

## PRESS RELEASE

### Beiersdorf Discovers the Rhythm of Skin

- **Researchers at Beiersdorf and Charité Berlin have demonstrated that epidermal skin cells have their own “inner clock.”**
- **Molecule Krüppel-like-factor 9 (Klf9) is responsible for cell division and cell growth.**
- **Research results provide new prospects for skincare and medicine.**

**Hamburg, February 14<sup>th</sup>, 2013** – Scientists at Beiersdorf AG have once again made an important contribution to our understanding of skin: together with researchers of Charité University Medicine Berlin they were able to demonstrate the existence of an inner clock in human skin cells, which controls skin regeneration among other things. Hamburg researchers from the team of Dr. Jörn Hendrik Reuter, Head of the General Skin Care Laboratory at Beiersdorf and Professor Achim Kramer from the Chronobiology Department of Charité Berlin participated in the collaborative research project. “The findings from our collaborative research could have a large influence on the skincare of the future,” Reuter said.

In Beiersdorf’s Test Center in Hamburg, one of the largest and most modern skin research centers in Europe, the circadian rhythms of the stress hormone cortisol present in the skin were studied in 20 test subjects. Furthermore, in the Berlin sleep lab cell samples were taken from 20 volunteer subjects in four-hour intervals over the course of 24 hours. The analysis of these samples showed that about 10 percent of the genes in skin cells follow their own rhythm. According to the researchers, these most likely correspond to the respective chronotypes. The molecule “Krüppel-like-factor 9” (Klf9) stood out in the samples: “We observed that Klf9 is mostly active during the day. When it was inactive more rapid cell division was observed,” said Dr. Jörn-Hendrik Reuter. When the research team increased the concentration of Klf9 in the samples, cell division was significantly slower.

### New Prospects for Skincare and Medicine

The results of the collaborative research project open up completely new possibilities for the skincare of the future: “The findings about the influence of Klf9 on cell division, for example, could be the impetus of the development of a new kind of anti-aging care. We could try to bring skin that is out of synch back into rhythm with its inner clock or perhaps we can address problems caused by lifestyle with skin care that targets chronobiology,” said Reuter.

The results may also be important for medicine: “With these findings the next step we might be able to take in research is finding out what the best time of day is for operating on someone so that their wound heals best. This is just one of the promising implications for medical research,” said Professor Kramer from Charité Berlin.

## Further Information

Dr. Thomas Blatt (Research & Development, Beiersdorf AG) and Professor Achim Kramer's team published the first results in the professional journal "Proceedings of the Academy of Science" (PNAS).

Florian Spörl, Thomas Blatt, Achim Kramer et al (2012): *Krüppel-like factor 9 is a circadian transcription factor in human epidermis that controls proliferation of keratinocytes*. In: Proceedings of the Academy of Science (PNAS), Jul 3; 109(27):10903-8. DOI: 10.1073/pnas.1118641109. It can be found here: <http://www.pnas.org/content/109/27/10903.full.pdf+html>

## About Beiersdorf AG

Cosmetics company Beiersdorf AG is based in Hamburg, Germany, and has around 17,000 employees worldwide. Its sales in 2011 amounted to €5.633 billion, the company has been listed on the DAX since December 2008, and has the world's largest skin care brand, NIVEA\*. Other names in its successful international brand portfolio include Eucerin, La Prairie, Labello, 8x4, and Hansaplast/Elastoplast. Subsidiary tesa SE is one of the world's leading producers of self-adhesive products and system solutions for industry, craft businesses, and consumers. Beiersdorf has 130 years of skin care experience and is known for its innovative and high-quality products.

\*Source: Euromonitor International Limited, per umbrella brand name classification in retail value terms 2011.

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