PROVITAL GROUP

citrustem™

Orange stem cells. Organizes the inner structure of the skin for a younger appearance

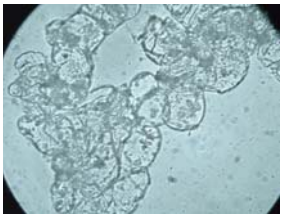
What are plant stem cells?

They are undifferentiated cells that have the capacity to regenerate the whole plant.

Its use is a very sustainable way to obtain the benefits of plants because you don't need to cultivate them, no land, no pesticides, less water is needed, and they are absolutely traceable and available at convenience.



Orange stem cells



citrustem™, obtained from orange stem cells with anti-aging effect, is the first launching of Provital Stem Cells Collection

Skin aging and order

As skin ages, collagen and elastin fibers, that form the extracellular network, become disordered, unstructured and sparse.

The dermis loses density and skin shows aging signs:

- The skin elasticity decreases and wrinkles appear.
- The microrelief structure becomes more anisotropic resulting in a loss of softness and velvety touch.

Keeping the skin inner structure organized is essential for a younger looking skin



citrustem™

- **Organizes and redensifies the dermis structure.**
- **Restores the extracellular network improving cells adhesion.**
- **Recovers the quality of a young skin.**

...The architect of skin

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In vitro efficacy

Improvement of extracellular matrix structure

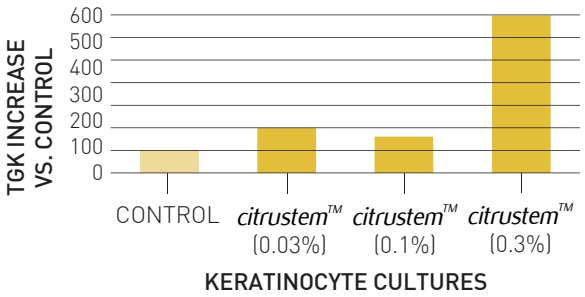
All these genes are related to quality and structure of extracellular matrix:

- **Collagen VI:** cell adhesion properties and a diverse range of extracellular matrix protein binding activities.
- **Elastin:** the most important protein for good skin appearance.
- **ADAM metallopeptidase:** facilitates collagen function and assembly.

Gene	% vs. Control
Collagen, type VI, alpha 1	239
Elastin	251
ADAM metallopeptidase with thrombospondin type 1 motif, 2	245

Stimulation of TGK production in the epidermis

TGK is an essential enzyme for the epidermis. An increase in its synthesis means better assembly and organization of epidermal structures:



Stimulation of fibroblasts proliferation

Cell	Treatment	% vs. Control P17-NHDF
P17-NHDF	Control	100
P17-NHDF	*citrustem*™ (0.03%)	108
P17-NHDF	*citrustem*™ (0.1%)	111
P17-NHDF	*citrustem*™ (0.3%)	123

Aged fibroblasts increase their proliferation capacity with *citrustem*™.

The synthesis of collagen and other key elements of the extracellular matrix grow.

In vivo efficacy

(*) statiscally significant

20 women between 41 and 55 years old, who used a 3% formula of *citrustem*™, compared with a placebo formula. Applied twice a day for 56 days.

Desquamation regulation

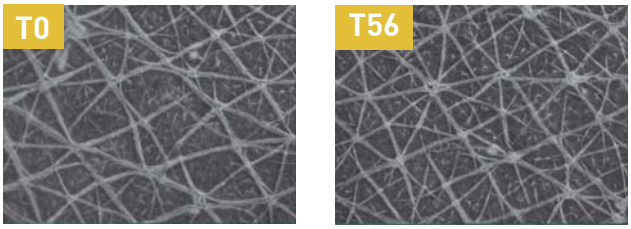
The stratum corneum is more cohesive, with fewer scales.

The skin is smoother and recovers its velvety touch.

Product	T0	T56	% increase
Placebo	4.20	4.45	5.95
citrustem™ (3%)	4.00	4.70	17.50*
citrustem™ - placebo			11.6*

Microrelief improvement

The improvement on the microrelief is the visible result of an organized and better structured dermis.



Biological elasticity Ur/Uf (R7) by Cutometer®

Product	T0	T56	T56 - T0	% increase
Placebo	0.633	0.634	0.001	0.09
citrustem™ (3%)	0.613	0.675	0.062	10.15*
citrustem™ - placebo				10.1*

With *citrustem*™, the skin will recover the biological elasticity that had 12 years ago.

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