

# Findings in research on photoaging could reverse negative impact of ultraviolet radiation

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While all human organs undergo normal, chronological aging, human skin undergoes an additional type of aging because of its direct contact with the environment. The environmental factor that ages human skin more than any other is UV radiation (UVR) from the sun, a process is called photoaging. Unlike chronological aging, which occurs exclusively with the passage of time, photoaging occurs when skin is repeatedly exposed to UV radiation from the sun.

Over time, the sun's ultraviolet (UV) light damages the fibers in the [skin](#) called elastin. When these fibers break down, the skin begins to sag, stretch, and lose its ability to go back into place after stretching. The skin also bruises and tears more easily. The result: premature wrinkles, leathery skin, age spots, and spider veins/broken blood vessels, which may appear on the nose, cheeks, and neck. In addition, recent studies found that sunscreen may not provide skin with complete protection and that some UV filters in sunscreen may be toxic to human cells.

With so much at risk when [human skin](#) is overexposure to the sun, substantial progress has been made in recent years to understand the cellular and molecular mechanisms that bring about photoaging.

At Basel Life Science Week 2015 (September 21 - 24), an annual symposium of specialists in many fields related to life science held annually in Basel Switzerland, gerontologists will present a comparison

of the effects of photoaging against normal, chronological aging with the goal of identifying how to mitigate the harmful effects of aging on the skin. One specialist presenting at the conference is Polina Mamoshina, an expert in skin aging at Insilico Medicine, a bioinformatics company at Johns Hopkins University in Baltimore, MD. Mamoshina recently completed a study on photoaging with the hope that it will lead to more effective treatment of the symptoms listed above as well as minimize a sun bather's risk of contracting skin cancer.

"Unfortunately, recent studies show that modern sunscreen compounds do not provide complete protection and most of the UV-filters out there have serious side effects," Said Mamoshina. "We need to develop better ways to offset the effects of photoaging so that people can enjoy the sun without worrying about what effect it will have on their skin, and the first step towards that is to understand how photoaging works on the ground level."

Mamoshina used InSilico Medicine's Geroscope™ software platform to analyze and compare pathway dysregulation (impaired communication between cells) of over two thousand samples of chronologically-aged and photoaged skin. The platform will allow Mamoshina and her team of data scientists to one day integrate anti-aging treatments, also known as geroprotectors, in the photoaging process.

Provided by InSilico Medicine, Inc.

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