

PRESS RELEASE

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In order to stimulate innovation and employment, the Dutch central and provincial governments are investing in Skin Comfort, a project by a consortium consisting of Radboud University Nijmegen Medical Centre, Philips, TenCate and a number of other partners.

'Transparent' skin stimulates the development of new products

Over the past few years, the Department of Dermatology of Radboud University Nijmegen Medical Centre (RUNMC) has been developing a new method for detailed examination of skin using light. This method cannot only be used to determine whether skin is diseased or healthy, but also to visualize the effects of sliding on artificial turf or using an electric razor. The collaboration between medical experts, technologists and entrepreneurs offers excellent perspectives for developing new products such as sport floors, artificial turf systems and depilation devices. The Dutch central government and the provinces of Overijssel and Gelderland have invested three million euros in the Skin Comfort project; the eleven partners in the consortium have contributed four million euros.

Skin is a complex biological system that encases the entire human body, protects it against intruders, and also plays a part in fluid evaporation and the regulation of body temperature. The thin skin layer contains all kinds of elements, not only the skin cells themselves, but also nerve cells, capillaries, sebaceous glands, immune cells and hair. "Skin problems cannot always be detected by the naked eye," says Rianne Gerritsen, dermatologist at RUNMC and secretary for the project. "Sometimes you need to look deeper and take a biopsy, i.e. a small skin sample for examination. Of course, it would be preferable to examine patients without having to perform such an invasive intervention."

Laser light

Such a non-invasive, innovative examination method is exactly what the Department of Dermatology at RUNMC has been developing over the past few years. Scientific researcher Piet van Erp: "We use a confocal microscope emitting laser light. The light penetrates the skin and is partly reflected. The reflected light enables us to look about half a millimetre deep into the skin. In this way, we can obtain images of all the major skin components such as tiny blood vessels and various cell layers. We can even observe and examine separate cells."

Transparent skin

Initially, it was not clear what exactly could be seen in these images of the skin. Was it a skin cell or an immune cell? A healthy cell or a tumour cell? Van Erp: "Over the

past few years, we have continually compared the confocal microscope images with skin biopsy data. We are now gaining a better understanding of what we see in these confocal microscope images, for example, whether or not we are dealing with skin tumours. This means we now have the knowledge and technology to look into the skin from outside. Skin has become ‘transparent’.”

Reflecting cells

This new technology is good news for patients. Dermatologist Gerritsen: “The number of people with skin tumours is increasing. We frequently see people with sun damage and skin tumours all over their bodies. It’s a hopeless task to take biopsies of all the spots that might contain developing tumour cells. With this new technology, however, such an extensive diagnosis can be made much more accurately, and in a much more patient-friendly manner. For example, a melanoma – the most aggressive type of skin tumour that develops from a mole – can be detected very quickly. These tumour cells contain a lot of pigment. Most cells that reflect a large amount of light contain this pigment. Part of the project is therefore to examine how this new technology can be used effectively in patient care.”

TenCate: slidings on artificial turf

The new research technology may also be of interest to industry. Van Erp: “Now that images of the skin can be obtained quickly, reliably and non-invasively, we are better able to determine, for example, the effects of sliding on artificial turf. Does the skin become red because of frictional heat? Will certain materials cause skin irritations or even allergic responses? We can now prove this objectively, because there will be a strong increase in the number of immune cells. We already were in regular contact with TenCate material technology group in Nijverdal, the Netherlands. Thanks to subsidies from the central and provincial governments in our country, we can now cooperate more closely. The measuring method will also facilitate the development of additional quality requirements for artificial turf pitches and sport floors. This should give international football federations sufficient reason to support the partnership.”

Philips: a cleaner shave

Philips is another major player in the consortium. Philips makes use of test panels for the development of electric razors and depilation devices. Philips now intends to use the new method developed by RUNMC to measure skin irritation more accurately and objectively. During the development of an electric razor, it is essential that the device is tested as early as possible in the process, as this will lead to greater improvements. Drawing on the consortium’s knowledge and expertise, Philips will set out to find better measuring methods to achieve a cleaner shave without skin irritation.

Editor’s note

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About Radboud University Nijmegen Medical Center (RUNMC)

The [Radboud University Nijmegen Medical Centre](#) advances human knowledge by conducting biomedical, translational and clinical research in order to improve wellbeing.

Our key strength is medical life-sciences and clinical practice, with an impressive infrastructure comprising state-of-the-art technology platforms and (translational) research facilities. The RUNMC is

therefore uniquely positioned in the emerging Euregio and Dutch healthcare infrastructure to play a leading role in the new healthcare paradigm of prediction, prevention and personalised medicine. The Radboud University Nijmegen Medical Centre (RUNMC) is a centre for research and health care employing nearly 10,000 staff and boasting 3,000 students all working together for the future of the health care and medical sciences. The RUNMC strives for top quality in its three core functions: patient care, research and education/training.

About Royal Ten Cate

Royal Ten Cate (TenCate) is a multinational company which combines textile technology with related chemical processes and material technology in the development and production of functional materials with distinctive characteristics. Products of TenCate are sold worldwide.

Systems and materials from TenCate come under four areas of application: safety & protection, space & aerospace, infrastructure & the environment, and sport & recreation. TenCate occupies leading positions in protective fabrics, composites for space and aerospace, antiballistics, geosynthetics and synthetic turf. TenCate is listed on the NYSE Euronext (AMX).

About Royal Philips Electronics

Royal Philips Electronics of the Netherlands (NYSE: PHG, AEX: PHI) is a diversified health and well-being company, focused on improving people's lives through timely innovations. As a world leader in healthcare, lifestyle and lighting, Philips integrates technologies and design into people-centric solutions, based on fundamental customer insights and the brand promise of "sense and simplicity." Headquartered in the Netherlands, Philips employs over 120,000 employees with sales and services in more than 100 countries worldwide. With sales of EUR 22.3 billion in 2010, the company is a market leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as lifestyle products for personal well-being and pleasure with strong leadership positions in male shaving and grooming, portable entertainment and oral healthcare. News from Philips is located at www.philips.com/newscenter.