

STH INTERNATIONAL CONFERENCE ON ADVANCED PHARMACOLOGY & TOXICOLOGY RESEARCH

November 14-15, 2025 | Lisbon, Portugal



J. Lademann*, M. Darvin*, W. Köcher**, B. Magnussen**

* Charité Berlin, Department of Skin Physiology,
Germany

** Biozoom GmbH, Kassel, Germany

The Skin as a Reflection of Our Lifestyle

A major cause of the aging process is the formation of free radicals in our skin and body due to solar radiation and stressful situations. Our human body has developed a protective system against these processes in the form of antioxidants. We cannot produce most of these antioxidants ourselves; instead, we must consume them through a healthy diet rich in fruits and vegetables.

These substances can neutralize free radicals before they can exert their damaging effects.

A Raman spectrometer was developed at the Charité that allows the first non-invasive, online detection of carotenoids in human skin, meaning without causing damage. Carotenoids are marker substances for the overall antioxidant potential. We tested the spectrometer on our employees for over a year.

It was shown that a healthy diet increases antioxidants in our skin and in our body. On the other hand, all types of stress processes lead to a reduction in these antioxidants in our body. This includes stress in professional and private life, excessive consumption of nicotine and alcohol, and excessive amounts of sun exposure.

The extent to which carotenoids affect skin aging was demonstrated in a study. For this study, participants were examined who were all 50 years old, thus already exhibiting a wrinkle or furrow, and who had not changed their lifestyle for decades. Both the skin surface structure, i.e., wrinkle density and depth, and the antioxidant potential were determined on a light-irradiated skin area—the forehead. It was found that subjects with high antioxidant potential had significantly fewer wrinkles and furrows than those with low values.

Biography

Prof. Dr. Dr.-Ing. Jürgen Lademann is an internationally renowned scientist researching at the interface between dermatology, pharmacology and biophysics. Since 1996 the physicist has been in charge of the Center of Experimental and Applied Cutaneous Physiology at the Department of Dermatology, of the Charité in Berlin up to 2020. In 2001 he was appointed Professor of Dermatology.

He authored and co-authored more than 800 articles in peer-reviewed scientific journals. He was the President of the “International Foundation of Societies of cosmetic Chemists – IFSCC” and he was the president of the IFSCC Congress 2018 in Munich and many other conferences.