SYNERGIE SKIN
CLEAN SCIENCE

CLINICAL DATA – HEMATITE EXTRACT

The iron rose, the stone of regeneration
Precious stones, brilliant crystals; rare or more widespread, gems catch the eye; they are irresistibly attractive.

These stones fascinate, by a blend of mystery and perfection. One look at them is enough to guess their hidden properties.

The supplier has rediscovered Hematite, a bewitching stone and new jewel in the Mineral Matters range.

Usually massive, opaque and metal-coloured, Hematite is an iron oxide (Fe_2O_3), also present in short, black crystals with a sometimes iridescent surface. Arranged in flower petals, the crystal is called the "iron rose".

A very tangible stone, Hematite develops our listening capacity. Legend has it that owing to its red colour, the Ancients believed that Hematite protected against injury in battle.

But the main properties of Hematite concern its regenerating capacity.

It is used in circulatory problems, helps to reabsorb bruises and favours the healing of wounds.

History tells us that Hematite was first described by Pliny who named it in reference to the red colour of its powder, the colour of blood.

Hematite is found in effusive magma rock, in hydrothermal seams… and even on planet Mars!

An Iron Constitution
Iron is a trace element, essential for the good health of the organism.

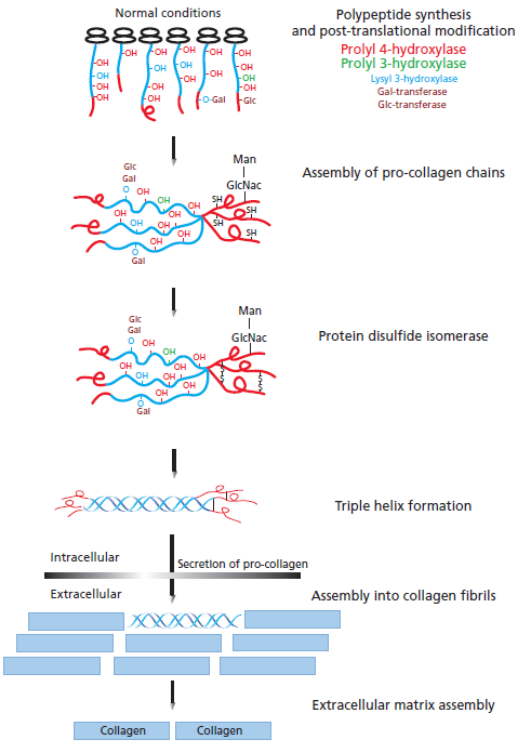
Iron allows the cells to breathe. It is found in haemoglobin in the red blood cells and in the cell respiratory chain (cytochrome chain).

Iron intervenes in several enzymatic reactions right inside the cells.

It helps the smooth running of iron co-factor catalases, enzymes that help the cells to fight free radicals.

It participates in the metabolic activity of the cell nucleus, DNA synthesis and in reactions of the energetic metabolism.
Like the blood of the earth, Hematite extract has a powerful red colour. A stone extract rich in iron, Hematite extract brings to the skin all the power of the earth to reinforce the skin tissue.

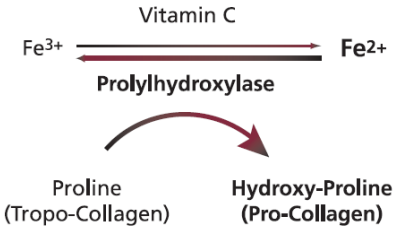
Collagen: the skin's support



Collagen is naturally produced by the body. It is one of the main components of the skin synthesised by specialised cells: fibroblasts.

Collagen has a dual biological role. Firstly, with elastin, proteoglycans and glycoproteins, it forms the Extracellular Matrix that binds together tissues and organs. Secondly, the collagen gives the different tissues, and the skin in particular, their strength, suppleness and elasticity.

Collagen synthesis from precursors requires several steps of maturation including a step of proline hydroxylation into hydroxyproline in the presence of vitamin C and iron, thanks to prolylhydroxylase.



This post-translational modification helps to stabilise the pro-collagen molecule and allows its effective excretion in the inter-cellular space.

Without this reaction, or in the case of vitamin C or iron deficiency, the pro-collagen produced has an abnormal structure and remains blocked within the cells.

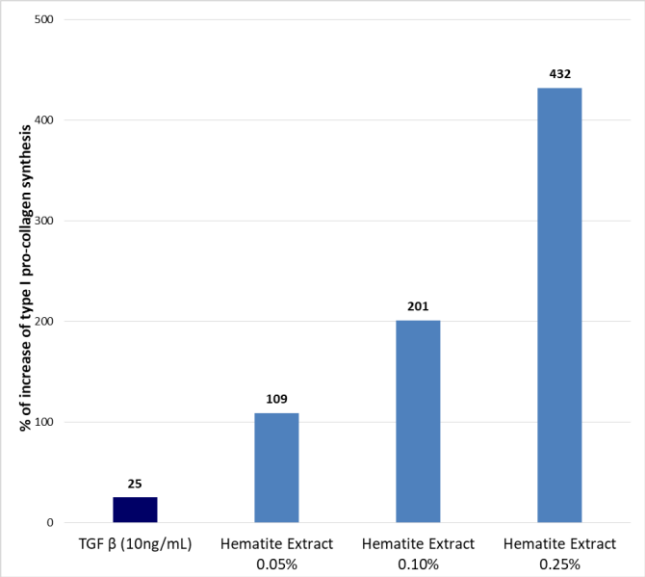
Hematite extract has a stimulating effect that helps reactivate pro-collagen synthesis and restore the tone and strength of mature skin.

Substantiation

Although there are various molecules capable of stimulating collagen synthesis, Vitamin C is one of the most frequently used. With Hematite extract, a complex rich in natural iron, the supplier proposes an innovative and effective alternative.

Hematite – the anti-ageing jewel

Hematite extract was first tested on human fibroblasts to evaluate its capacity to increase synthesis of type I pro-collagen.



This initial *in vitro* test shows that Hematite extract significantly increases synthesis of type I pro-collagen within the cultured human dermis cells.

Its dose-dependent action is 4 to 16 times more powerful than TGF ß, a benchmark growth factor that stimulates pro-collagen synthesis.

By studying its means of action, we have been able to demonstrate that Hematite extract acts directly on one of the key enzymes in pro-collagen synthesis: prolylhydroxylase.

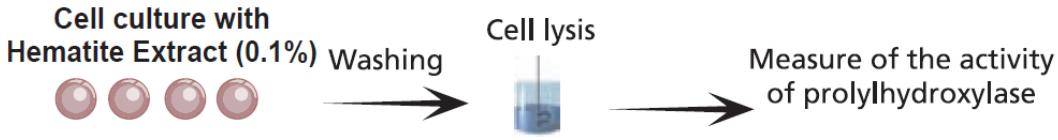
A genuine regeneration agent, Hematite extract will boost synthesis of the supporting tissue of the dermis. Hematite extract thus helps the skin to restore its density, and regain its firmness from within.

Two complementary studies demonstrate the action mechanism of Hematite extract. Iron input stimulates the activity of the prolylhydroxylase enzyme, thus increasing pro-collagen synthesis.

Stimulation of Prolylhydroxylase
An initial direct test, on a fibroblast lysate containing prolylhydroxylase, shows that Hematite extract acts effectively on this specific enzyme.

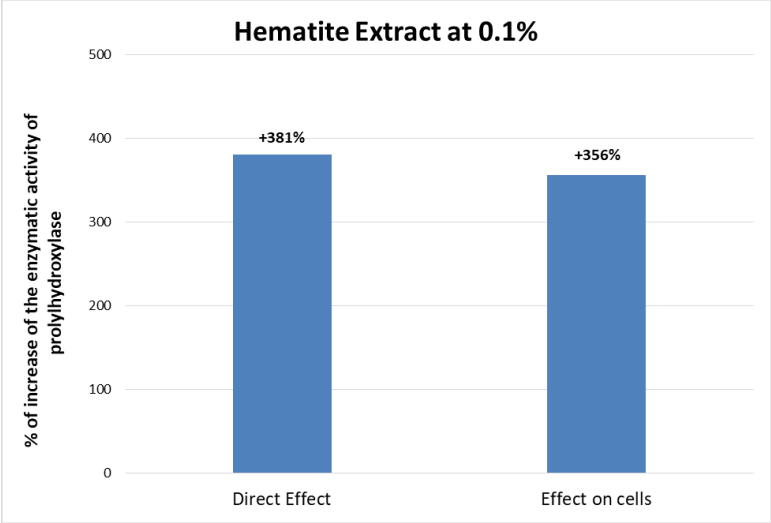
This study proves that Hematite extract, used *in vitro* at 0.1%, increases prolylhydroxylase activity by 381%.

Secondly, we checked if Hematite extract was capable of penetrating into the cells and inducing an identical action to the one already observed.



There is an identical action with an increase of over + 356% in enzymatic activity.

Hematite extract is therefore capable of acting right inside the cells, to stimulate enzymatic activity of prolylhydroxylase, thus increasing fibroblast production of pro-collagen.



Hematite – the beauty talisman

With its stimulating action on collagen synthesis, Hematite extract is aimed at top-of-the-range rejuvenating skincare products. A genuine jewel of a treatment, Hematite extract, through its renewing power, slows down the skin's ageing process.

This innovative active ingredient helps to optimise production of good quality and functional collagen, helping fill wrinkles in-depth, for a plumping up effect on the skin.