



Plant stem cells in cosmetics

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introduction



1

Stem cells are becoming increasingly popular in public lexicon owing to their prospective applications in the biomedical and therapeutic domains.

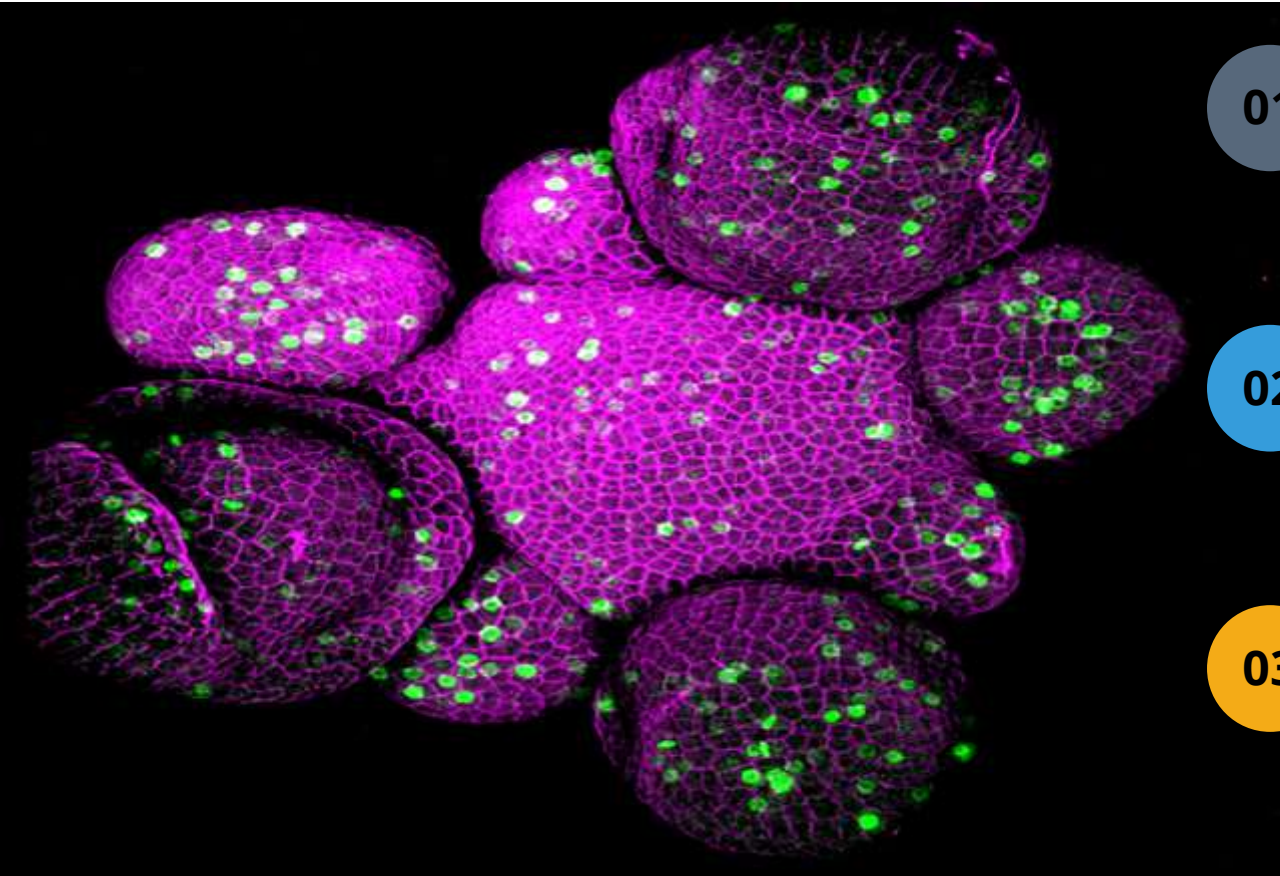
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applications of plant stem cells:

- Anti-wrinkle
- Protecting human stem cells
- skin whitening
- de-tanning
- Moisturizing
- Cleansing
- Anti-aging

Plant stem cells

Plant stem cells are innately undifferentiated cells present in the plant's meristematic tissues.



01

characteristic features

02

sources

03

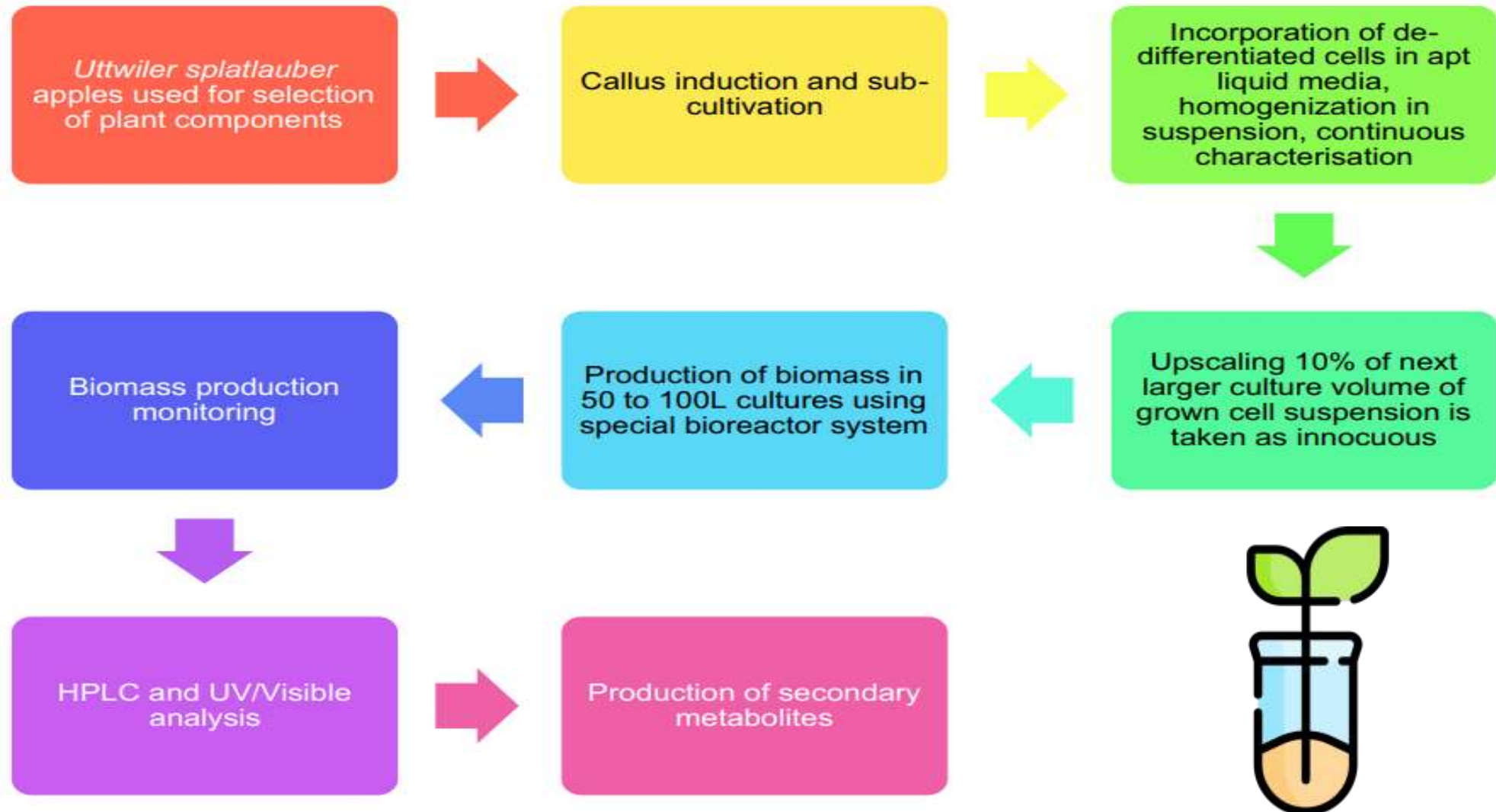
type

Plant stem cells vs animal stem cells



In mammals, the biggest drawback of stem cells is that specialized cells are unable to return to their original undifferentiated state. This limitation is overcome in case of plant stem cells which are capable of reverting to their original state without any external manipulation. Plants undertake a natural reprogramming process in order to replenish their stem cells.

Propagation of plant stem cells in culture



Plant stem cells extracts

species

gardenia (*Gardenia jasminoides*)

Echinacea (*Echinacea purpurea*)

lilac (*Syringa vulgaris*)

orange (*Citrus sinensis*)

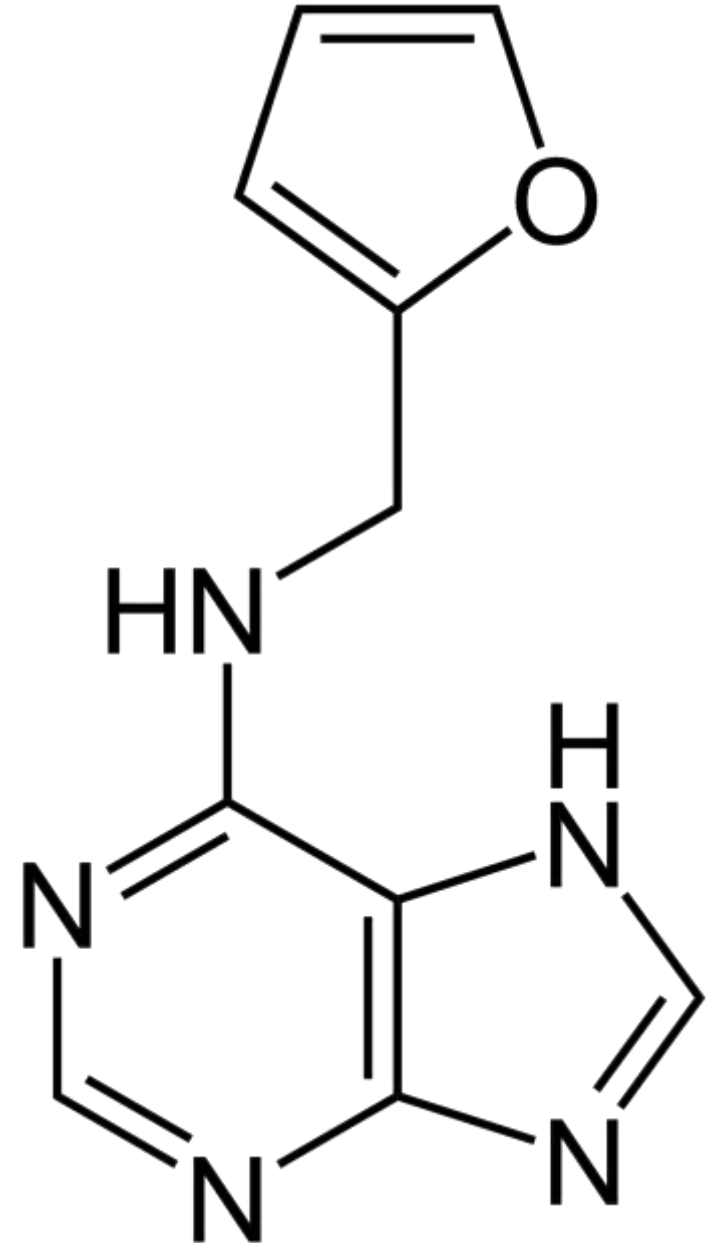
aplications

- Prolongation of fibroblasts life
- Increased epidermis flexibility
- Regulation of cell division
- Reconstruction of damaged epidermis
- Activation of cell DNA repair
- Protection against UV radiation



kinetin


According to some studies, one of the strongest inhibitors of the human cell aging process is kinetin, which is a cytokinin found in high concentrations in stem cells of, for example, citrus fruits and raspberries.



Protecting human stem cells



Uttwiler spatlauber species

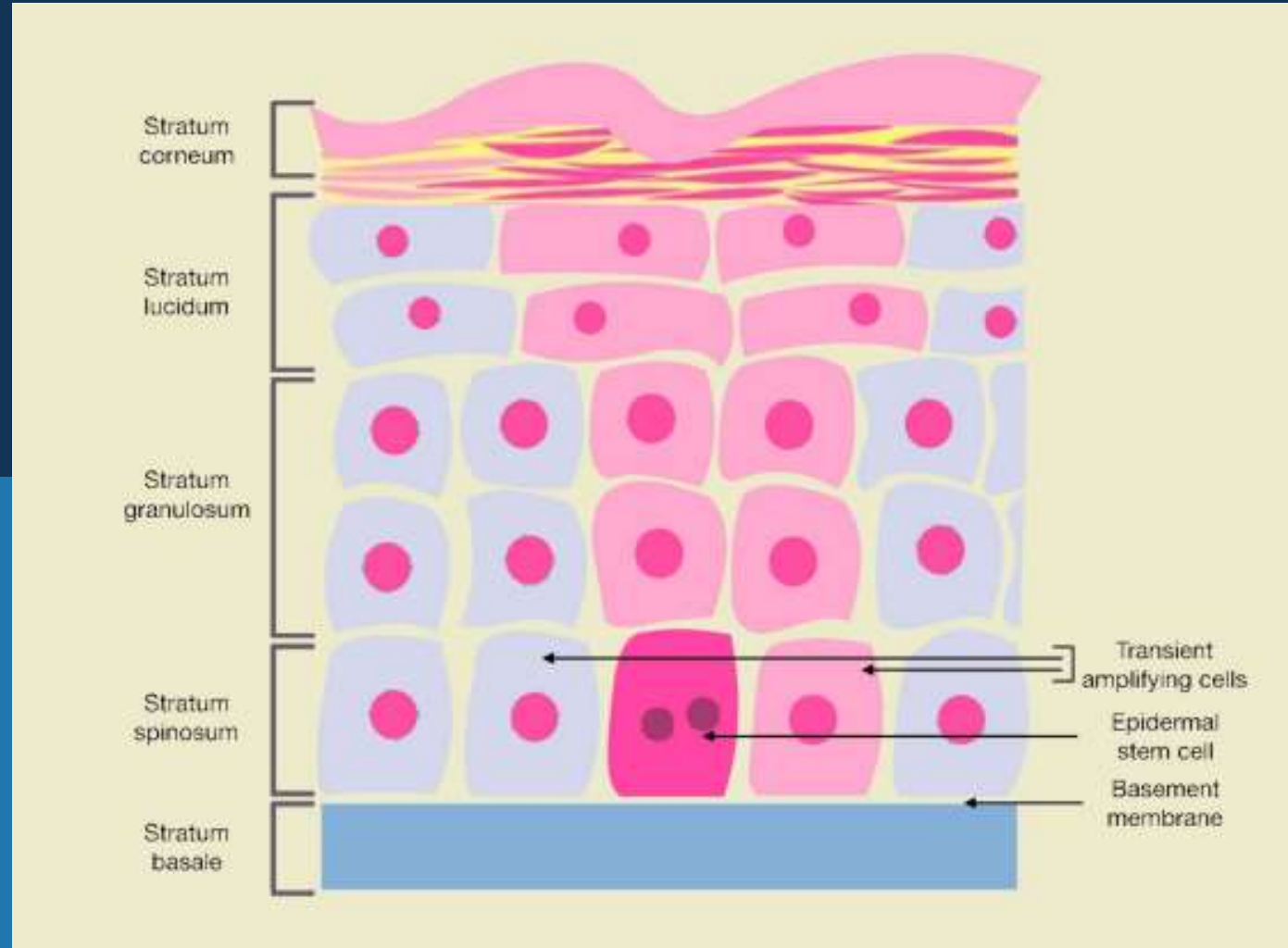


It was concluded that 50% of the cells cultured in the growth medium alone died, whereas the cells which were cultured in the presence of an extract of stem cells from Uttwiler spatlauber were found to have experienced only a small loss in terms of their viability.

Reversing signs of senescence in fibroblast cells



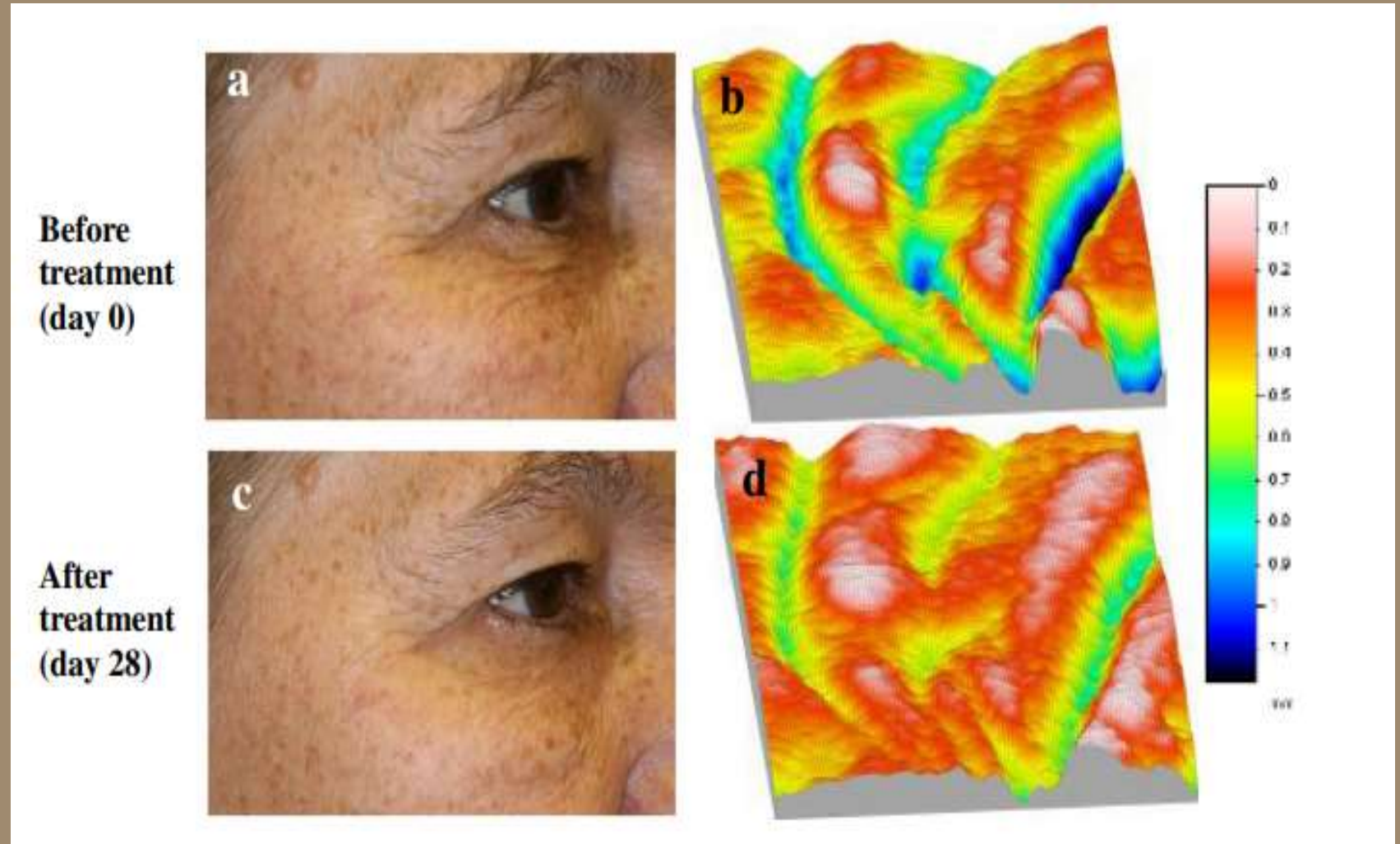
Senescence is described as a natural process in which after dividing 50 times, the cell loses its ability to undergo any further divisions



Anti-wrinkle effect



The application of PhytoCellTec™ *Malus domestica* cream was reported to markedly reduce the depth of the wrinkle after a period of 2 weeks and then 4 weeks.



Marketed products

Uttwiler
spatlauber

reversing the
process of ageing of
skin fibroblast cells

tomato
(*Lycopersicon
esculentum*)

protecting skin from
adverse effects caused
due to toxicity of
heavy metals

*Leontopodium
alpinum*

anti-collagenase and
anti-ageing

conclusion

A microscopic image of plant stem cells, showing a dense network of cells with various shapes and sizes, stained in shades of blue and purple. The cells are arranged in a complex, interconnected pattern, with some larger, more rounded cells and many smaller, more elongated ones. The overall appearance is that of a highly organized and active tissue.

1

The extracts obtained from plant stem cells are a source of many active substances, such as polyphenols, phenolic acids, triterpenes, flavonoids, carotenoids, fatty acids, sugars, and peptides, which give the anti-aging properties.

2

It will prove to be a highly rewarding proposition if the genes responsible for conferring the beneficial traits of stem cells on humans are identified. This would hasten the process of natural healing, achieving yet another goal of the healthcare system.

References

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