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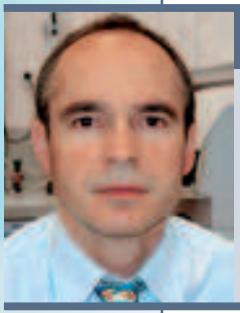

VIP of the Month
Using a gene chip Dr. Daniel Schmid of Mibelle examines the efficacy of a TCM active

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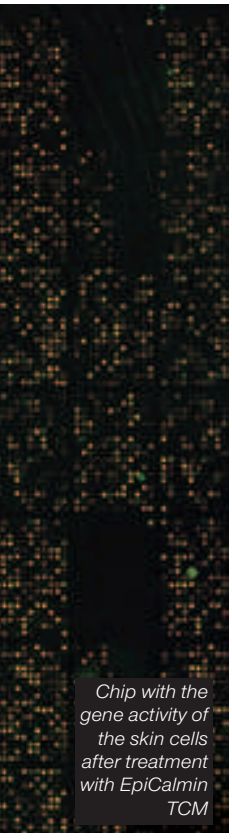
Japanese honeysuckle as a major element of the new active for sensitive skin

photos: Mibelle

TCM in skin rejuvenation

The holistic use of oriental medicine is arousing increased interest among consumers. There are many recipes within Chinese medicine used for the treatment of skin problems. Dr Daniel Schmid, head of research at Mibelle Biochemistry, describes a formulation using three Chinese medicinal herbs which, following traditional Chinese healing principals, has been specially developed for the protection of sensitive central European skin. With the help of a gene chip the action of this formulation was tested in vitro on 1,300 skin cell genes. The chip makes it possible to analyse hundreds of genes at the same time in one experiment.



Chip with the gene activity of the skin cells after treatment with EpiCalmin TCM

Mibelle Biochemistry contracted an expert in traditional Chinese medicine (TCM) to develop a formulation for the treatment of dry, easily inflamed skin that has a tendency to become itchy. The formulation contains blooms of the Japanese honeysuckle (Lonicera japonica), fruits of the Siberian cocklebur (Xanthium sibiricum) and roots of the nutsedge (Cyperus rotundus). In order to develop a cosmetic active from these ingredients the mixture of plants was aqueously extracted. The extract, EpiCalmin TCM, has the INCI name "Lonicera japonica (honeysuckle) flower extract, Xanthium sibiricum fruit extract, Cyperus rotundus root extract, phenoxyethanol and aqua". The efficacy of this active ingredient was first tested in vitro and subsequently verified in a clinical study.

Inhibits the ageing genes, activates the protective genes

The in vitro tests made use of a gene chip of the type normally used in dermatological research. This chip makes it possible to analyse the activity of 1,300 genes in one small skin sample. In the case under discussion the sample consisted of skin cells (keratinocytes) that had been grown in a culture vessel. A skin cell does, of course, have many more genes, but the 1,300 selected for the test play central roles in processes such as DNA repair, defence against toxic substances, the organisation of cell death or, conversely, the initiation of a tumour-like growth, inflammation, and energy accumulation, as well as the build-up and break-down of the skin's structural components.

During the experiments cell cultures from the human upper skin layers were grown in a nutrient medium. When sufficient numbers of cells were available they were divided between a test culture and a control. Over a 24-hour period EpiCalmin TCM was added to the nutrient medium of the test culture. Following this, both cultures were analysed using the gene chip.

The result showed to what extent the active substance had influenced the activity of the 1,300 genes. Only those genes that had been activated by more than 90 percent of normal, or more than 60 percent inhibited, were taken into consideration as relevant. Among the activated genes were mainly those that protect against the aggressive radicals generated as a by-product of cell metabolism and which

Traditional Chinese medicine at a glance

The origins of **TCM** go back more than two thousand years. Typical therapy forms are acupuncture, massage, the use of medicines, and Qigong meditation. The medicines are **based on recipes from plants,** and sometimes **mineral or animal substances.** Several hundred different healing plants are used and a recipe is usually a **mixture** of several plants. Single, isolated actives are not used, but extracts from the whole plant or plant part.

How does a gene chip work?

A gene chip is a micro-chip about 1cm square that holds, in hundreds of defined positions, arrays for specific genes. If a sample contains an active gene then the gene will bond with the relevant matrix. The **difference in gene activity** between two samples can be displayed. In the case of the experiment described above the **genes** from both cell cultures were **isolated** and differently **marked**. The genes from the culture treated with the active substance EpiCalmin TCM were marked with a **red dye** and the genes from the other culture were marked with **green.** The differently marked gene samples were then put together and applied as one sample. If just one specific gene was activated by the EpiCalmin TCM the position of its array on the chip glowed red. A glowing green area meant that the relevant gene in the control sample was more active and so must have been inhibited in the test sample. A glowing **yellow** area meant that the activity of these genes was not affected by the creams.

are a significant cause of cell death and ageing of the tissue. When the skin is subjected to UV radiation even more of these radicals are generated, which trigger the inflammation reaction and over a longer period lead to premature skin ageing. The active substance tested thus protects the cells of the upper layers from one of the principal ageing factors. Surprisingly, all of the genes that had been most inhibited were of the type that are responsible for the breakdown of the structural components collagen and elastin. The active ingredient therefore also acts to slow down the thinning of the skin, which is also a major ageing factor.

Reduced irritative reaction in clinical study

The test irritant sodium lauryl sulphate is used to show that the active ingredient really is able to protect easily-inflamed skin. The substance was applied to 20 test subjects using an occlusive dressing. The skin barrier is so damaged, the transepidermal water loss (TEWL) increases and skin redness appears. The damaged area was then treated using a cream, either with or without the active ingredient. Although a rich cream formulation was used a clear difference was seen. In the skin treated with the active cream the TEWL normalised much more quickly and the redness receded more quickly.

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