Will we look younger in the future thanks to a fly’s wing?

Dr. Gilad Lando, CEO of Smart Resilin, thinks so.

One of nature’s most enthralling materials can be found in insects. It is a protein called resilin whose name is derived from resilience. It is the most resilient material in nature - one which grants fleas to jump outstanding heights, up to 100 times their own height.

Dr. Gilad Lando, CEO of Israeli start-up Smart Resilin explains: “Resilin has been arousing the curiosity of researchers for a long time already, and it has been investigated since the 60s. But to date, no one has produced it to industrial scale for novel applications.”

“Our company is the first - and only one - to succeed in producing significant quantities of this protein. We have discovered outstanding new functionalities and properties in our R&D labs. For instance, we have found that resilin presents excellent properties for natural hair straightening. It is bound to replace elastomers (polymers with high elasticity) in the textile industry; integrate into shoe soles for improved performance; and in the future even challenge the tyre industry as an all-round alternative to rubber, offering fuel-saving and easy degradation.”

The company aims at a broad range of use cases and there is little doubt that Resilin is predicted to make a big change in consumer products. “Among these,” says Gilad, “one of the protein's most amazing properties is in a totally different field: anti-ageing, i.e. the fight against ageing of the skin.”

“We have found that the protein recovers elasticity of the skin, and thus grants a youthful skin to consumers,” he shares, “In experiments we conducted, we have seen a considerable reduction in wrinkles on the face from day 1 of applying resilin serum and even more so on day 4.”

In the chemicals-intensive cosmetic industry, resilin brings good news - it is a natural ingredient produced in a green process and degrades back to nature without producing any environmental pollution. Beyond these properties, it can replace synthetic and toxic chemicals, in use for example in hair straightening.

Smart Resilin’s technology was developed in Prof. Oded Shoseyov’s lab, at the Hebrew University of Jerusalem. These days, the company focuses on upgrading the resilin production process. Using genetic engineering methods, the company expresses the

DNA that encodes for resilin, and expresses it in bacterial cells. This process allows the company to tune the protein to a range of applications and produce it at a large scale.

In 2023, Smart Resilin partnered with Acies Bio, a leading European company for advanced protein production. Bringing the spotlight to their joint venture, the companies promise to produce resilin at an industrial scale in a relatively short time frame - by 2026.

In 2024, Smart Resilin will run pilot programs with around 10 international companies, most of which are in the field of cosmetics. These days, the company is fundraising towards opening a sales and business development department.