The European Dermatology Arena – In Brief
A Round-up of Trends, Statistics and Clinical Research

Eczema-Linked Gene Defect Identified

A gene defect that is responsible for eczema has been identified, claims a recent study. The gene is critical in the production of the protein filaggrin, which plays a key role in the prevention of dryness of the skin. Low levels of filaggrin may result in inflammation of the skin, and may lead to the onset of eczema. A mutation or defect of the gene in question results in people producing less filaggrin than necessary to keep the skin's moisture levels better regulated. The research – led my a team at Dundee University, UK, but with further contributions from researchers in Copenhagen, Seattle, Dublin and Glasgow – noted that in the study group 50–60% of children with eczema had the faulty gene. It is hoped that the results of the study may prompt further research into a potential cure for eczema, and subsequently bring relief for the millions of sufferers worldwide that currently rely on daily medications to combat the condition. ■

Antimicrobiol Polypeptides Produced in Skin Following Wounding

Human skin cells mount an immune response to kill invading microbes, according to a recent study from Lund University, Sweden. In addition to the physical barrier to infection, Dr Ole Sorensen and colleagues have reported that skin plays an active role in killing invading microbes by producing antimicrobial polypeptides (AMPs).

The researchers found that following sterile wounding of the skin's surface, AMPs were produced. Furthermore, the researchers concluded that AMP was produced through activation of the epidermal growth factor receptor (EGFR), which is known to be key in the wound-healing process. It was noted that EGFR increased the antibacterial activity of the skin to guard against potential skin pathogens, whilst the concentration of AMPs in wounded skin was at higher levels than necessary to simply prevent the growth of microbes. The study concluded that wounding of the skin is sufficient to activate defence mechanisms to prevent microbial growth. ■

Old American Folk Remedy Effective for Psoriasis Treatment

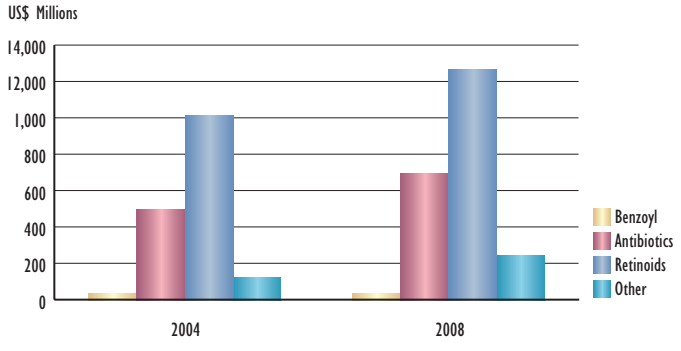
A natural preparation from a plant may prove to be a key treatment for psoriasis, according to recent research from the Dermatology and Cosmetic Centre in Rochester, New York. The claim follows a randomised, placebo-controlled investigation using a topical crème containing Mahonia Aquifolium, a plant found in the wilds of America and Europe.

The study involved 200 psoriasis patients of which 97 completed the 12-week course, with a further 74 on the placebo. The crème was applied twice a day over the period. Lead researcher Dr Steve Bernstein noted a significant statistical improvement in the symptoms of moderate plaque psoriasis against the placebo. Mahonia Aquifolium – also known as Oregon grape or barberry – was used extensively in American folk medicine to treat inflammatory skin diseases. Dr Bernstein concluded that the extract appeared to be safe and held much promise for treatment of mild to moderate psoriasis. ■

Pathway for Hair Loss and Oily Skin Discovered

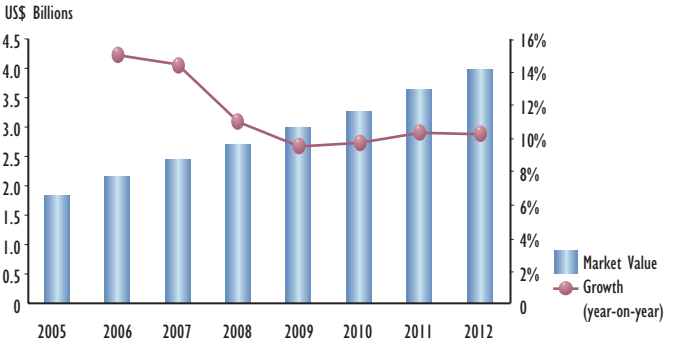
Researchers have discovered that a gene's over-expression may cause skin stem cells to switch from producing hair follicles to instead create sebaceous glands.

Figure 1: The Global Market for Prescription Acne and Rosacea Drugs by Type (2004 and 2008 forecast)



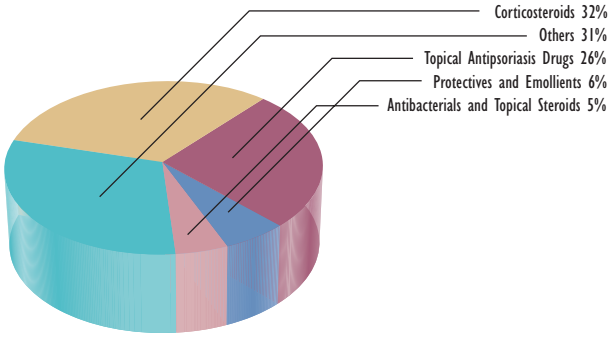
Source: adapted from Kalorama Information

Figure 2: Global Image Dermatology and Aesthetic Medicine Market Value and Value Forecast, 2005 – 2012



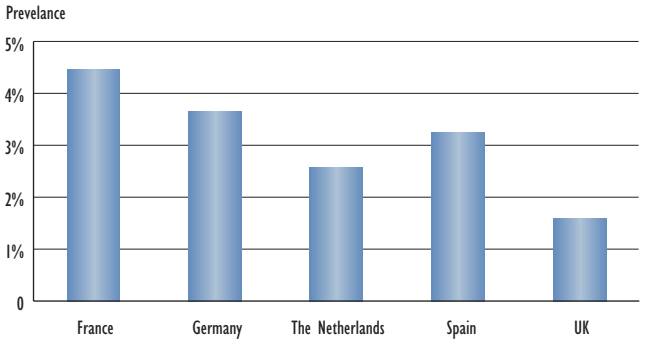
Source: based on data from Spectra Intelligence

Figure 3: Psoriasis Treatments: Leading Drug Classes



Source: Touch Briefings

Figure 4: Psoriasis Prevalence: Selected European Countries (2005)



Source: Touch Briefings

A team led by Dr Xiao-Jing Wang at the Oregon Health & Science University discovered the pathway. The researchers found that in aged skin a protein called Smad7 is over-produced. This stimulates the loss of hair and also growth in sebaceous glands - responsible for lipid oil production, key in skin lubrication. The Smad7 over-expression in aged skin has previously been well documented, but this study is the first to link this over-expression with the subsequent pathological changes in the skin.

Using genetically engineered mice, researchers found that over-expression of the Smad7 protein switches the epidermal stem cells from forming hair follicles to stimulating sebaceous glands. As a result the mice experienced balding and a marked increase in oily skin. Researchers found that Smad7 blocks signalling from another gene group, Wnt, by binding to its signalling protein Beta-catenin. Previous research has noted that when Wnt signalling – key in the formation and growth of organs – becomes too active it may be closely linked to organ diseases.

"This identification of a Beta-caternin pathway may not only have a significant impact in understanding skin development, but eventually in the treatment of cancers," concluded the researchers. ■

Prebiotics Reduce Skin Allergy Development in Babies

Prebiotics may reduce the risk of developing atopic dermatitis in babies that are at high risk of developing the disorder, according to a recent study. Researchers, led by Professor Boehm, Numico Research, Germany developed an infant formula based on the composition of human breast milk, with a high prebiotic content. Prebiotics are crucial in the promotion of growth of bifidobacteria and lactobacilli – key bacteria in the development of healthy immune systems.

With a study group of babies who had at least one parent with atopic eczema, the babies' mothers were instructed to breastfeed. Of those unable to either start or continue to breast feed, babies were split into two groups: group one included 103 babies who were given a prebiotic formula, whilst group two included 104 babies given a standard formula.

Following a six-month period, researchers found that only ten babies that were fed a prebiotic formula showed signs of the development of atopic dermatitis, compared to 24 in the group weaned on standard formula. In addition, monthly stool samples from 98 babies noted a significant increase in the presence of bifidobacteria in babies that received the prebiotic feed.

The results suggest that formula supplemented with prebiotics may have a pronounced affect on modifying the production of bowel bacterial, which in turn may be key in reducing the chances of atopic dermatitis among children most susceptible to the disorder. ■

Pollution Contributes to Rise in Atopic Dermatitis

Between 15–25% of children in industrialized countries suffer from atopic dermatitis (AD), according to Dr Bernard A Cohen, Director of Paediatric Dermatology at Johns Hopkins Children's Centre in Baltimore. This increase was potentially due to pollutants and environmental factors, as opposed to genetics or socioeconomic factors. Dr Cohen also suggested that the concern of Western societies with cleanliness and nutrition has prevented young children being exposed and building a resistance to certain antigens and allergens.

This results in a higher chance of these children developing asthma, eczema, and other atopic disorders when they are older. However, while the incidence of AD increases, the treatment options available are not necessarily meeting the demand and, like many medications, the effectiveness of any treatment depends on each individual patient. Dr Cohen expressed concern that new topical calcineurin inhibitors-the more desirable, non-steroidal agents-may not be chosen by parents due to US Food and Drug Administration (FDA) advice that such medications have caused lymphomas in chimpanzees and mice during studies.

Dr Cohen adds, "We're looking for a drug that can be given easily and systemically with no toxicity, that clears everybody up-but there's no magic bullet yet". ■

Cosmetic Surgery Survey Reveals...

According to the American Academy of Cosmetic Surgery's 2006 Consumer Perception Survey:

- Whilst only 6% of the survey group had undergone cosmetic surgery, 20% aspire to at some point;
- 12% of men believe they will have cosmetic surgery in their lifetimes;
- 18% cited fear of pain as the major procrastinating factor for avoiding surgery;
- 20% of those surveyed are unclear as to what cosmetic surgery is. ■