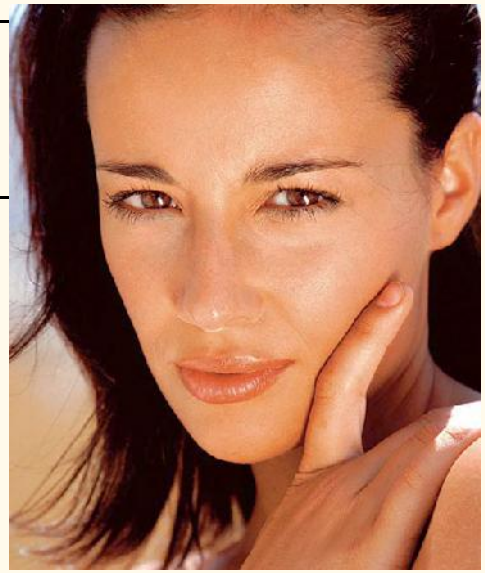
Phytosan™ PP



Phytoplacenta with multidimensional anti-aging properties

Introduction

Phytoplacenta derived from
organic Soybeans (GMO-free).

Giving all benefits of animal and human placenta, fitting to today's needs of non-animal derived raw materials.

Activates and protects on the cellular level.

Skin cells keep and regain their youthful functionality, allowing skin to keep and regain its youthful appearance

Phytosan™ PP

Increase in ATP level of fibroblasts

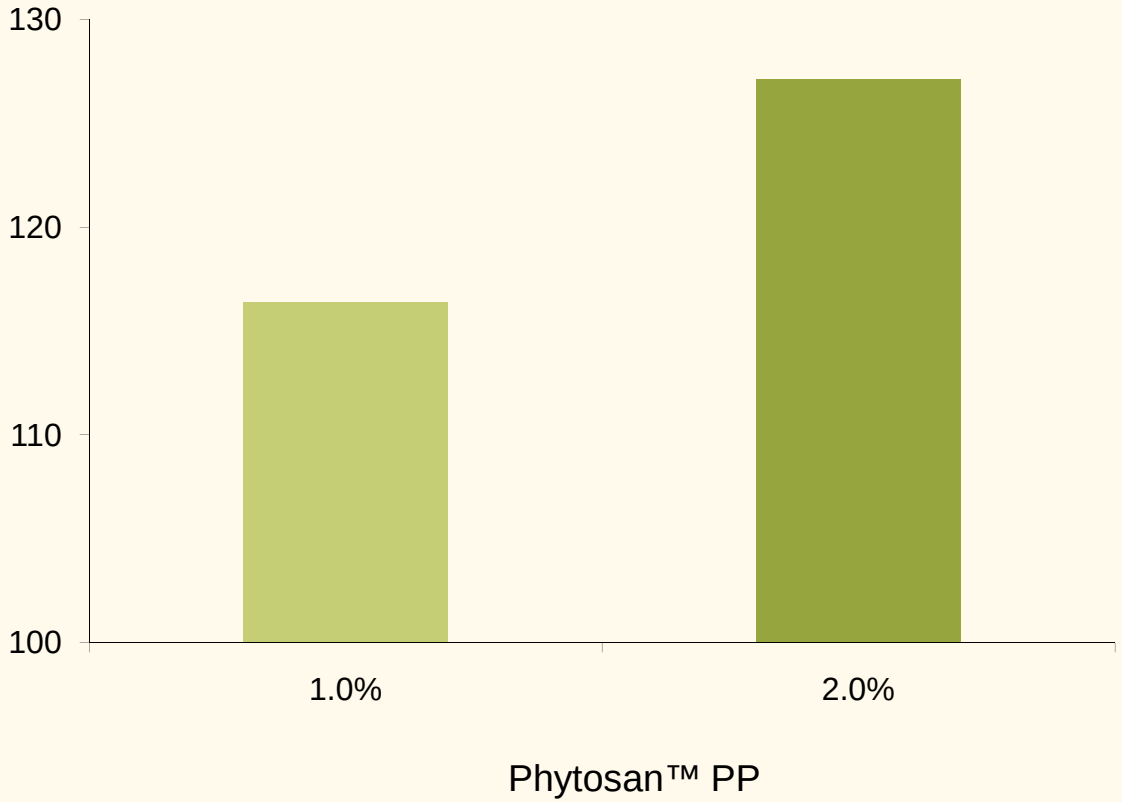
in vitro Test Results

Influence on ATP content

ATP (%)

Determined with fibroblasts. Results are related to the ATP level in cells grown in the presence of 5% FCS (= 100%)

All cells were grown in the presence of 5% FCS.



Phytosan™ PP

Protection against UV-induced damage

in vitro Test Results

In vitro Test Design

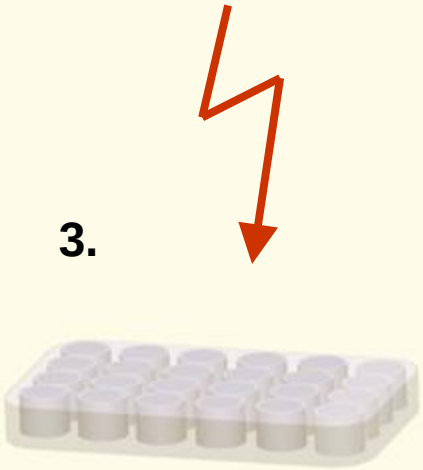
1.

Cultivation of human keratinocytes in the presence of
- **cell culture medium**
- **Phytosan™ PP**

2.

Removal of supernatant, several washing steps

3.



UV exposure
- **no Phytosan™ PP is present**

4. **Reincubation**

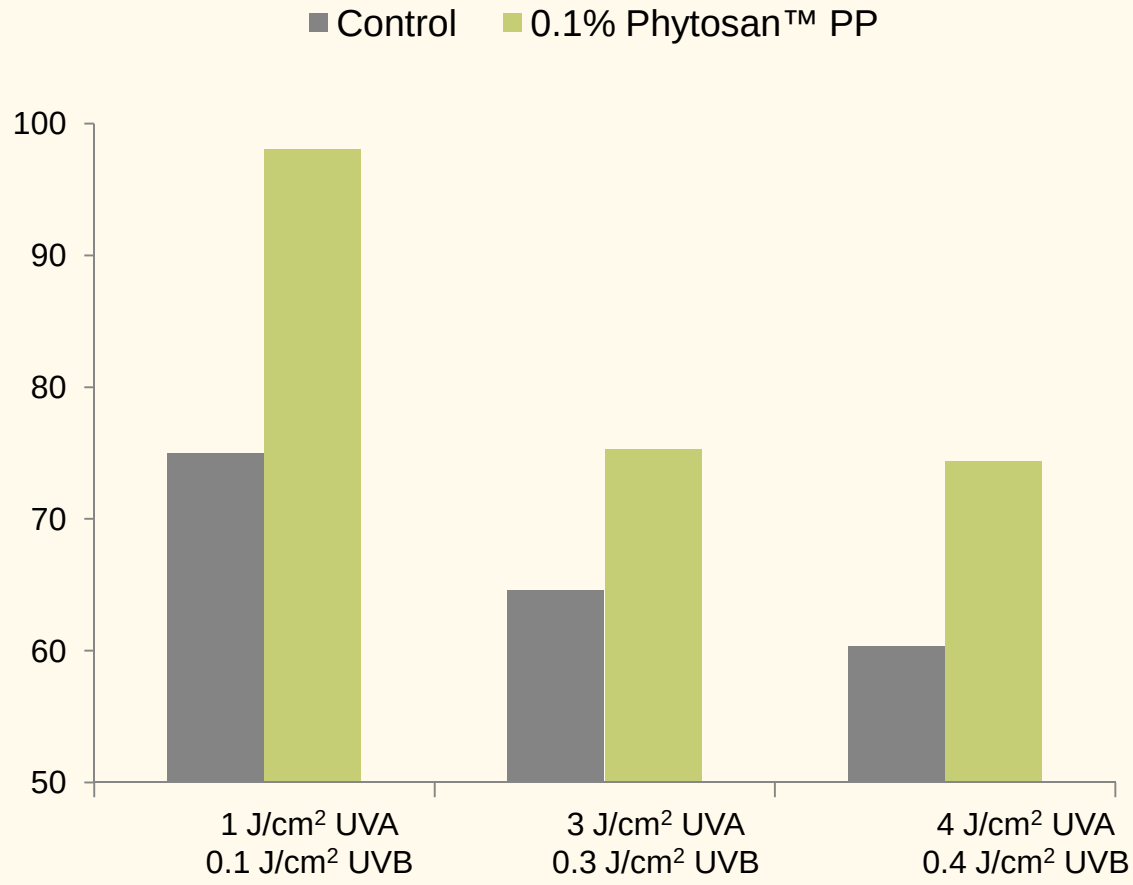
5. **Analysis**

Protection against ATP decrease after UV Irradiation

ATP (%)

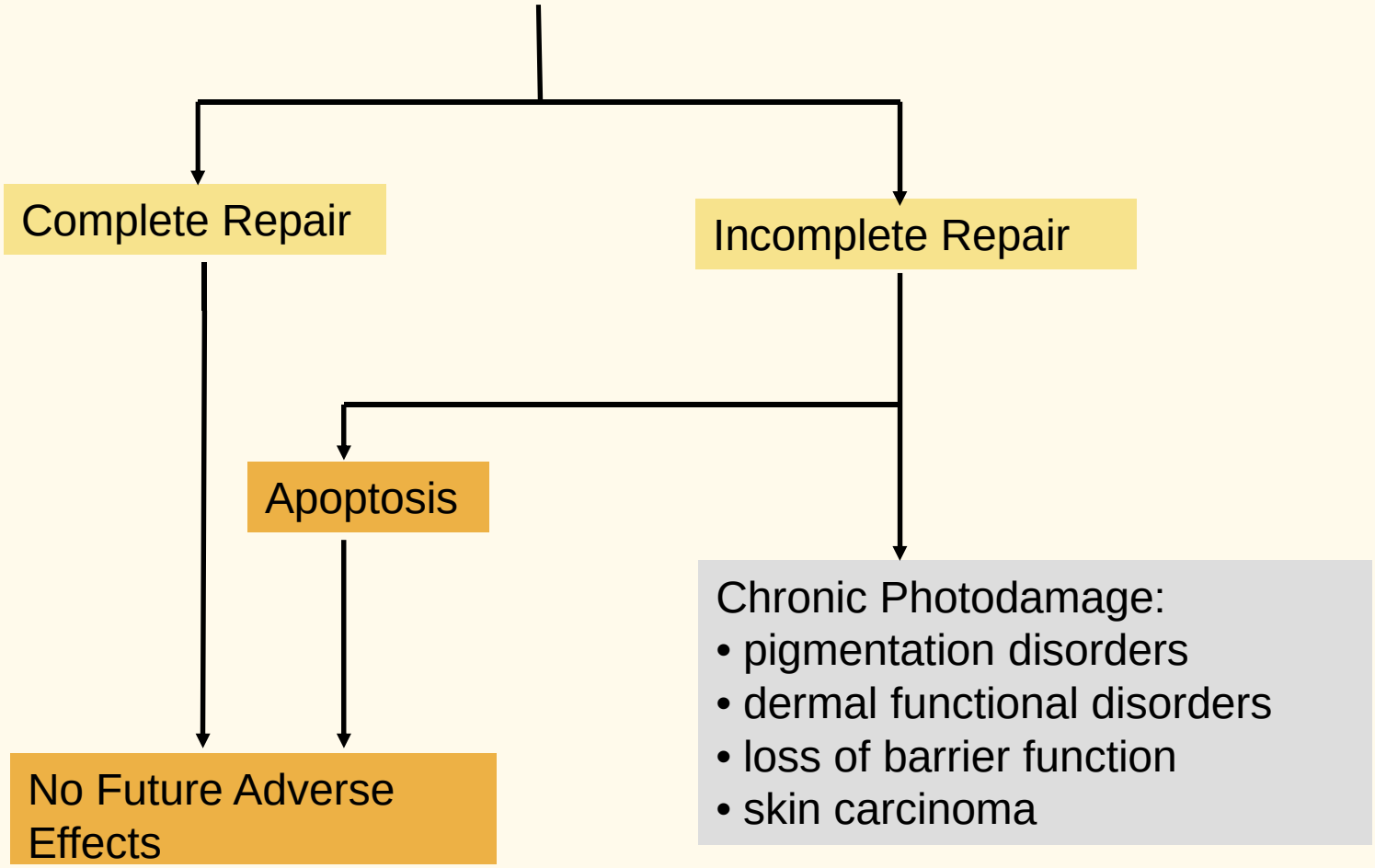
After UV irradiation of hu-keratinocytes related to the ATP level in cells grown in the presence of 5% FCS (= 100%)

All cells were grown in the presence of 5% FCS.



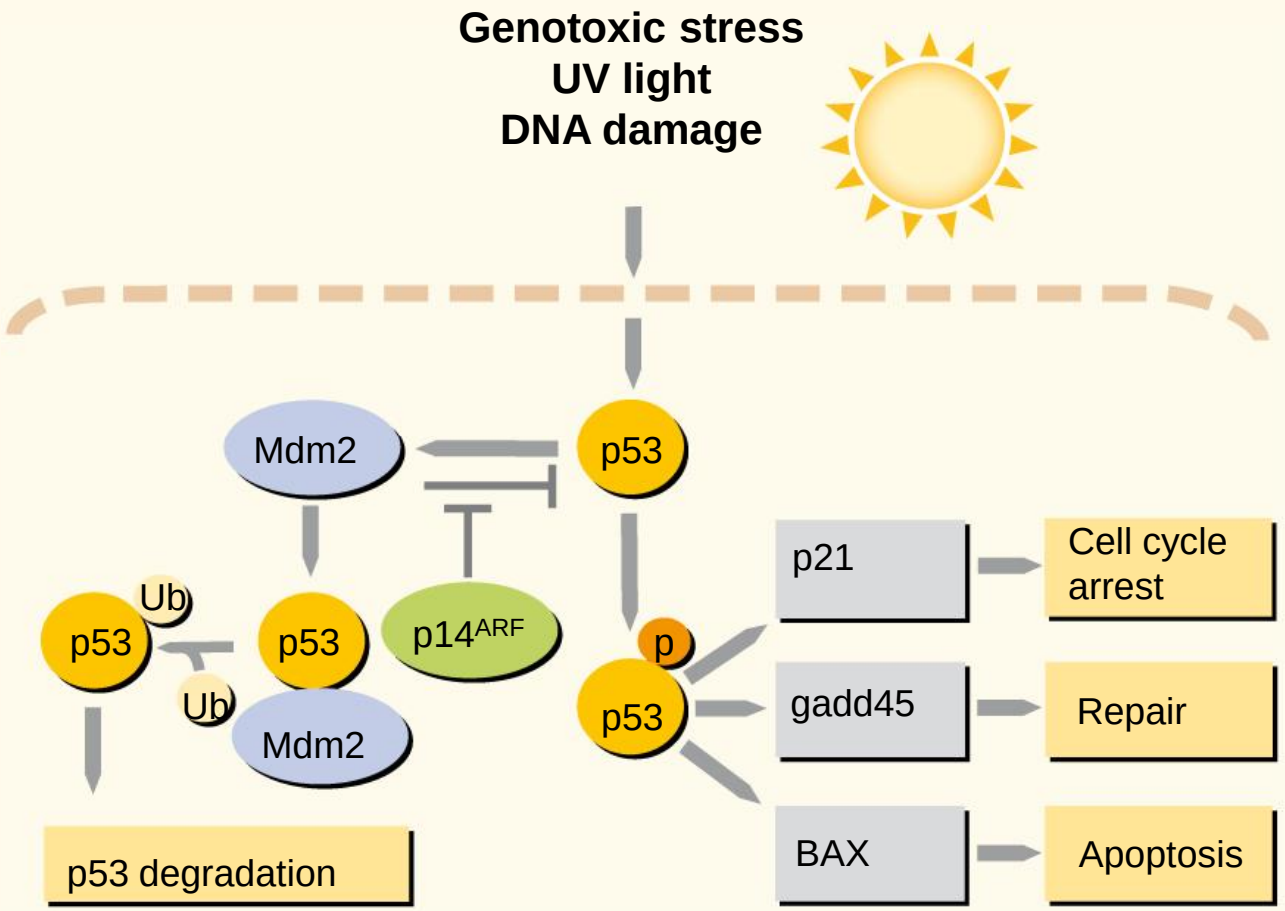
Phytosan™ PP

UV-induced DNA Damage



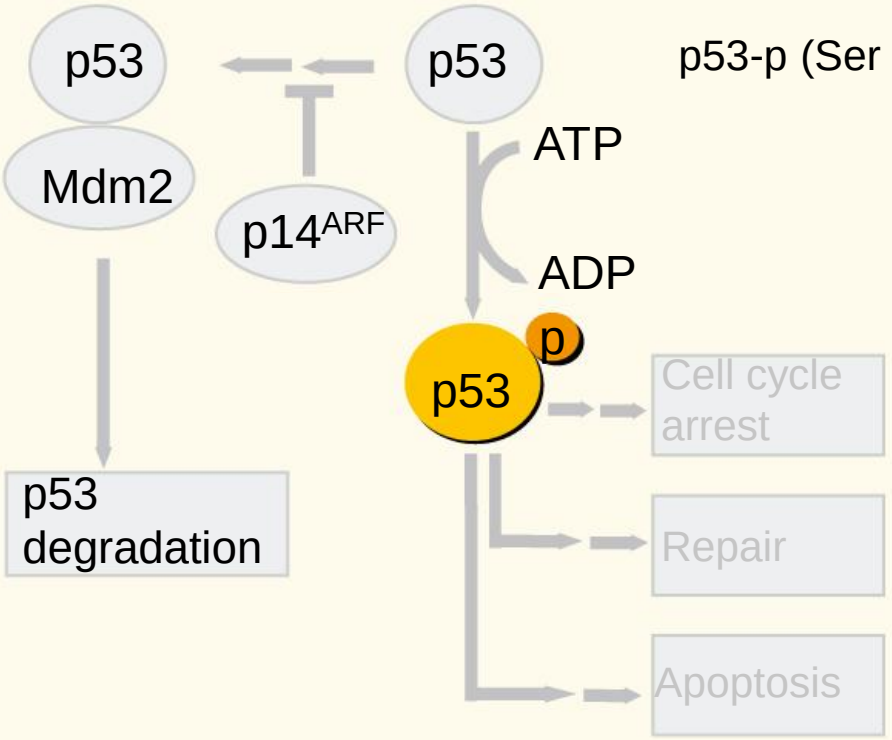
Phytosan™ PP

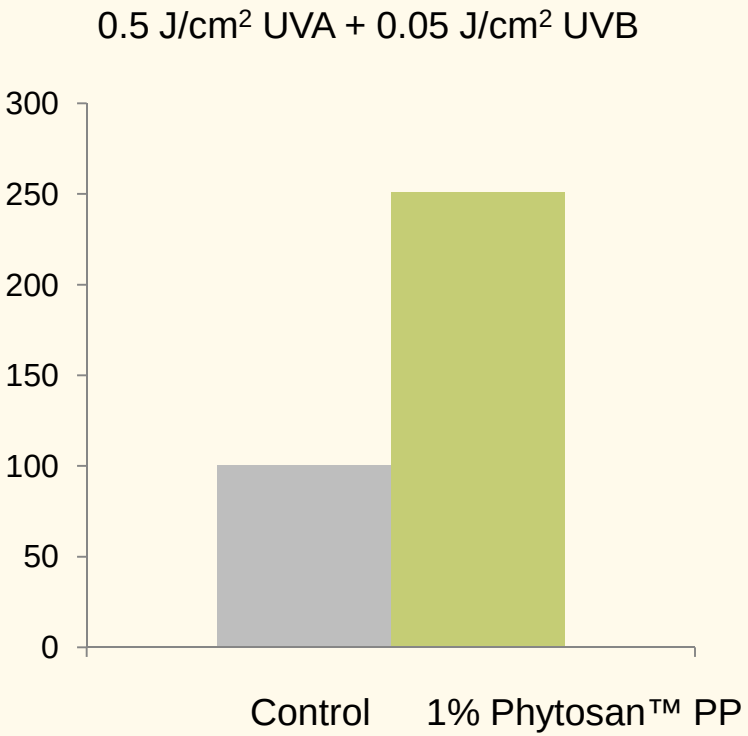
Pathway of the tumor-suppressor protein p53



Phytosan™ PP

Increased rate of phosphorylated p53 after chronic UV Irradiation

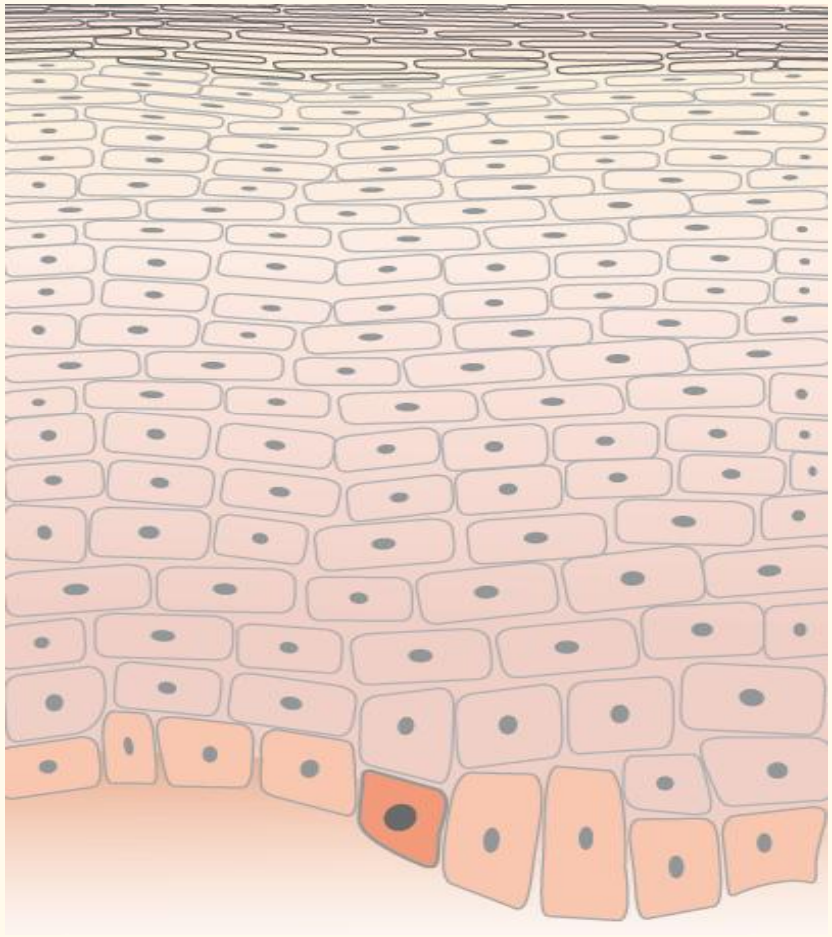




Phytosan™ PP

Epidermal stem cells: generating and rejuvenating epidermis

- 4-8% of all basal cells are epidermal stem cells
- Epidermal stem cells: the ‚mother cells', necessary for replenishing the transient amplifying (TA) keratinocyte pool
- TA keratinocytes: responsible for day to day maintenance of epidermis



Epidermal stem cells:
inherent risk in their uniqueness

Epidermal stem cells do not intrinsically age:

- Can be maintained over a lifetime
- ‚Programmed' for longevity and survival
- Possess strongly developed anti-apoptotic mechanisms

Epidermal stem cells:
inherent risk in their uniqueness

UV light strongly affects epidermal stem cells:

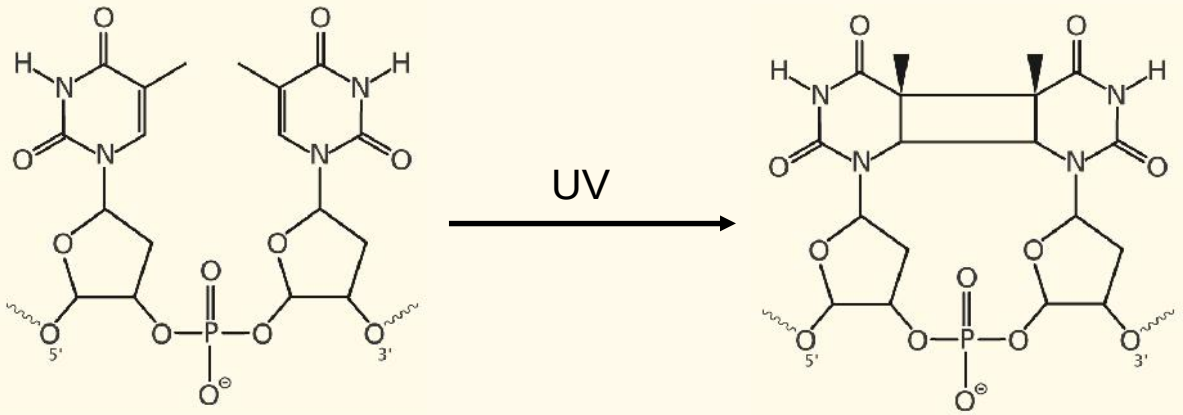
- DNA-damage accumulates over a life time
- Epidermal stem cell division has risk: mutations in DNA can be transferred to daughter cells
- Functionality of the daughter cells declines

→ Epidermal stem cells: pre-destined to play a central role in photoaging of skin

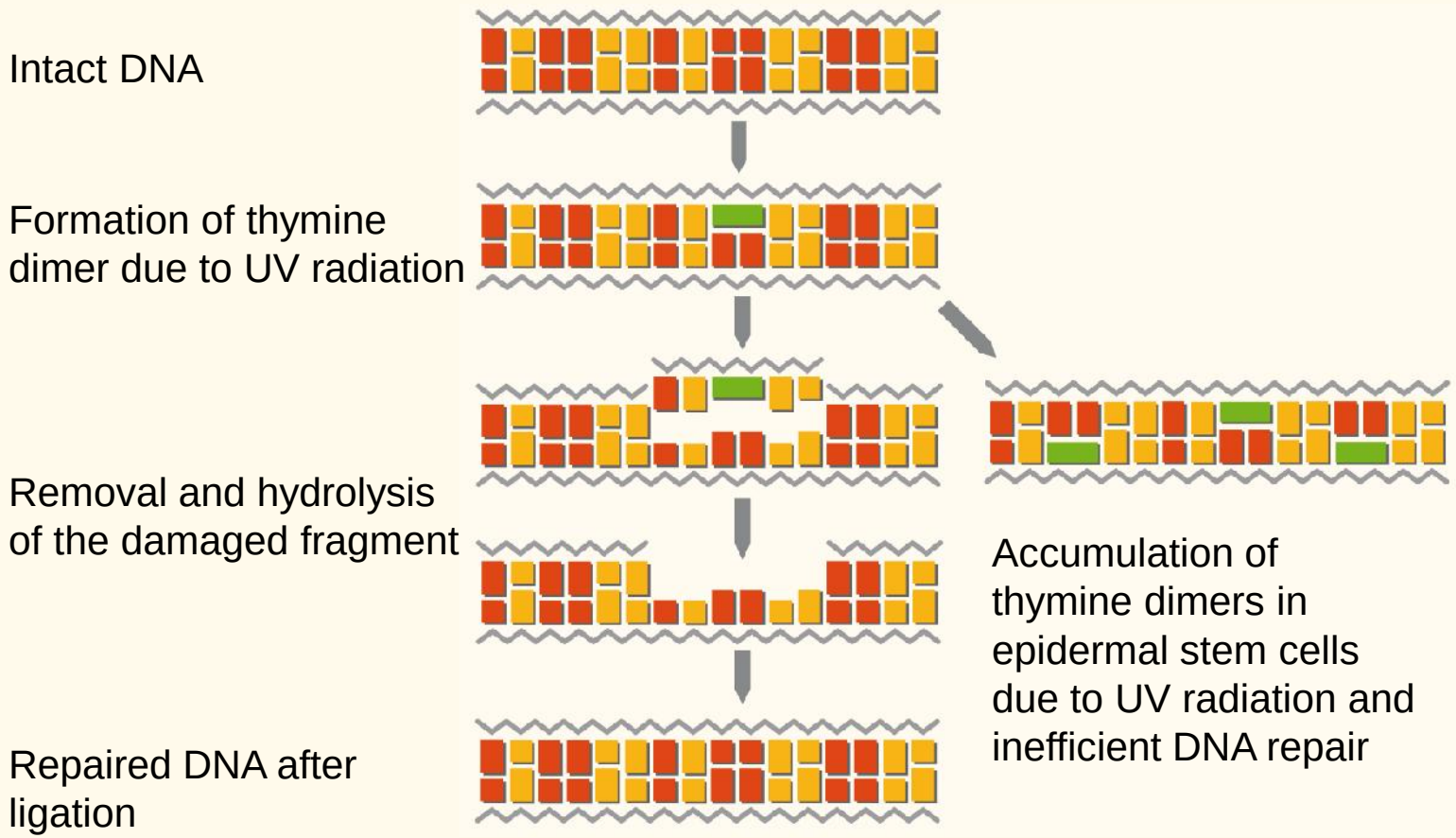
UV-induced DNA damage: Thymine dimers

The most predominant DNA lesions in skin after exposure to UVB, but also UVA light, are so-called cyclobutane pyrimidine dimers (CPDs).

By far the most abundant CPD induced by both UVB and UVA irradiation are Thymine dimers.



Epidermal stem cells: inherent risk in their uniqueness



Phytosan™ PP

Phytosan™ PP

Thymine dimer repair after UV irradiation

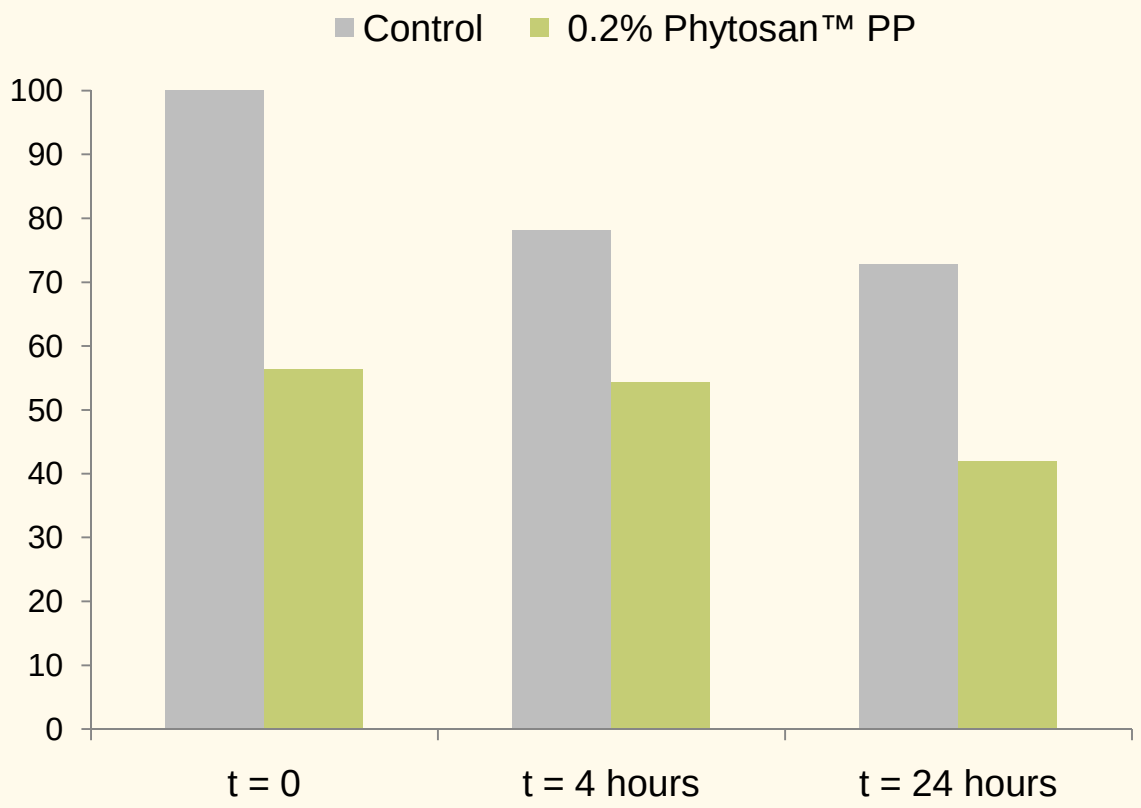
in vitro Test Results

Reduction of Thymine Dimer presence in epidermal stem cells after UV Irradiation

Thymine dimers (%)

Epidermal stem cells were pretreated with Phytosan™ PP for 3 days. The cells were then irradiated with 25 mJ/cm^2 of UV-B light. After UVB irradiation, fresh material was applied and cells were incubated for an additional 24 hours. Thymine dimer presence after DNA damage measured with untreated control is set at 100%.

Method:
Fluorescence intensity by BioRad Molecular Imager FX



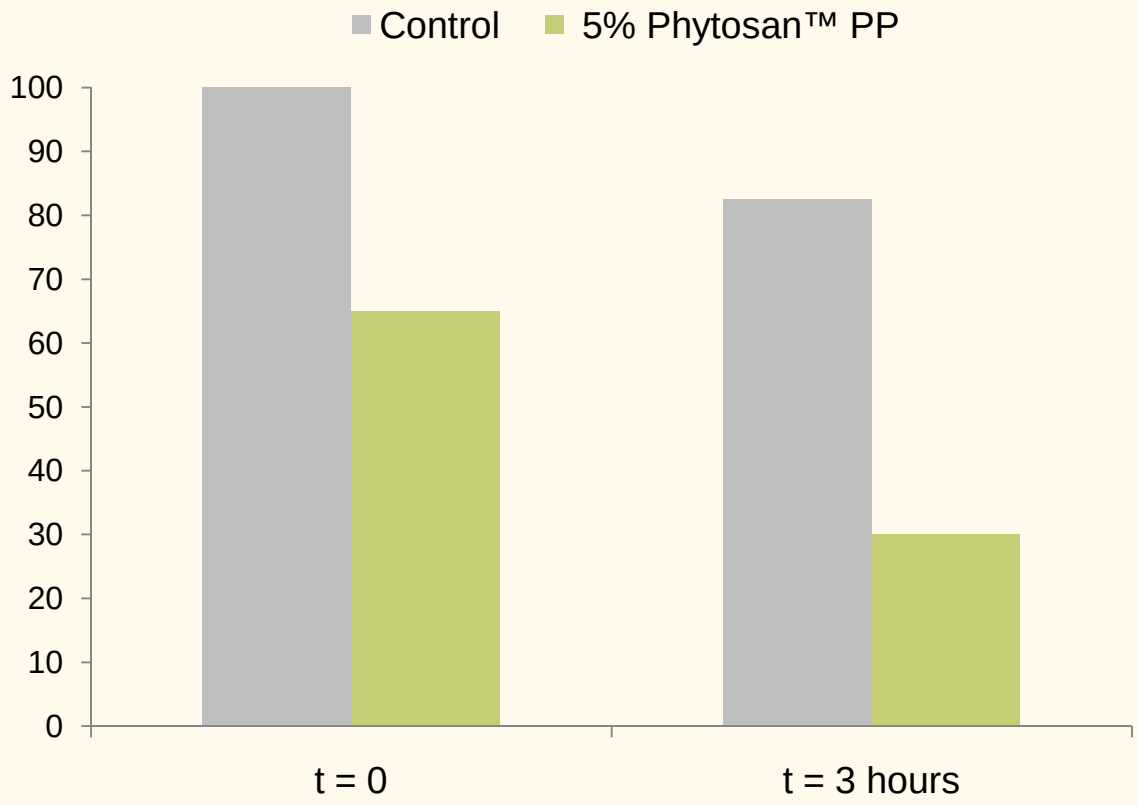
Phytosan™ PP

Reduction of Thymine Dimer presence in epidermal skin models after UV irradiation

Thymine dimers (%)

An epidermal skin model was pretreated with Phytosan™ PP for 7 days, once daily. The model was then irradiated with 0.3 J/cm² of UV-B light. Thymine dimer presence after DNA damage measured with untreated control is set at 100%.

Method:
Fluorescence intensity by BioRad Molecular Imager FX



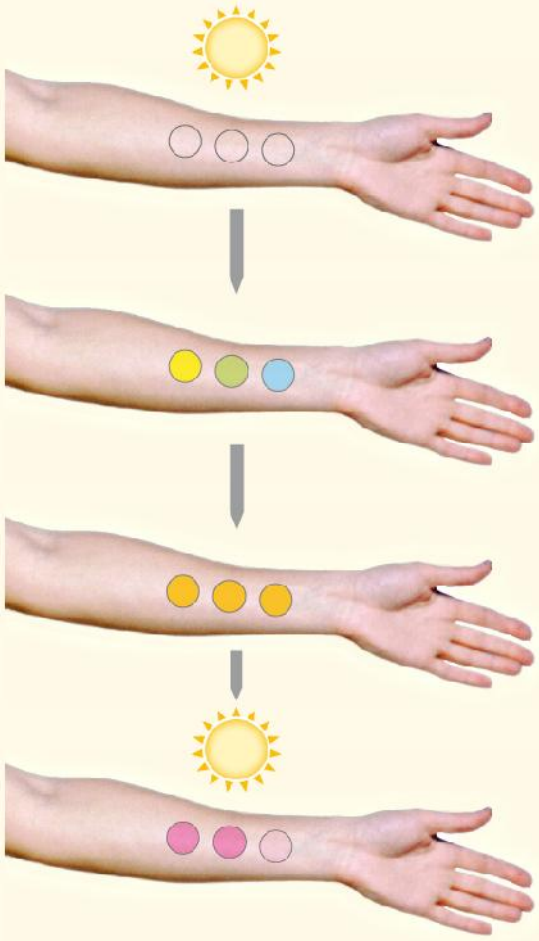
Phytosan™ PP

Phytosan™ PP

Protection against UV-induced damage

in vivo Test Results

Study design



1. Determination of MED

2. Application, twice daily, 7 days

   - untreated
   - O/W placebo
   - O/W 5% Phytosan™ PP

3. Application of sunscreen

   - Sunscreen SPF 4

4. UV exposure

5. Recording of skin color, determination of SPF

Phytosan™ PP

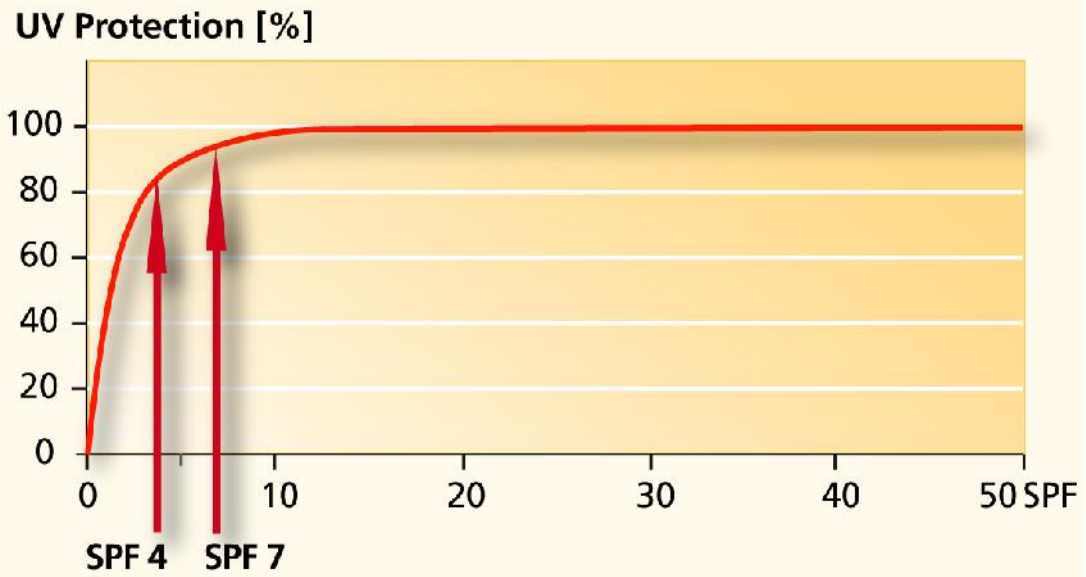
Increase of tolerance against UV light (MED)

12 volunteers were pretreated with a 5% Phytosan™ PP cream against placebo twice a day for a period of one week.

Before UV exposure a sunscreen with a SPF 4 was applied to the Phytosan™ PP and placebo treated test areas.

The SPF in the test areas was determined by Colipa-Method.

Product	SPF (mean)	Standard Deviation
O/W (Placebo) + Standard SPF 4	4.2	0.7
O/W with 5% Phytosan™ PP + Standard SPF 4	7.0	0.9



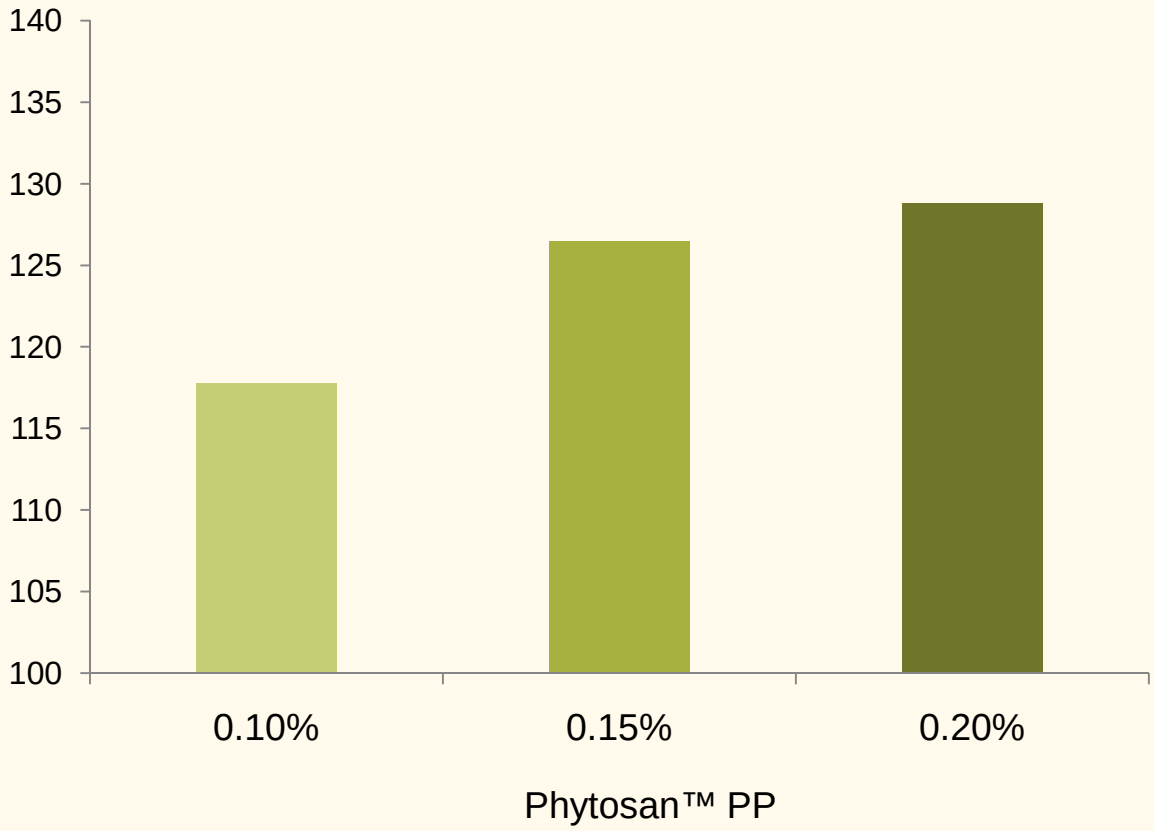
Phytosan™ PP

Skin Regeneration

Stimulation of Collagen Type I Biosynthesis

Collagen Type I Biosynthesis (%)

Related to the number of fibroblast cells and to collagen amounts produced by fibroblast cells grown in the presence of 5% FCS (= 100%).



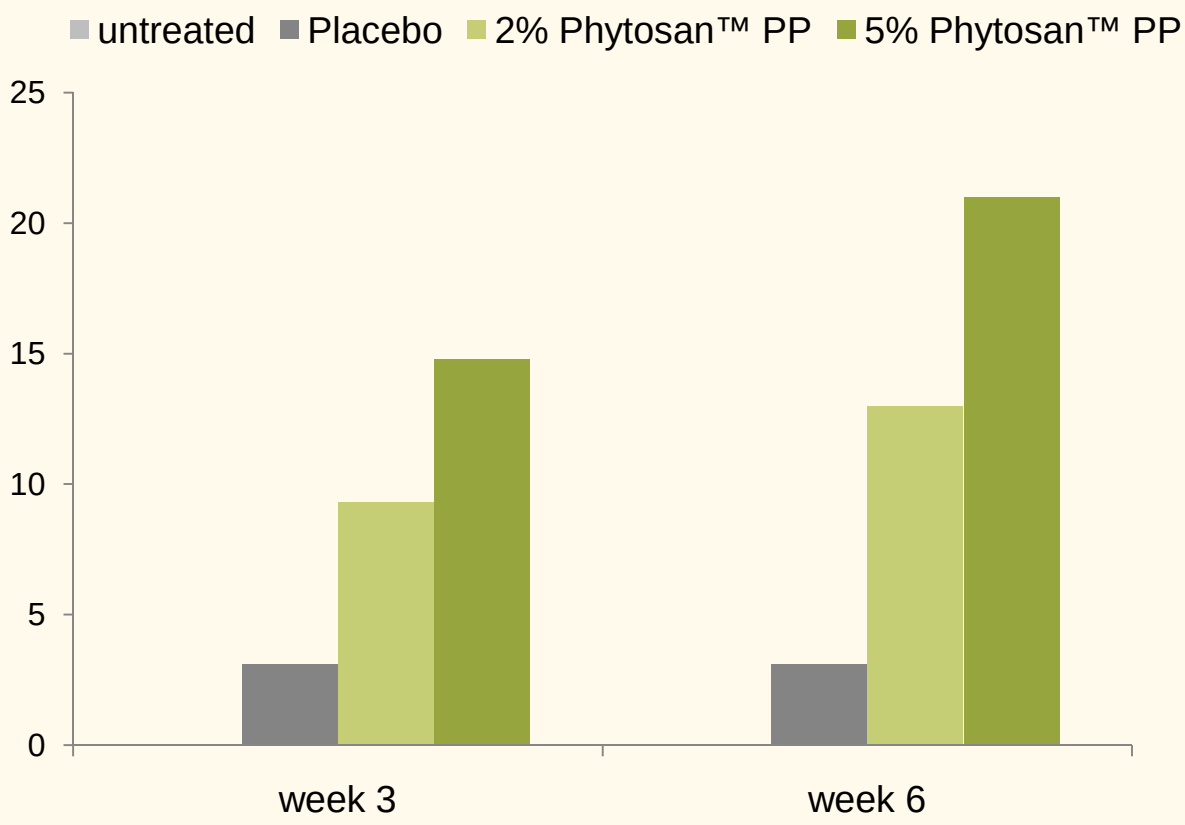
Phytosan™ PP

Increase in Skin Smoothness

Skin Smoothness (%)

Formulations were applied by 25 volunteers (age range: 35 – 58) twice daily. After 3 and 6 weeks, skin roughness was determined.

Values are related to initial conditions.

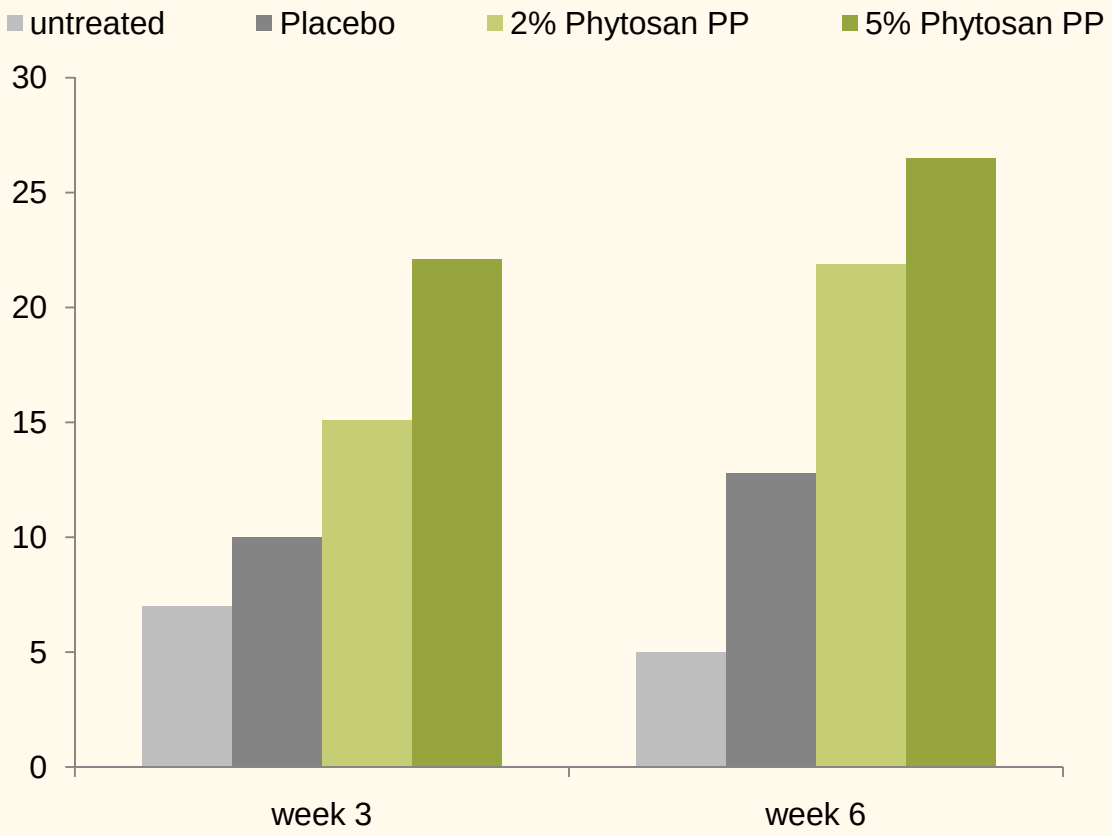


Increase in Skin Firmness

Skin Firmness (%)

Formulations were applied by 25 volunteers (age range: 35 – 58) twice daily. After 3 and 6 weeks, skin elasticity was determined.

Values are related to initial conditions.



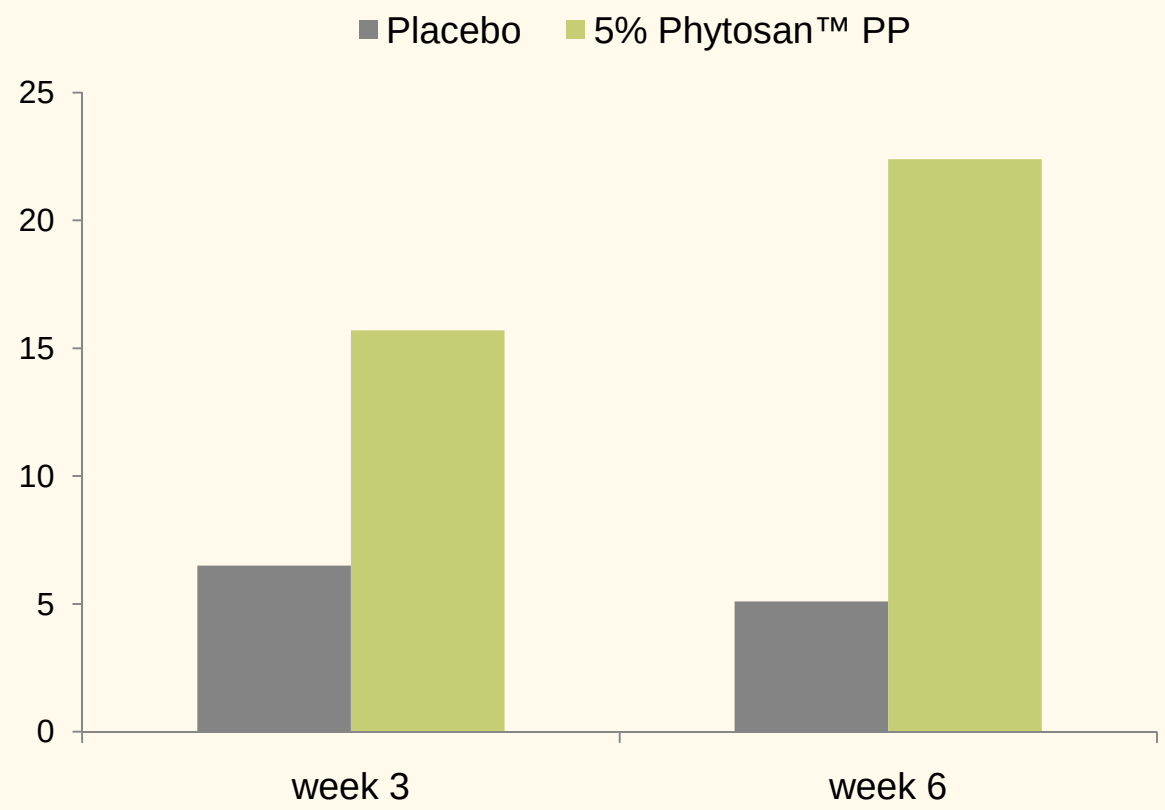
Phytosan™ PP

Reduction of Depth of Wrinkles

Reduction of Depth of Wrinkles (%)

Formulations were applied by 25 volunteers (age range: 35 – 58) twice daily around the eyes. After 3 and 6 weeks, the depth of wrinkles was determined.

Values are related to initial conditions.



Phytosan™ PP

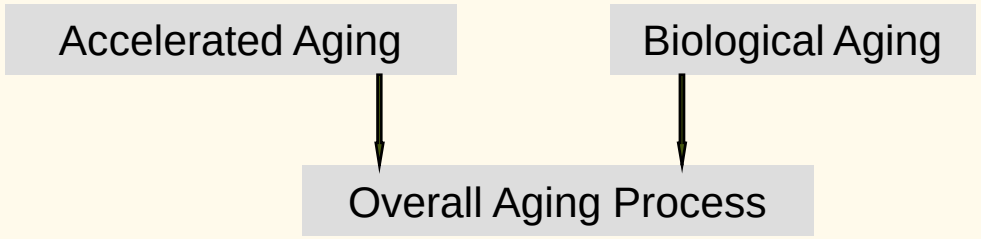
Summary

in vitro Results

- Stimulation of protein and collagen (type I) biosynthesis
- Maintenance of a higher energy level after UV irradiation
- Activation and Stabilization of tumor suppressor gene p53
- Strongly reduces TT-Dimer formation and stimulates DNA repair in skin models and epidermal stem cells
- Reduction of apoptotic cells

in vivo Results

- Reduction of skin redness after UV irradiation
- Strongly increases tolerance against UV light after a 1 week pre-treatment
- Increase in skin smoothness
- Improvement of skin elasticity / Increase in skin firmness
- Reduction of wrinkle depth



INCI Name: Water, Glycerine, Glycine Soja (Soybean) Phytoplacenta Extract

Dosage:	2.0 - 5.0%
pH-range:	3.0 – 7.5
Preservation:	Preserved with phenoxyethanol and potassium sorbate