

SPC

soap, perfumery
& cosmetics

July 2018 volume 91 number 7

UK market

Beauty resists retail slump

Preservative alternatives

A multi-pronged attack

Technology

How smart is your packaging?

Teens
Savvy shoppers



**FRED ZÜLLI,
MANAGING
DIRECTOR,
MIBELLE
BIOCHEMISTRY**

Your health is largely thanks to your genes, which are passed on to your children. So far, so good.

However, for a few years now, epidemiological studies have been indicating that this is not quite the whole story.

We have known for a long time that an unhealthy lifestyle with a poor diet, stress and too little exercise can make you ill. The latest research now shows that the negative effects of an unhealthy lifestyle can also be passed on to your offspring, which is a scientific revelation. It was previously assumed that this was simply impossible because such additionally acquired information is not encoded in our genes.

Scientists attribute this phenomenon to the epigenetic modification of our genome. These are chemical patterns on the DNA that control to what extent a gene is switched on and off.

Epigenetic modification of the DNA helps the genome to adjust to environmental factors. To date, three key mechanisms have been identified:

1. DNA methylation;
2. Histone modification; and
3. The production of microRNA.

These three mechanisms enable genes to be switched on or off in response to environmental factors. These epigenetic modifications to the DNA can be transmitted to the daughter cells but are also reversible.

As a biochemist at Mibelle Biochemistry, I'm of course interested in the connection between epigenetics and skin ageing. We assume that chronic exposure to air pollution, UV light and other external stress factors leads to epigenetic modifications in the skin.



What is... *epigenetics*

Epigenetics – the study of heritable changes in gene function – is not just facilitating breakthroughs in the fight against diseases; the field is just as relevant to the beauty industry, as **Fred Zülli** explains

Queen bees are longer lived than genetically identical workers due to epigenetic tags on their DNA that are triggered by their special diet of royal jelly as larvae



In our research, we are now looking for active ingredients that will counteract this negative effect. We found an interesting analogy in the development of queen bees. Queen bees are much bigger and live much longer than the genetically identical worker bees. The longevity of queen bees is due to the epigenetic tags on their DNA. These tags are triggered by a special diet during the larvae stage. The queen larvae are exclusively fed royal jelly. By analysing the ingredients in the royal jelly, we were able to create a new peptide ingredient that has a positive effect on skin regeneration ●