

# IN VITRO

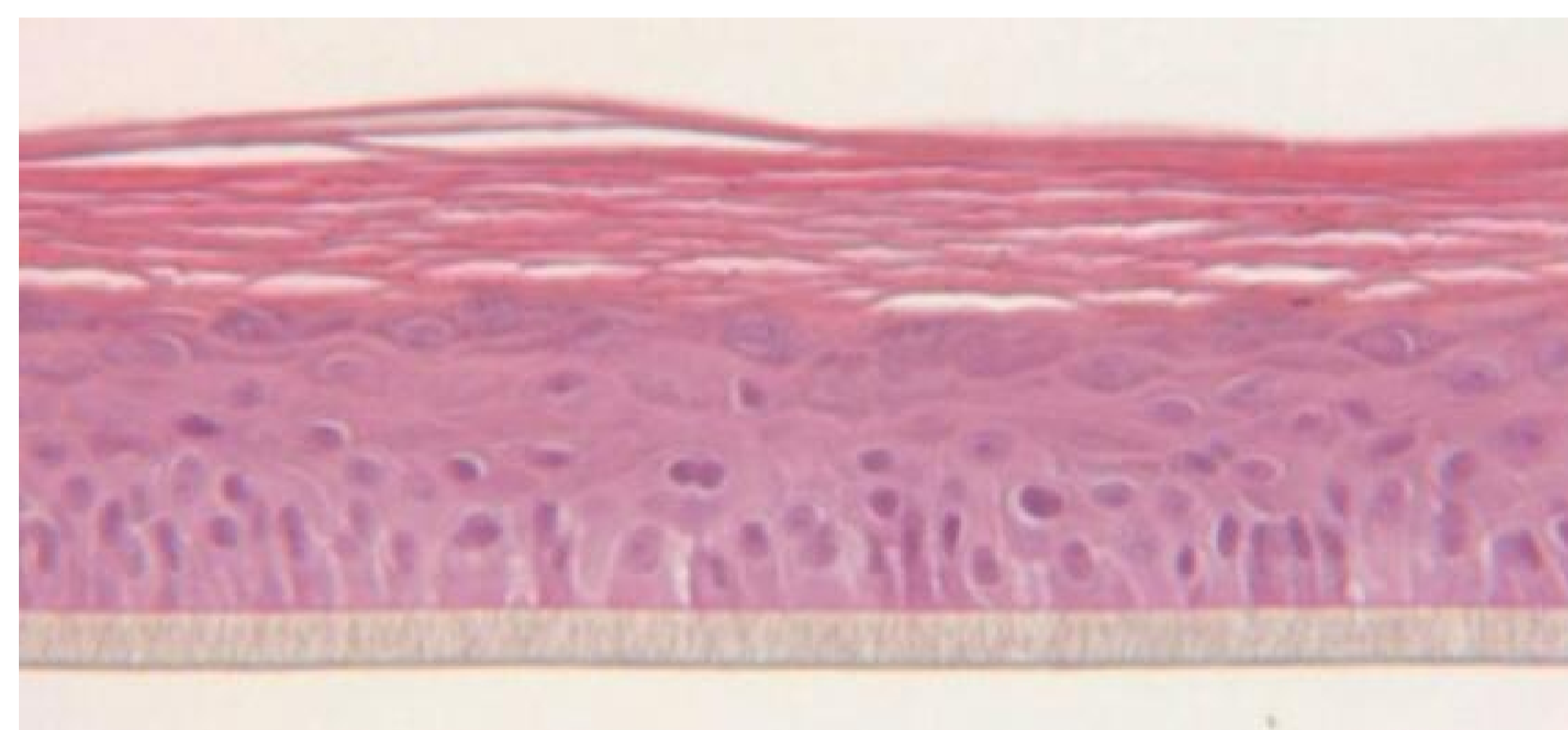
reconstructed human skin- and epidermal models as potent screening and research tools for Phototoxicity, Photoaging and Photoprotection

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## Introduction

- Establishment of potent **in vitro** tools for the analysis of compound derived photoreactions in the skin
- Establishment of suitable **in vitro** techniques for analysing the efficacy of cosmeceutical products
- Future prospects on our research on suitable parameters for the in vitro characterisation of cosmeceuticals



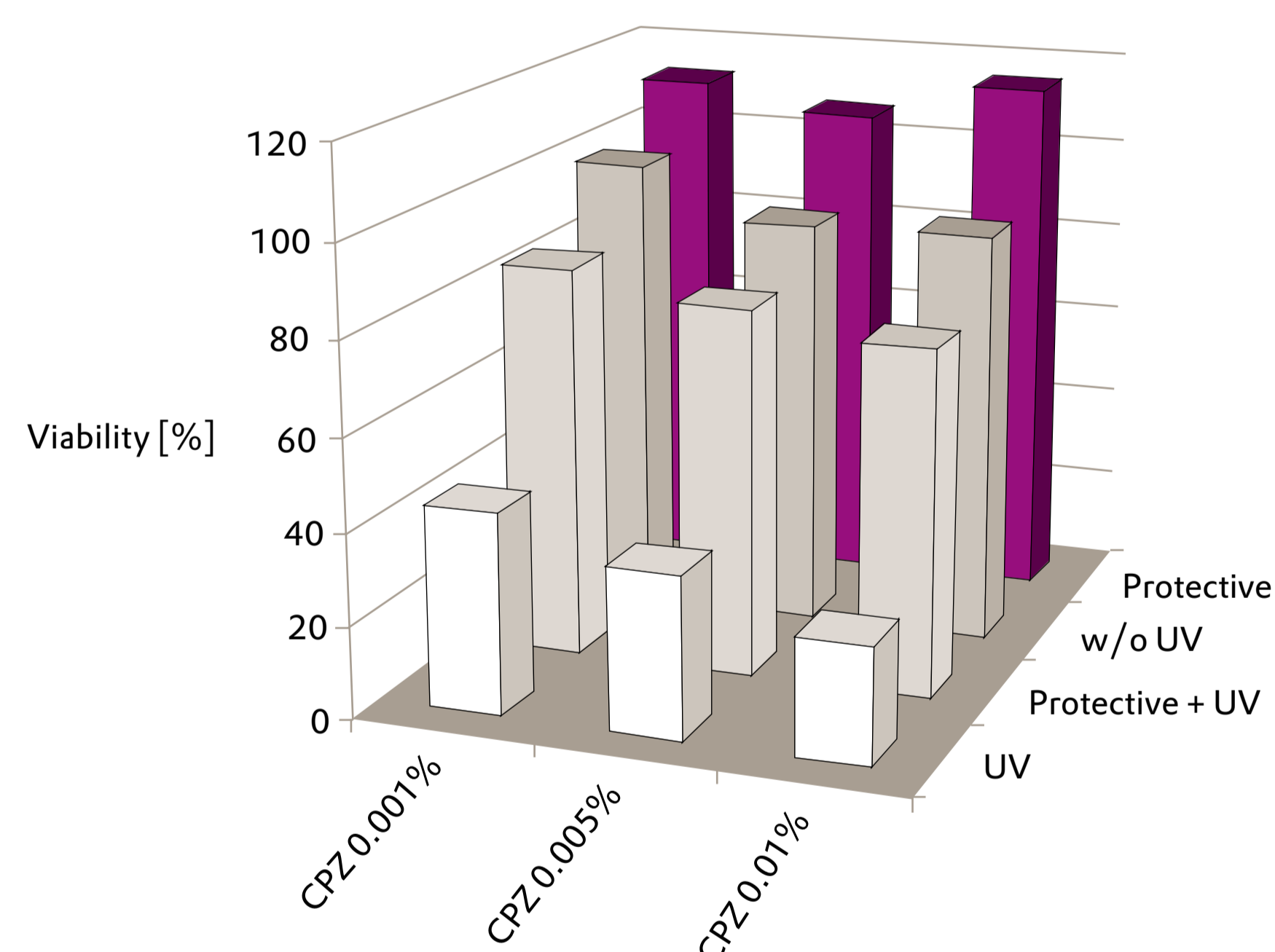
Stratum Corneum  
Stratum Granulosum  
Stratum Spinosum  
Stratum Basale

Test system: Epidermal Skin Test -1000®; CellSystems, St. Katharinen, Germany

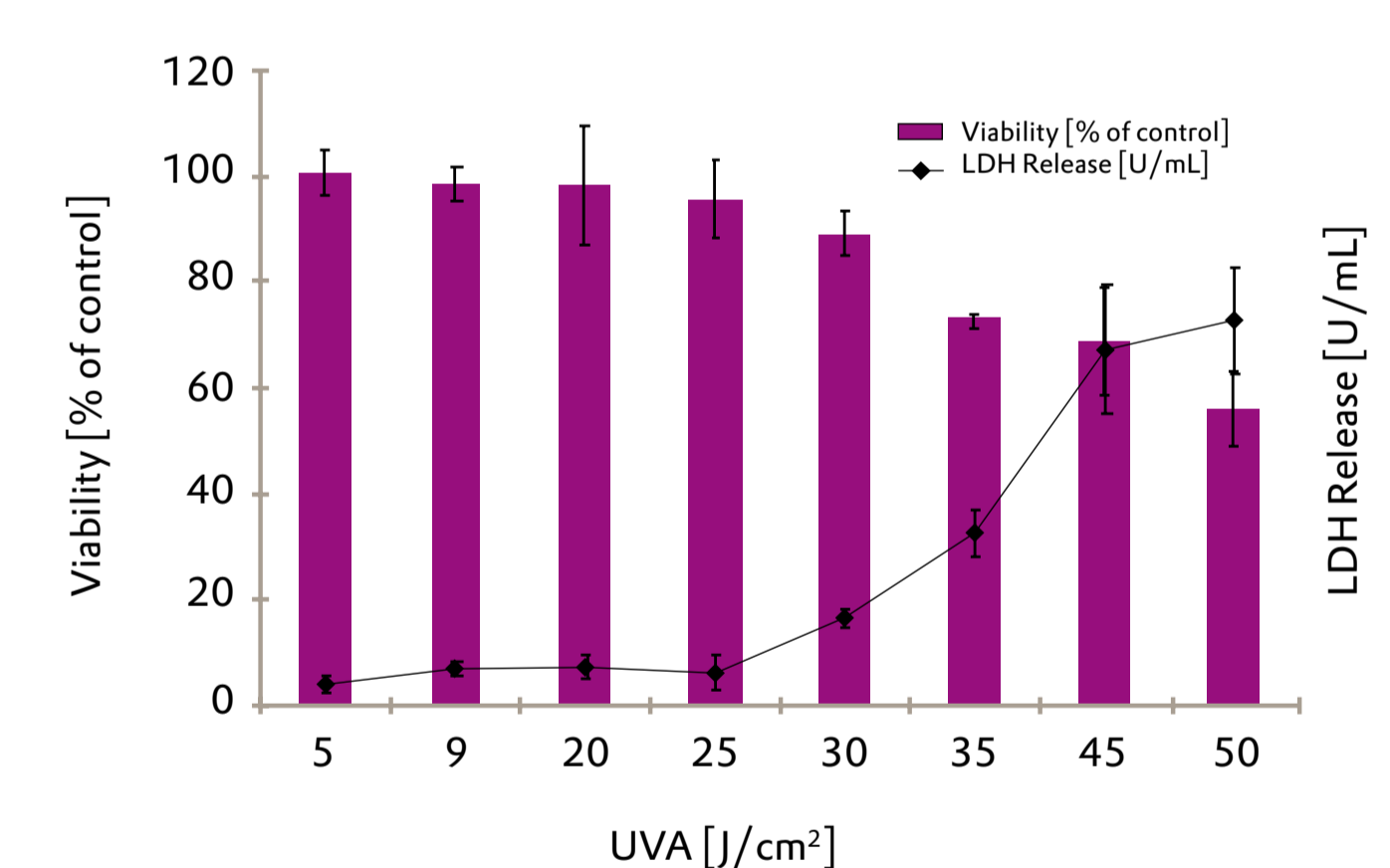
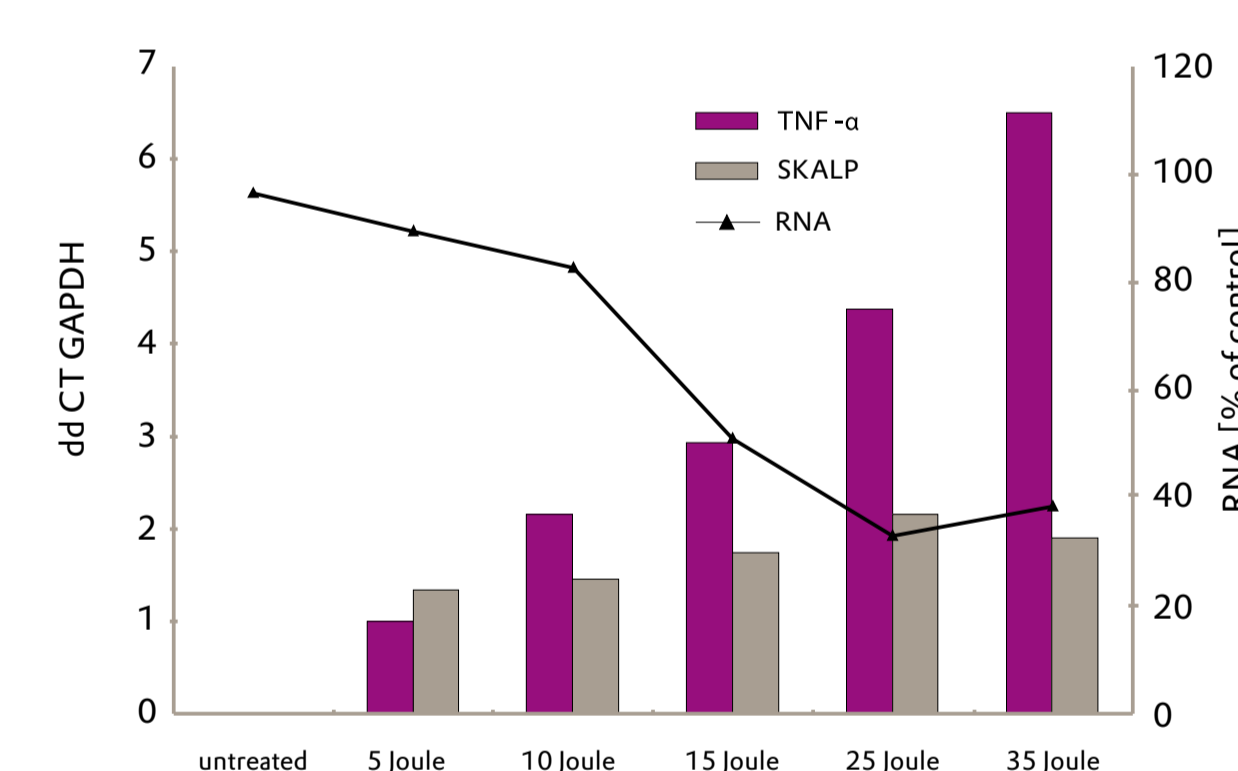
## Prediction model for Phototoxicity using EST-1000®

- One or more concentration endpoints reveal at least 30 % decrease of tissue viability compared to non irradiated tissues!
- Dose response relationship has to be observed

Toxicol In Vitro. 2007 Oct;21(7):1298-303. Epub 2007 Jun 13.



- **Not protected:**  
Decrease in cell viability:  
45,8 % → Phototoxic
- **Protected:**  
Decrease in cell viability:  
14,7 % → Not Phototoxic



Example for photo protection: STOKO® UV 30 Complete attenuates the phototoxic effect of topical exposure to Clorpromazine (CPZ)

Dose dependent effects of UV irradiation on viability, RNA content and expression of immune parameters: TNF-α, SKALP in **in vitro** reconstructed human epidermis

## Results

- Phototoxicity of Chlorpromazine to Epidermal Skin Test-1000® was attenuated by STOKO® UV 30 Complete
- UV irradiation of Epidermal Skin Test-1000® lead to a dose response in cell viability and LDH release.
- Exposure of **in vitro** reconstructed human epidermis induced a dose response in RNA content and in the expression of immune parameters like SKALP / ELAFIN and TNF-α

## Conclusions

- Epidermal Skin Test-1000® is a potent screening tool for the characterisation of chemical induced hazards like phototoxicity
- **In vitro** reconstructed tissues have advantages when compared to simple cell culture methods because they match the situation in vivo (physiological route of exposure)
- Efficacy testing of products designed for photoprotection is possible and potent parameters to describe the efficacy of products designed for the skin care of UV exposed skin are provided by the use of **in vitro** reconstructed human epidermal models.