

"Genome sequence of Evonik's sphingolipid-producing yeast strain published"

Ceramides are important biomolecules required for formation and structural integrity of the skin's outermost protective layer, the *stratum corneum*. The critical role of ceramides for skin barrier function has been acknowledged for many years, and ceramides have become prime cosmetic ingredients for topical application on the skin in order to protect and reinforce its natural barrier function.

Ceramides are complex molecules bearing several stereo-centers, and optimal efficacy as cosmetic ingredients requires skin-identical stereochemistry. Chemical synthesis of ceramides usually yields mixtures of different isomers, which are not suitable as cosmetic ingredients.

As global, undisputed market leader in the skin-identical ceramide business, Evonik's objective is it to bring new innovations and share new findings within the ceramide research field on a regular base.

As opposed to chemical synthesis, Evonik has developed a patented biotechnological green production process based on the fermentation of a non-conventional yeast called *Wickerhamomyces ciferrii* (formerly known as *Pichia ciferrii*). This yeast produces high amounts of the ceramide precursor phytosphingosine, which is secreted into the growth medium, extracted and further converted into a range of ceramides marketed as valuable cosmetic ingredients. The ceramide biosynthesis pathway is conserved from yeast to man. Therefore, Evonik's ceramides have the same stereochemical conformation as the ceramides in our skin, i.e. they are truly skin-identical.

Next step was to analyse the genome sequence of *Wickerhamomyces ciferrii* which will help to get valuable

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information for the general understanding of sphingolipid biosynthesis. This will likely pave the way for the development of tailor-made yeast strains with improved sphingolipid production capabilities.

Scientists from Evonik's Consumer Specialties business unit, together with colleagues from the Science-to-Business Center Biotechnology and collaboration partners from academia, recently determined the draft *Wickerhamomyces ciferrii* genome sequence. The project was funded by the Federal Ministry of Education and Research (BMBF).

The genome sequence was just published in the peer-reviewed journal *Eukaryotic Cell* (Schneider *et al.*, *Eukaryotic Cell* 2012, 11(12):1582).

Company information

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals. Profitable growth and a sustained increase in the value of the company form the heart of Evonik's corporate strategy. Its activities focus on the key megatrends health, nutrition, resource efficiency and globalization. Evonik benefits specifically from its innovative prowess and integrated technology platforms.

Evonik is active in over 100 countries around the world. In fiscal 2011 more than 33,000 employees generated sales of around €14.5 billion and an operating profit (adjusted EBITDA) of about €2.8 billion.

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