In-vitro study on ViTea™:

Nico Smit, PhD, Prof. Stan Pavel, MD, PhD Leiden Medical Center, The Netherlands 2003

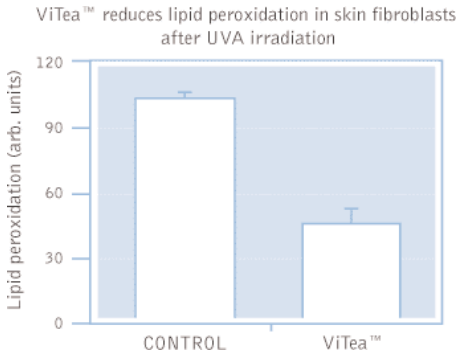
During 2003, Dutch researchers Nico Smit PhD and Prof. Stan Pavel, MD, PhD conducted a series of studies on various combinations of powerful antioxidants using in-vitro cultures of skin fibroblasts. The aim was to find the best combination of ingredients to protect skin cells against UV damage and to document their effect. The studies resulted in the development of ViTea™ protection complex.

METHODS AND RESULTS

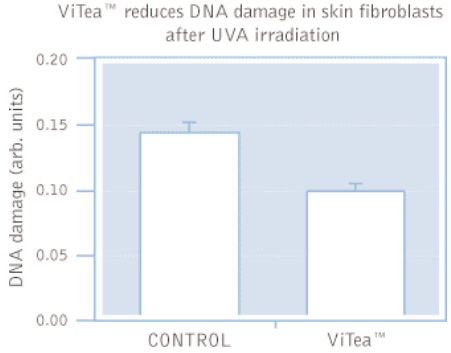
Skin fibroblasts were cultured using a well-established standard culture protocol. The fibroblasts were obtained from adult Caucasian skin, type II/III. The fibroblasts were treated with ViTea complex and then irradiated with UVA light. Control fibroblasts without ViTea complex treatment were cultured and UVA methods were used to analyze the extent of oxidative damage on lipids and DNA after UV irradiation. Furthermore, total production of free oxygen radicals was measured in fibroblasts treated with and without the ViTea complex ingredients.

Reduction Of Lipid Peroxidation

Skin fibroblasts were treated with or without ViTea complex and with a fluorescent compound that specifically indicates lipid peroxidation in cells. The cells were irradiated with UVA light and intensity of fluorescence was measured. The higher the intensity, the higher the oxidative damage.

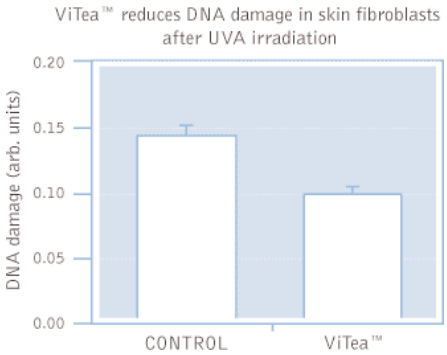


The study showed that treatment with ViTea Complex reduced the damage on lipids significantly in skin fibroblasts after UV irradiation, compared to untreated skin fibroblasts.



Reduction of DNA Damage

UVA radiation causes DNA damage in skin fibroblasts. Skin fibroblasts were incubated with or without ViTea. The cells were irradiated with UVA light and the amount of DNA damage was measured. The study showed that treatment with ViTea Complex significantly reduces DNA damage compared to untreated skin fibroblasts. Reduction of DNA damage after ViTea is statistically significant.



Reduction of Free Radicals

Free radicals are produced in skin fibroblasts. Skin fibroblasts were treated with or without ViTea Complex and with a fluorescent compound that specifically indicates the amount of free oxygen radicals in cells and the intensity of fluorescence was measured by FACS analysis. The lower the intensity, the less free radicals. The study showed that treatment with ViTea Complex reduced the amount of free radicals significantly compared to untreated skin fibroblasts.

CONCLUSION

Results showed that antioxidant ingredients present in ViTea are able to provide a comprehensive protection of all essential building blocks that cells are made of and reduce the effects of UV related oxidative damage.

ViTea gives overall reduction of UV induced damaged in skin cells. It reduces the amount of total free radicals that initiate a range of damaging oxidative reactions in skin and play an important role in skin ageing. ViTea minimizes the damage caused by UV irradiation in essential building blocks such as lipids and DNA.