mibelle GROUP biochemistry

PhytoCellTec™ Symphytum - Stem Cell Activation for Smoother and More Even Skin

Comfrey cells enhance proliferation of our skin stem cells for an increased epidermal turnover rate

The skin forms a barrier that protects us against dehydration and external threats. This barrier function is provided mainly by the outer skin layer, called the epidermis. This layer is constantly renewed; cells that are shed from the outer layer, the stratum corneum, are replaced by newly formed cells from the inner layer of the epidermis. This constant renewal is important for the quality of the barrier and keeps the skin smooth and even. The epidermal turnover time is about 1 month. But between our thirties and eighties the turnover rate reduces by 30 to 50% leading to a much longer turnover time. The consequence of the slowdown of the renewal in elderly people is a dry, rough, uneven and dull skin.

Responsible for the constant renewal are skin stem cells that are dispersed in the inner layer of the epidermis. Only these cells have the potential to generate new cells for tissue renewal. But the rate of propagation of these cells is known to be reduced in elderly people. This is the principal reason for the reduced turnover rate and thus for the slowdown of the epidermis renewal with advancing age.

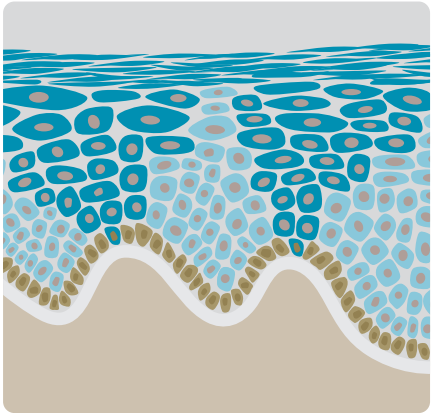
Comfrey (Symphytum officinale) is a perennial shrub with purple or pink flowers, native to Europe, growing in damp, grassy places. Comfrey is used as herbal medicine, mainly for skin treatments. Comfrey ointments are applied for wound-healing and the treatment of bone fractures.

PhytoCellTec™ Symphytum is an extract of comfrey stem cells. The plant cell culture technique was used to produce the plant raw material in an ecological and sustainable way. The technique is based on the cultivation of dedifferentiated plant cells. Comfrey root was used to start the culture of plant stem cells.

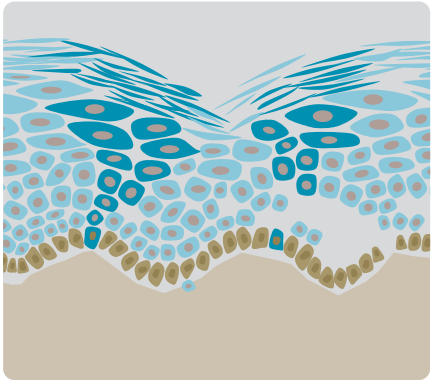
PhytoCellTec™ Symphytum activates the propagation rate of our epidermal stem cells. It thus restores the renewal potential of aged skin. The positive effect of the comfrey cell extract on the propagation rate of epidermal stem cells was discovered in a novel cell culture assay with isolated human epidermal stem cells. Like in real skin, isolated epidermal stem cells proliferate and differentiate forming vertically all the different epidermal cell layers including a stratum corneum. Morphology (thickness) and hyaluronic acid content of the epidermis models were clearly improved when the epidermis was formed in a medium supplemented with the comfrey cell extract.

Next, the comfrey cell extract was formulated into a vehicle cream and was tested in a clinical trial with 20 women, aged between 40 and 60. After 4 weeks application, a significant increase in the skin renewal rate was found. Concomitant, skin smoothness analysis by PRIMOS showed a 12% improvement.

As we get older, the skin renewal slows down leading to an uneven surface and the formation of scales. This has a negative influence on skin complexion and makes the skin look dull and grey. Instead of using irritating peeling procedures, Mibelle Biochemistry Group proposes PhytoCellTec™ Symphytum to get down to the root of the trouble. PhytoCellTec™ Symphytum stimulates the proliferation of stem cells in the inner layer of the epidermis compensating for the usual deterioration during aging. It leads to an improved epidermal turnover rate and finally to a smoother skin and to a much better skin complexion.



Young skin
Stem/progenitor cells in the epidermis replace cells shed from the outer layer
- efficient barrier function
- smooth skin



Aged skin
The regenerative capacity of stem/progenitor cells is reduced
- epidermal turnover rate decreases
- thinner epidermis
- dry, rough and dull skin