vitamin B complex
- Helps in the regulation of lipid and carbohydrate metabolism.
- Metabolic Antioxidant: anti-inflammatory action to control free radicals.
- Antioxidant: It is part of the mitochondrial enzyme complex, restores its function.
- Acts in synergism with other antioxidants: Vitamin C and E.

Packer L, Witt EH, Tritschler HJ. Alpha-lipoic acid as a biological antioxidant. Free Rad Bio Med. 1995;19(2):227-250.

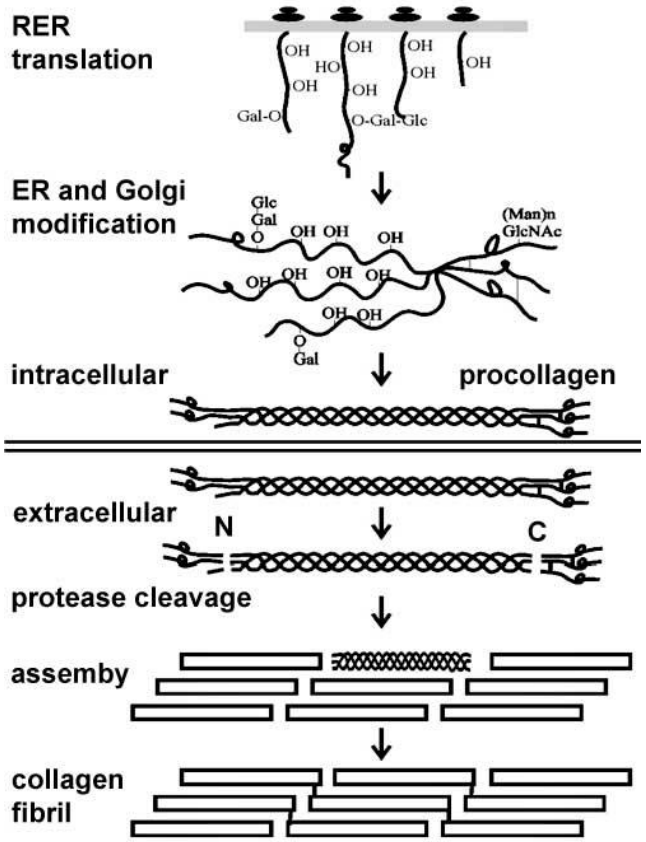
Control | Smoking | ALA-treated



It has a curative effect on cigarette-induced injuries on the skin tissues by antioxidative and anti-inflammatory effects

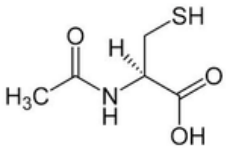
Funda Yıldırım Baş, Dilek Bayram, Bahriye Arslan, Ilkay Armağan, Şükriye Yeşilot, Emine Çiçek & Emre Yorgancıgil. Effect of alpha lipoic acid on smoking-induced skin Damage. Cutan Ocul Toxicol, Early Online: 1–7. 2016 Taylor & Francis.

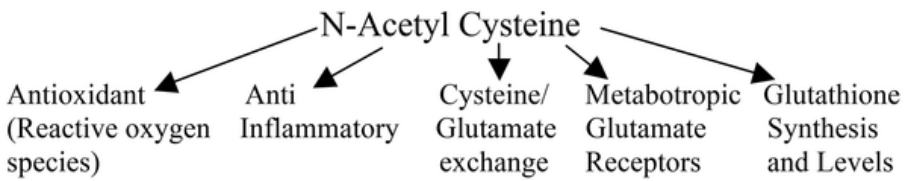
- Effectively increases the expression and, subsequently, the deposition of type I collagen.
- It facilitates the expression of prolyl-4-hydroxylase.
- Improves the synthesis of type I collagen through the activation of Smad signaling (Transcription Factors).

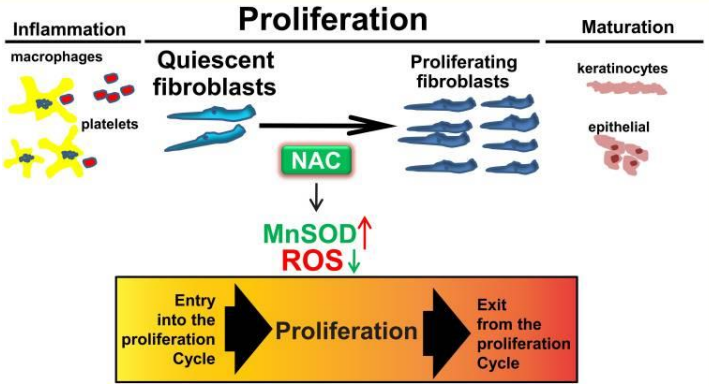


Tsuji-Naito K, Ishikura S, Akagawa M, Saeki H. a-Lipoic acid induces collagen biosynthesis involving prolyl hydroxylase expression via activation of TGF-b-Smad signaling in human dermal fibroblasts. Connective Tissue Research, 2010. 51, 378–387.

N Acetylcisteine







- Acetylated precursor of both the amino acid L-cysteine and reduced glutathione.
- Reacts directly with several ROS, including H2O2, O-2 and -OH.
- It is a pro cysteine drug and can exert its antioxidant effects by improving tissue levels of GSH.
- In fibroblasts it induces the expression of MnSOD.

Millea PJ. N-acetylcysteine: multiple clinical applications. Am Fam Physician. 2009; 80(3):265– 269.
Aruoma OI, Halliwell B, Hoey BM, Butler J. The antioxidant action of N-acetylcysteine: its reaction with hydrogen peroxide, hydroxyl radical, superoxide, and hypochlorous acid. Free Radic Biol Med. 1989; 6(6):593–597.

INNO-TDS VITAMIN COMPLEX

Deficiencies of complementary supplements for the skin, hair loss, aging, stretch marks ..... provide vitamins, minerals, amino acids and other supplements

Pyridoxine:
Cofactor necessary for more than 100 enzymes (transamination, deamination, decarboxylation). Necessary for glycolysis, gluconeogenesis and for the conversion of tryptophan to niacin.

Galimberti F, Mesinkovska N. Skin findings associated with nutritional deficiencies. 2016, 83 (10);731-739

Pantothenic acid

- Promotes the proliferation and migration of fibroblasts.
- It regulates the function of the epidermal barrier by proliferating and differentiating keratinocytes directly or indirectly through the synthesis of KGF and type IV collagen.

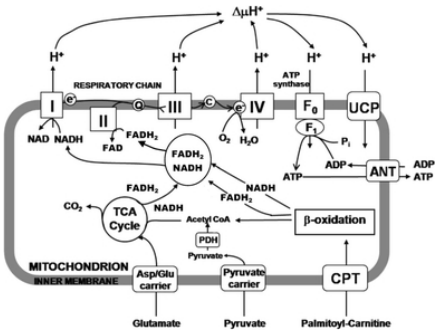
Biotin:

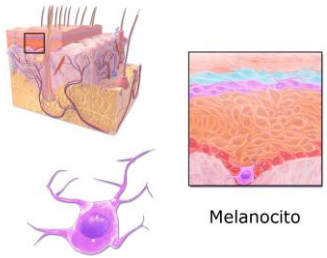
- Essential cofactor for carboxylase enzymes.
- It reduces pruritus and xerosis in atopic dermatitis.
- Improves the function of skin annexes.

Weimann BI, Hermann D. Studies on wound healing: effects of calcium D-pantothenate on the migration, proliferation and protein synthesis of human dermal fibroblasts in culture. Int J Vitam Nutr Res. 1999; 69:113–119.

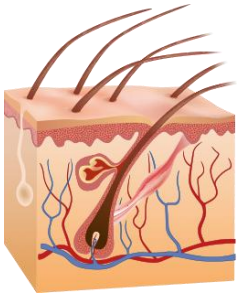
Niacinamide

- Participate in energy metabolism
- It becomes NAD, NADH, which fulfills necessary functions in oxidative respiration.
- It provides important NADP and NADPH in the synthesis of nucleic acids, fatty acids and cholesterol.





It blocks the transfer of melanosomes to keratinocytes.

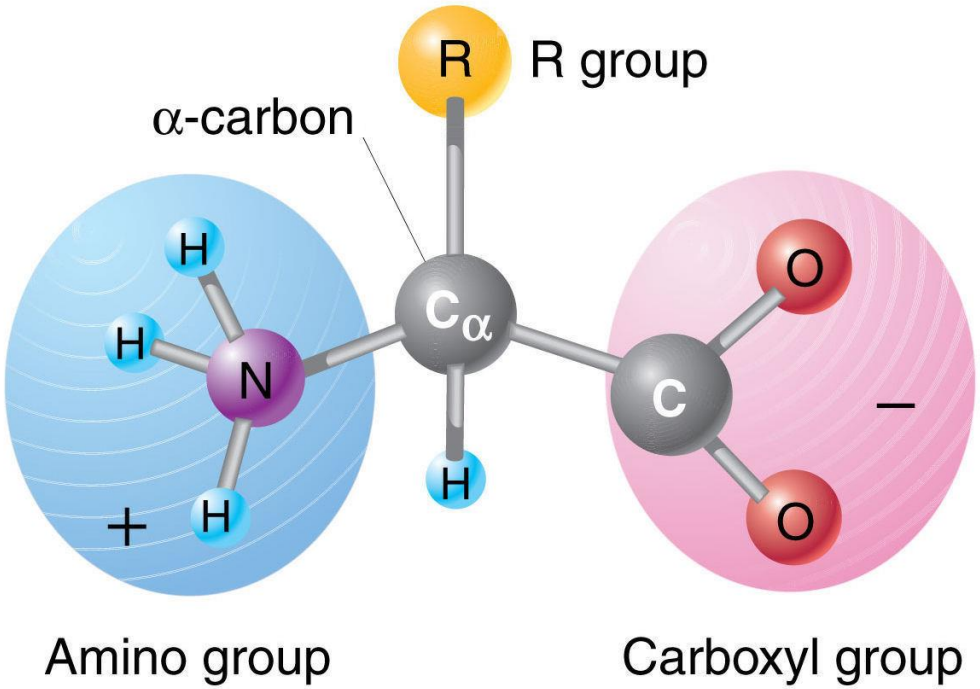


Anti-inflammatory activity and reduction of sebum production.

Hakozaki T, Minwalla L, Zhuang J, et al. The effect of niacinamide on reducing cutaneous pigmentation and suppression of melanosome transfer. Brit J Dermatol. 2002;147:20-31.
Greatens A, Hakozaki T, Koshoffer A, et al. Effective inhibition of melanosome transfer to keratinocytes by lectins and niacinamide is reversible. Exper Dermatol. 2005;14:498-508.

Amino acids

Glutamine
Alanine
Lysine
Threonine
Histidine
Tryptophan
Phenylalanine
Tyrosine
Taurine
Arginine



Facial Treatments

INNO-TDS MATRIX

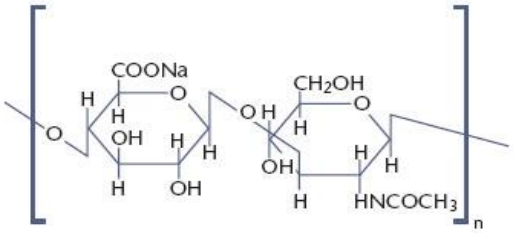
Mixture of active ingredients intended to restore the extracellular matrix, providing volume and moisture to minimize wrinkles and expression lines.

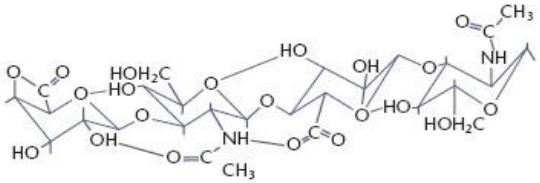
Active Ingredients

- Hyaluronic acid
- Sodium pyruvate
- Organic silicium

Hyaluronic Acid

Natural polymer composed of thousands of alternatives units of N-acetylglucosamine and glucuronic acid





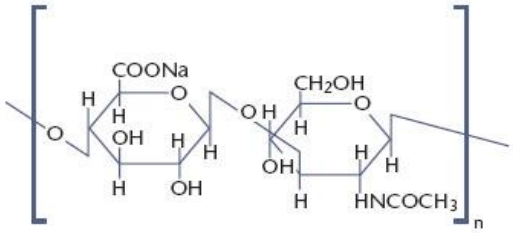
Estructura del ácido hialurónico en su forma de sal sódica

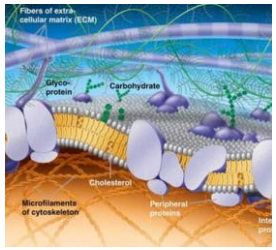
These molecules linked together give rise to a three dimensional structure which provides volume and serves to cushion.

Property of retaining large amounts of water to provide adequate hydration of the dermis.

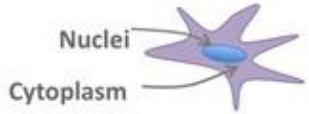
It is often associated with Bio-restorative assets to stimulate the normal metabolic processes of the skin and facilitate penetration of other assets.

Stimulation of collagen synthesis





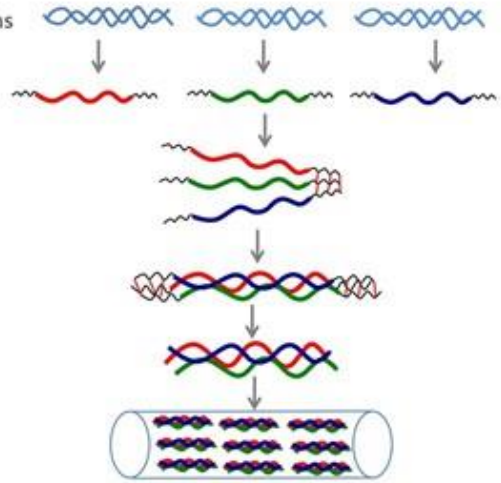
MECHANISM OF COLLAGEN FORMATION



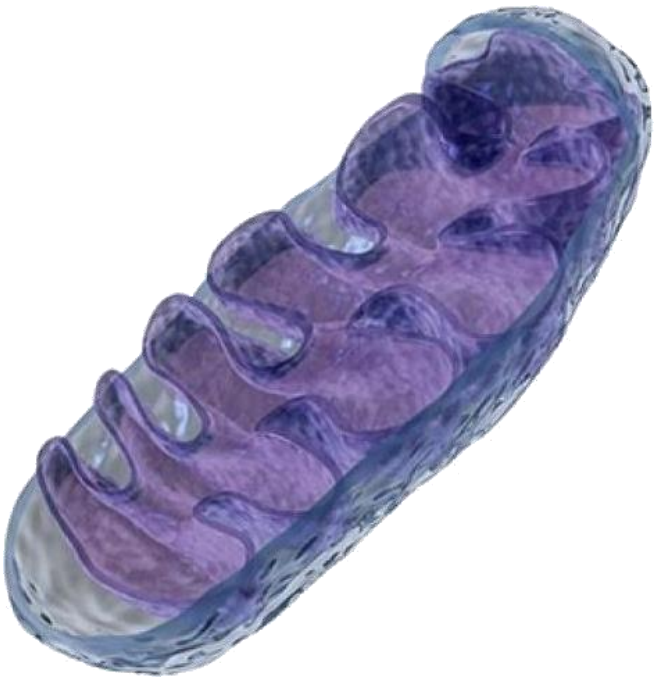
Activated Fibroblast

BIOSYNTHESIS STEPS

1. DNA genes coding for α chains
2. Transcription and translation of DNA
3. Assembly of α chains through a trimerization domain
4. Formation of Pro-Collagen
5. Formation of Collagen
6. Formation of Collagen Fibrils



Sodium pyruvate



- **Pyruvate is the most protective antioxidant against oxidative stress in both fibroblasts and ESCs**
- **Pyruvate is a powerful H2O2 scavenger in the culture medium, and also induces protective cellular mechanisms**
- **Pyruvate helps to maintain mitochondrial membrane potential in both somatic and ESCs exposed to oxidative stress**
- **Pyruvate modulates gene expression through different mechanisms in somatic and in embryonic stem cells exposed to oxidative stress**

Ramos-Ibeas P, Barandalla M, Colleoni S, Lazzari G. Pyruvate antioxidant roles in human fibroblasts and embryonic stem cells. Mol Cell Biochem. 2017. DOI 10.1007/s11010-017-2942-z

Evaluation of the application of a cocktail intradermally, through technique of vectors, in order to improve skin elasticity.

N = 10
X = 58.1 years.
Inclusion criteria:
· Female sex
· Minimum age: 45 years.
· Maximum age: 64 years.
· Patients who have signed the informed consent.
· Non-smokers
· Glogau II to III.
· No general or cutaneous pathologies.
· That they do not currently receive rejuvenation therapies.

Collazo P, Cavada M, García Guevara V. Evaluation of the application of a cocktail intradermally, through technique of vectors, in order to improve skin elasticity. 2015.

Evaluation of the application of a cocktail intradermally, through technique of vectors, in order to improve skin elasticity.

- Registration of photographic images with Canon EOS 77D + EF-S 18-55 mm f / 4-5.6 IS STM camera.
- Photograph subjected to anthropometric analysis.
- Initially, the following will be established:

a) Glabela (G): is the most prominent area of the forehead in the mid sagittal plane.
b) Subnasal (Sn): where the columella (base) ends and the upper lip begins.
c) Bicomisural line.

- Subsequently three lines are established taking as reference the points mentioned above.
- We proceeded to the mathematical measurement between lines on both sides of the face using Wintex scalemeter 30 cms.

Collazo P, Cavada M, García Guevara V. Evaluation of the application of a cocktail intradermally, through technique of vectors, in order to improve skin elasticity. 2015.

- The corresponding height between the bicomisural line and the subnasal line was taken as an evaluative measure.
- Initial data before starting treatment: The average is 27.2, the variance is 9.16 and the standard deviation is 3.02654919008431.
- The data at the end of the treatment: The average is 23.7, the variance is 7.61 and the standard deviation is 2.75862284482674.
- The P value is <0.0001, which, by conventional criteria, this difference is considered statistically significant.
- The mean of the Pre-Treatment Measures minus the Post-Treatment Measures.
- equals 3.50 and the Confidence Interval is 95%.

Collazo P, Cavada M, García Guevara V. Evaluation of the application of a cocktail intradermally, through technique of vectors, in order to improve skin elasticity. 2015.

INNO TDS FACE NADE

Product specially designed to improve facial contour by reducing fatty deposits.

Ingredients

- Carnitine
- Cynara Scolymus
- Melilotus officinalis
- Caffein
- Sodium dexicholate

Carnitine

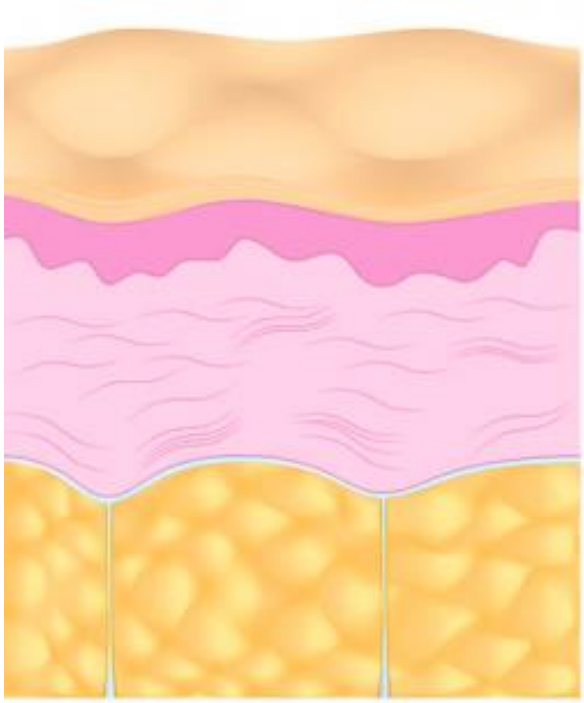
- Modulates lipid metabolism and y β oxidation.
- Transports chains of fatty acids to the mitochondria using them as an energy source.
- Increases the oxidation of fatty acids.
- Maintains high activity of the enzime pyruvate dehydrogenase.
- Acts as antioxidant of the lipid membrane.

Mak-Soon Lee. L-Carnitine stimulates lipolysis via induction of the lipolytic gene expression and suppression suppression of the adipogenic gene expression in 3T3-L1 adipocytes. J Med Food 2006; 9(4): 468-473.
Lee MS. L-carnitine stimulates lipolysis via induction of the lipolytic gene expression and suppression of the adipogenic gene expression in 3T3-L1 adipocytes. J Med Food 2006; 9(4): 468-73.

Cynara scolymus

Contains flavones, mainly apigenin and luteolin glycosides, which have been reported to act as phosphodiesterase inhibitors.

Powerful antioxidant activity attributed to phenolic compounds.

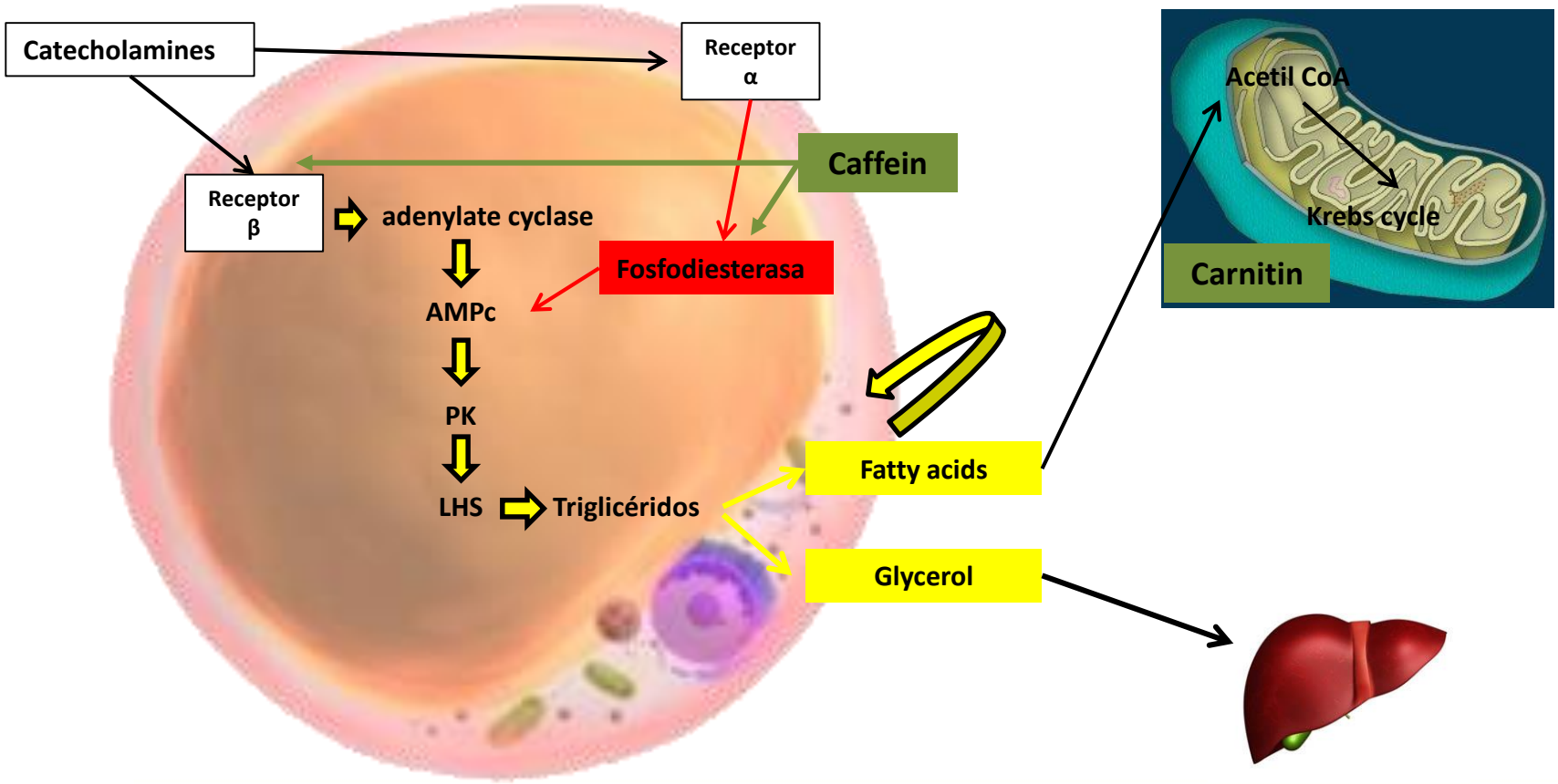


Increases the activity of the human eNOS promoter, the expression of eNOS mRNA and the eNOS protein expression.

It recovers the basic pH of the tissue and returns the balance to the structure of adipose tissue.

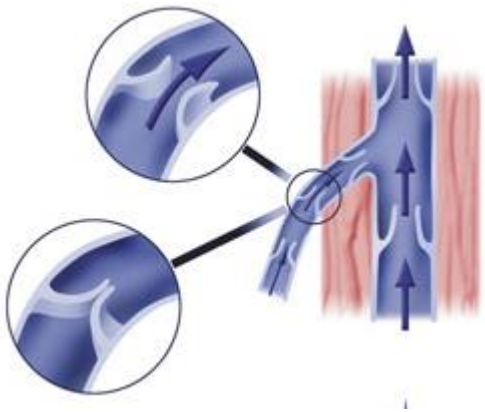
Huige Li, Ning Xia, Isolde Brausch, Ying Yao, Ulrich Förstermann. Flavonoids from Artichoke (*Cynara scolymus L.*) Up-Regulate Endothelial-Type Nitric-Oxide Synthase Gene Expression in Human Endothelial Cells. The Journal of Pharmacology and Experimental Therapeutics. 2004. Vol. 310, No. 3

Caffein & Carnitin



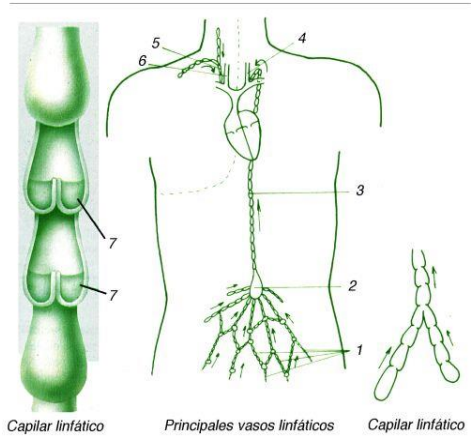
Velasco, M. V.; Tano, C. T.; Machadosantelli, G. M.; Consiglieri, V. O.; Kaneko, T. M.; Baby, A. R. Effects of caffeine and siloxanetriol alginate caffeine, as anticellulite agents, on fatty tissue: histological evaluation. Journal of Cosmetic Dermatology, v. 7, n. 1, p. 23-29, 2008.

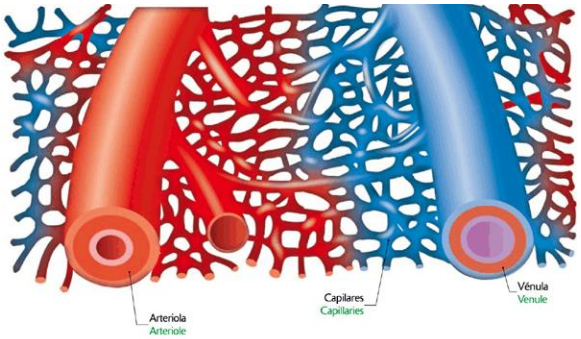
Melilotus Ext.



Venotonic

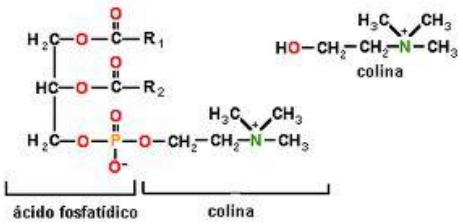
- Stimulates linfagion.
- Effect linfoquinetico.

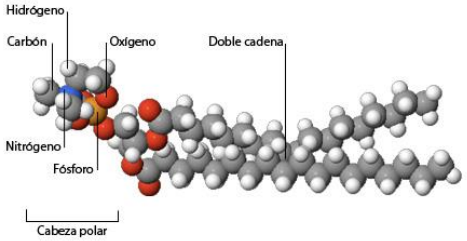




- Relaxes the precapillary sphincter.
- It improves blood flow.

Lecithin



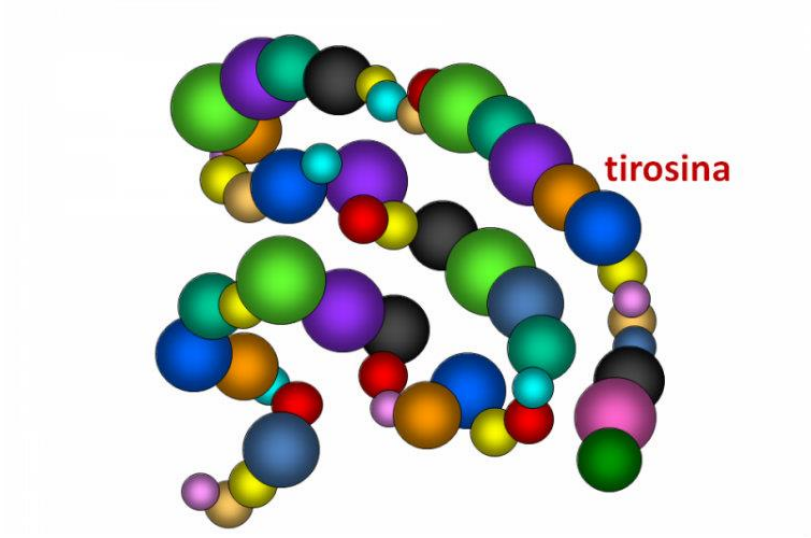


- In the subcutaneous application of phosphatidylcholine, deacilation also plays a role in adipocyte penetration.
- Through scientific research it was found that phosphatidylcholine in fatty tissue is hydrolyzed through phospholipase A2 and D, resulting in apolar phosphorylated acids and polar hills.
- The hills are lipotropic substances that function as emulsifiers that activate the enzymes dependent on Protein Kinase.

Hasengschwandtner F. Phosphatidylcholine treatment to induce lipolysis *Journal of Cosmetic Dermatology, 2005*, 4, 308 – 313.
Hasengschwandtner F. Injection Lipolysis for Effective Reduction of Localized Fat in Place of Minor Surgical Lipoplasty. Aesthetic Surg J 2006;26:125-130.

Tyrosine

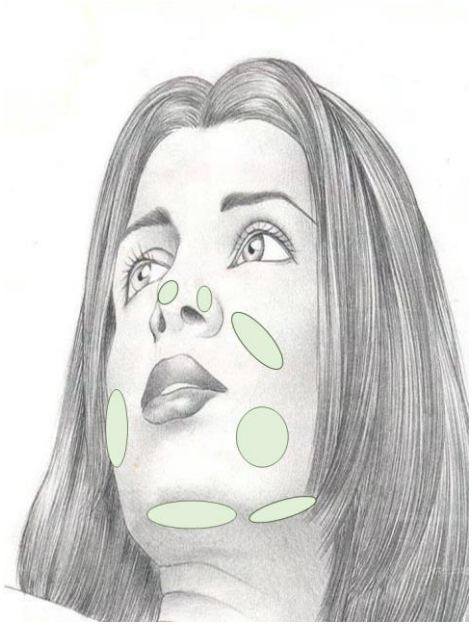
- Catecholamines are synthesized from Tyrosine.
- The most important control point in the regulation of catecholamine synthesis is a tyrosine hydroxylase level.
- The increase in the availability of catecholamines allows a greater activity of the induction of lipolysis through the stimulation of β-adrenergic receptors in adipocytes



Klaman LD, Boss O, Peroni OD, Kim JK, Martino JL, Zabolotny JM, Moghal N, Lubkin M, Kim Y, Sharpe AH, Stricker-Kongrad A, Shulman GI, Neel BG, Kahn BB. Increased Energy Expenditure, Decreased Adiposity, and Tissue-Speci®c Insulin Sensitivity in Protein-Tyrosine Phosphatase 1B-De®cient Mice. Molecular and Cellular Biology. 2000, 5479-5489.

Application Technique

- Aseptic area.
- Take 2.5 milliliters (ml) in syringes of 1 or 2.5 ml calibrated 2 in 2, place a 4 mm needle (30 G, 32 G or 34 G).
- Administer with point-to-point technique, separated every 1 centimeter, applying 0.02 milliliters.
- Final asepsis
- Hold a session every 15 days for 4 sessions.



Mixture of ingredients that will allow adequate cell stimulation in order to reconstitute connective tissue.

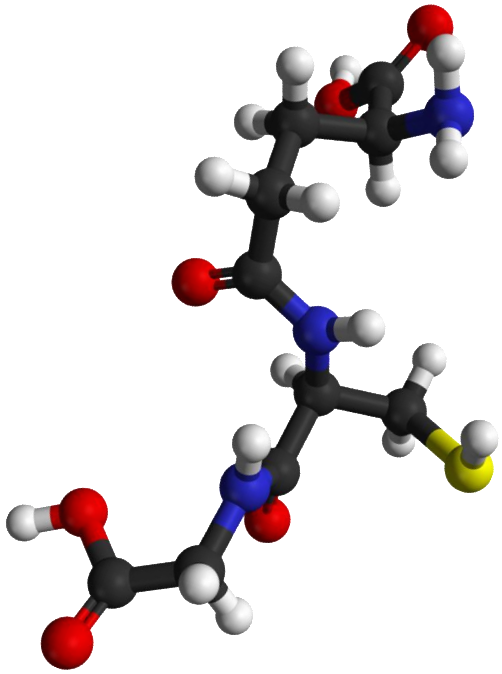
DNA

- They have physical and chemical properties that help the process of biorevitalization, biostimulation.
- Stimulate the metabolic activity of fibroblasts.
- Increase the formation and deposition of type III collagen.
- They have a capacity to capture water that is estimated at 10,000 times its volume.
- Thanks to their configuration they have a powerful cellular antioxidant effect.

Squadrito F, Bitto A, Irrera N, Pizzino G, Pallio G,Minutoli L, Altavilla D. Pharmacological Activity and Clinical Use of PDRN https://doi.org/10.3389/fphar.2017.00224

Peptide Complex

Tripeptide-1, Tripeptide-5, Tetrapeptide-3: stimulate the synthesis of extracellular matrix proteins such as type I collagen, type III collagen, elastin, fibronectin and laminin. Activate the action of growth factors such as TGF-β that directly affects the fibroblast to generate protein synthesis, and decrease the activity of metalloproteinases.



Sodium Hyaluronate

- **Increase the expression of procollagens I, III, IV and VII.**
- **Increases deposits of type I and Type III collagen in the skin.**

Quantitative analysis of the polymerase chain reaction with reverse transcriptase.

Immunosorbent assay analysis linked to enzymes and corroborated by histological means.

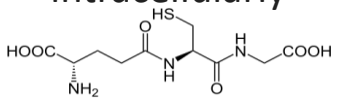
- Significantly increases the expression of the elastin gene and skin proteins.
- It increases the expression of the fibrillin-1 gene and versican, which are essential for the assembly and functional integration of elastin fibers in the extracellular matrix.

Mechanical stimulation that triggers the synthesis of collagen in dermal fibroblasts through a signaling pathway of transforming growth factor β.

Hinek A, Braun KR, Liu K, Wang Y, Wight TN. Retrovirally mediated overexpression of versican v3 reverses impaired elastogenesis and heightened proliferation exhibited by fibroblasts from Costello syndrome and Hurler disease patients. Am J Pathol. 2004;164:119–131.
Kielty CM, Sherratt MJ, Shuttleworth CA. Elastic fibres. J Cell Sci. 2002;115:2817–2828.

Gluthatione

Antioxidant synthesized intracellularly



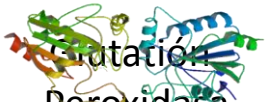
Neutralizes the action of the radicals Anionic Superoxide, Hydrogen Peroxide, Singulete Oxygen, radical of polyunsaturated fatty acid.
Participate in the regeneration of Vitamin C.

Greater intracellular distribution

Higher epidermal concentration

It is part of different enzymes

- Glutatión-Peroxidasa
- Glutatión-Reductasa
- Glutatión-S-Transferasa

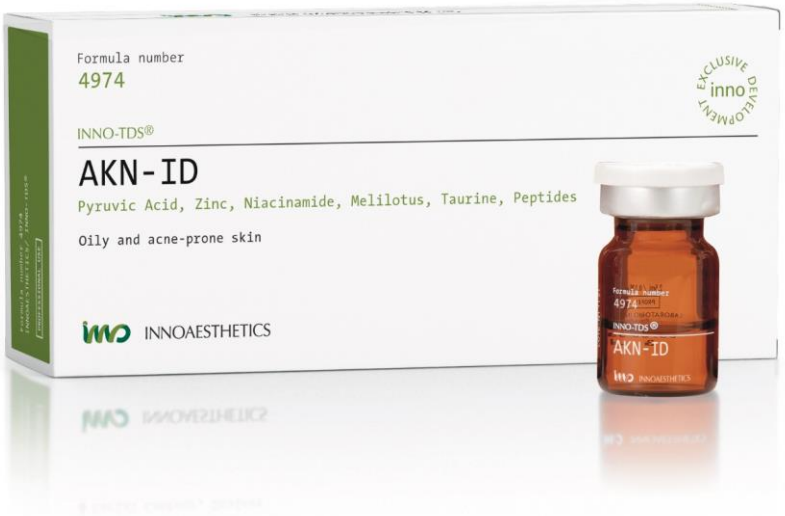


Glutatión-Peroxidasa

* Protects the lipids of cell membranes, neutralizing the Radical Hydroxyl in the presence of Selenium.

* Eliminates and controls the action of peroxides radicals, harmful intracellularly.

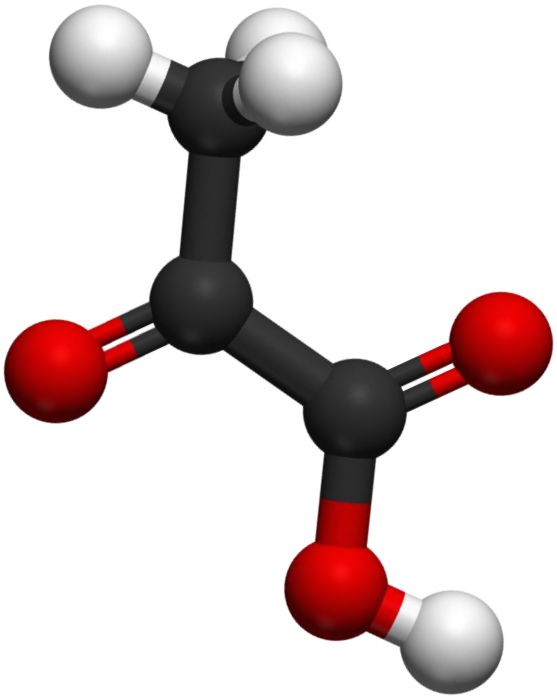
Weschawalit S, Thongthip S, Phutrakool P, Asawanonda P. Glutathione and its antiaging and antimelanogenic effects. Clinical, Cosmetic and Investigational Dermatology. 2017:10 147–153



Powerful seboregulatory and anti-inflammatory activity.

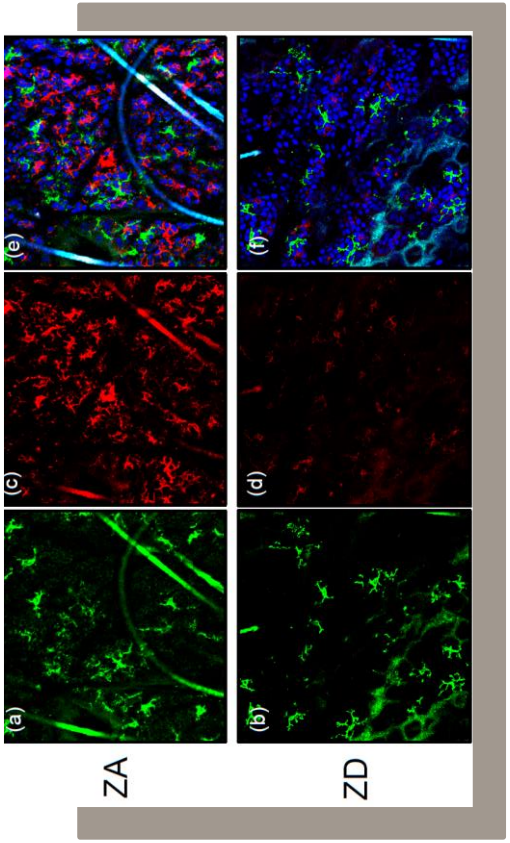
Pyruvic Acid

- Powerful keratolytic activity.
- Control sebum production.
- Antibacterial activity
- Increase the synthesis of collagen and glycoproteins.



Zinc

- ZIP2 and ZIP4 contribute to the proliferation and differentiation of keratinocytes.
- ZIP10 is essential for skin homeostasis and epidermal formation.
- Zn deficiency induces the apoptosis of Langerhans cells through a synergy of its direct effect and the altered expression of TGF-β1.

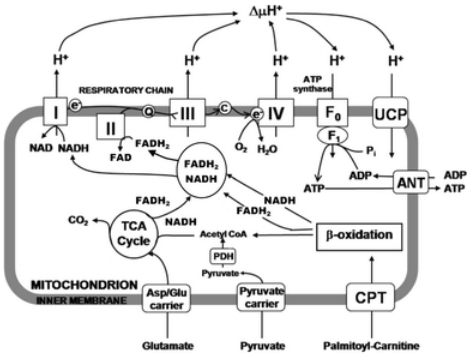


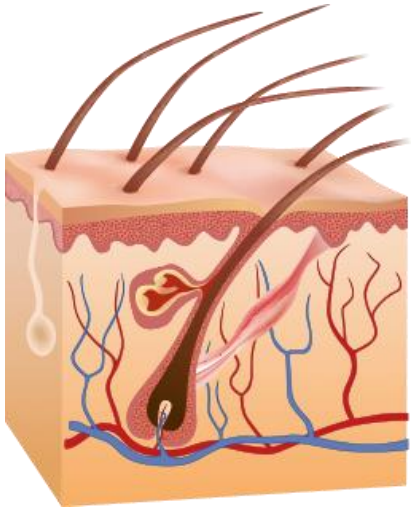
Ogawa Y, Kinoshita M, Shimada S, Kawamura T. Zinc and Skin Disorders. Nutrients 2018, 10, 199.
Bin B, Hojyo S, Seo J, Hara T, Takagishi T, Mishima K, Fukada T. The Role of the Slc39a Family of Zinc Transporters in Zinc Homeostasis in Skin. Nutrients 2018, 10, 219.

- Maintenance of the immune response by preserving the function of macrophages and neutrophils.
- Inflammatory regulation by inhibition of the production of IL-6 and TNF-a.
- Inhibition of the production of inflammatory mediators, such as nitric oxide.
- Inhibition of integrin and toll-like receptor expression by keratinocytes, acting as an anti-inflammatory agent.
- Direct inhibition of the proliferation of P. acnes.
- Inhibition of 5a-reductase by blocking the conversion of testosterone into dihydrotesterone (DHT) and suppressing the activity of the sebaceous glands.

Niacinamide

- Participate in energy metabolism
- It becomes NAD, NADH, which fulfills necessary functions in oxidative respiration.
- It provides important NADP and NADPH in the synthesis of nucleic acids, fatty acids and cholesterol.





Anti-inflammatory activity and reduction of sebum production.

Thank You Very Much