

Sandalwood scent facilitates wound healing and skin regeneration

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Skin cells possess an olfactory receptor for sandalwood scent, as researchers at the Ruhr-Universität Bochum have discovered. Their data indicate that the cell proliferation increases and wound healing improves if those receptors are activated. This mechanism constitutes a possible starting point for new drugs and cosmetics. The team headed by Dr Daniela Busse and Prof Dr Dr med habil Hanns Hatt from the Department for Cellphysiology published their report in the *Journal of Investigative Dermatology*.

The nose is not the only place where olfactory receptors occur

Humans have approximately 350 different types of olfactory receptors in the nose. The function of those receptors has also been shown to exist in, for example spermatozoa, the prostate, the intestine and the kidneys. The team from Bochum has now discovered them in keratinocytes – cells that form the outermost layer of the skin.

Experiments with cultures of human skin cells

The RUB researchers studied the olfactory receptor that occurs in the skin, namely OR2AT4, and discovered that it is activated by a synthetic sandalwood scent, so-called Sandalore. Sandalwood aroma is frequently used in incense sticks and is a popular component in perfumes. The activated OR2AT4 receptor triggers a calcium-dependent signal pathway. That pathway ensures an increased proliferation and a quicker migration of skin cells – processes which typically facilitate wound healing. In collaboration with the Dermatology Department at the University of Münster, the cell physiologists from Bochum demonstrated that effect in skin cell cultures and skin explants.

Additional olfactory receptors in skin detected

In addition to OR2AT4, the RUB scientists have

also found a variety of other olfactory receptors in the skin, the function of which they are planning to characterise more precisely. "The results so far show that they possess therapeutic and cosmetic potential," says Prof Hanns Hatt. "Still, we mustn't forget that concentrated fragrances should be handled with care, until we have ascertained which functions the different types of [olfactory receptors](#) in [skin cells](#) have."

More information: Daniela Busse et al. (2014): "A synthetic sandalwood odorant induces wound healing processes in human keratinocytes via the olfactory receptor OR2AT4," *Journal of Investigative Dermatology*, [DOI: 10.1038/JID.2014.273](#)

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