

Cure inflammation of the skin sustainably with cold plasma Effective against acne: tpSkin for easy support of skin health

Garching near Munich, May 12, 2023 – ESA has given the green light for the latest research project of terraplasma, the innovation leader in the development and implementation of applications with cold atmospheric plasma (cold plasma for short). As part of the ESA Spark Funding program, the company received support for the development of a device that uses a new, specially designed coldplasma to provide an effective and sustainable treatment of acne and other skin diseases and irritations.

Acne - widespread skin condition of youth

With a probability of occurrence of almost 100 percent, acne is the number one skin infection in adolescence and puberty. While a majority of 60 percent of cases are mild acne that can be treated with non-prescription drugs, the remaining 40 percent are acute or even chronic cases that require medical attention. The latter type of acne often presents a therapeutic challenge, as it is associated with acute lesions (destroyed cell tissue), severe inflammation and rapid scarring. In addition, patients with acne often suffer from low self-esteem, reduced quality of life and depression.

Cost factor acne-prone skin

In addition to this dermatological and psychological burden, acne also puts a financial strain on patients. An individual acne treatment (this only includes acne products but no professional medical care) costs about € 1,000 per year. On the other hand, the costs charged to the healthcare provider average €690 (up to €870) per acute acne period, including inpatient stays, outpatient services, emergency care and pharmacy costs during the episode.

Cold plasma against hard-to-reach acne bacteria

Acne infections are mainly caused by the anaerobic bacterium *Cutibacterium acnes*. Therefore, the device developed by terraplasma will produce cold plasma, which is able to efficiently inactivate these bacteria, which are mainly found in follicles and pores (and are therefore difficult to reach with creams and liquids), without damaging the surrounding healthy tissues.

Cold plasma makes the skin open to creams, medications and healing

Another goal is to design the cold plasma in such a way that it improves the absorption of antibacterial creams and liquids and is effective against other skin diseases and irritations. Initial preliminary investigations have shown very positive results when using cold plasma on the skin: on the one hand, the cold plasma ensures that the regeneration of the skin cells is stimulated and, on the other hand, the skin pores are opened – this means that creams, but also externally administered medications can be better absorbed.

Ambitious goals with successful signs

In order to achieve all these goals, terraplasma will build on the extensive practical knowledge already gained by the company in the development of the successful plasma care® for

professional wound treatment and plasma [derma care®®](#) for the professional treatment of skin diseases.

As part of the funding program, the new device from terraplasma (working title **tpSkin**) will be developed primarily for use by end users with the following core properties:

- **Transferable:** no cables or hoses and battery operation with charging by induction
- **Practical:** small, handy and can be used in one-handed operation
- **Simple:** uncomplicated operation by medical laymen possible
- **kompakt:** Use of new low-line plasma source based on SMD (Surface Micro-Discharge) technology
- **Innovative:** newly developed, bactericidal plasma, which is gentle on the tissue in addition to combating acne and improves cream absorption
- **Tenable:** only air and electricity are needed for plasma production

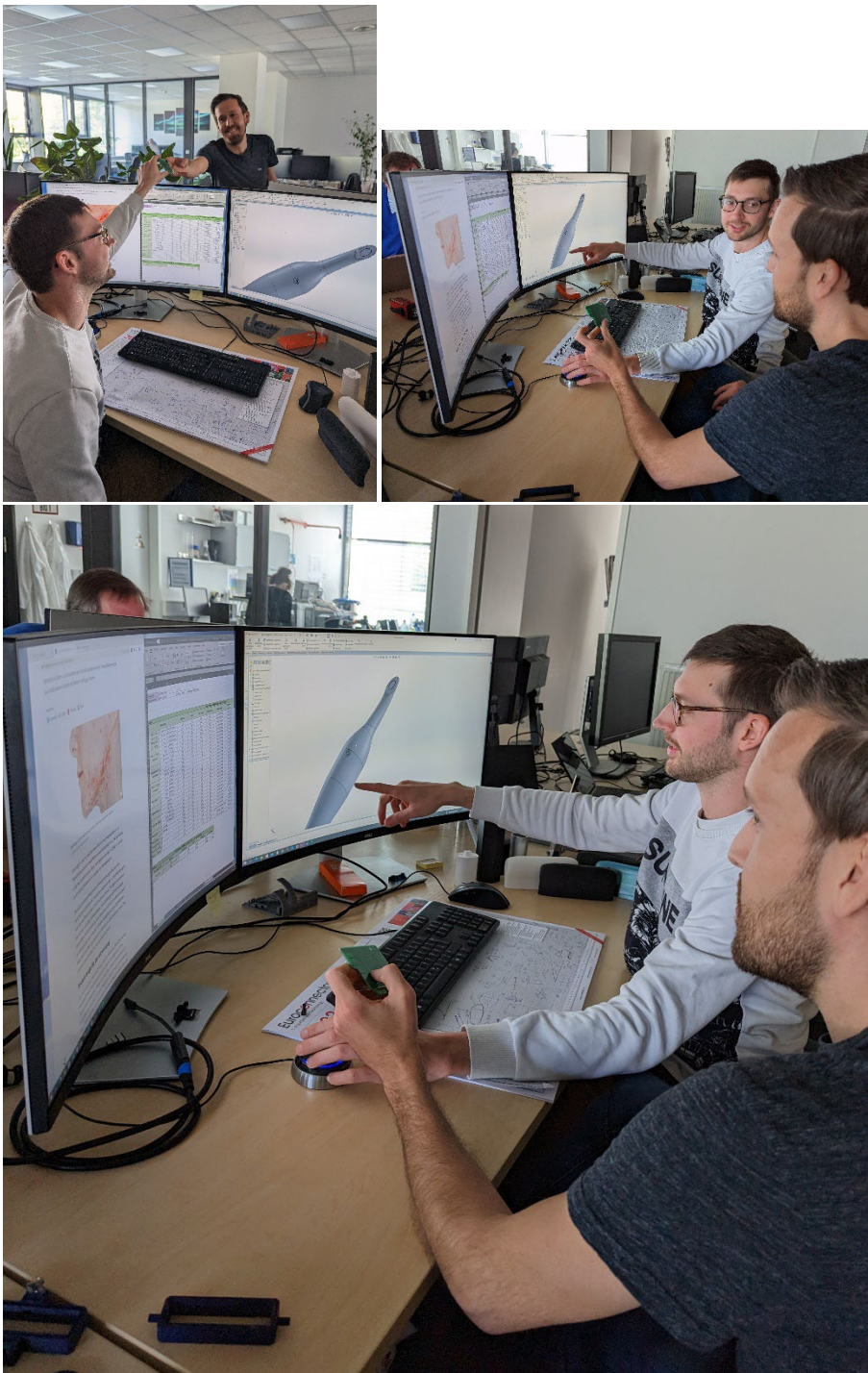
Terraplasma is confident that it will be able to intensively test the new device with the first prototypes at the end of the year as part of this funding program. Special attention is also paid to the compact size and cost of the device, which should be convincing in commercial form – terraplasma is still looking for a partner for marketing – not only because of its effectiveness.

About terraplasma

The terraplasma GmbH (<https://www.terrapplasma.com>), founded in 2011 as a spin-off of the Max Planck Society and based in Garching near Munich, offers innovative solutions for the development of cold plasma products in areas where germs are undesirable, odors or harmful molecules cause problems. Cold plasmas are partially ionized gases that inactivate bacteria, fungi, viruses, spores and odor molecules very efficiently. With different basic technologies, terraplasma cooperates with well-known companies in the fields of medical technology, hygiene, water treatment, odor management, air purification and surface modification. As a partner of industry, terraplasma's goal is to develop and market needs-based cold plasma solutions together with its partners. A young team that works with a great deal of creativity and sophistication, many years of extensive know-how in the field of cold plasma technology and numerous patents from a wide variety of areas support the company on its road to success.

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Press pictures



Employees of terraplasma from the development team for tpSkin