Top Stories in Research

By Dr. Jan Dutz

What's new on the research front? The articles described here are so hot off the press the ink has barely dried.

Hair loss linked to autoimmune diseases

Alopecia areata is a form of hair loss where hair is often lost in patches or turns white virtually overnight. Patients may even lose all of their body hair. Alopecia areata affects as many as two per cent of people.

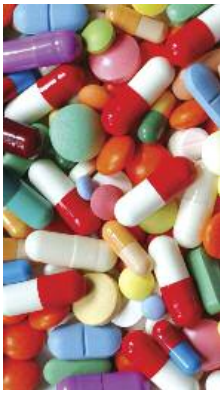
In a new study published in the prestigious science journal *Nature*, Dr. Angela Christiano and colleagues examined the genes of roughly 1,000 patients with alopecia areata. This analysis led to the identification of eight genes associated with the condition.

These genes control elements of the immune response. Interestingly, some of the genes have also been linked to autoimmune diseases such as type 1 diabetes and rheumatoid arthritis. These data firmly mark alopecia areata as an autoimmune disease. In addition, analysis of the role of the eight genes may lead to the development of new therapies for this life-altering disease.

A new drug to fight skin cancer

Malignant melanoma is a potentially fatal skin cancer that was newly diagnosed in roughly 5,000 patients in Canada in 2009. Severe sunburns and use of sun-tanning lamps are risk factors for melanoma. If caught early, this disease is curable by surgery. Once the tumour has spread beyond the skin, however, it is very difficult to eradicate. Because of this, reports of a treatment that can increase survival in patients with advanced disease are big news.

Clinical trial results published by FS Hodi in the June 2010 issue of the *New England Journal of Medicine* showed that in a study of two novel treatments—a vaccine against melanoma and an antibody called ipilimumab (a biological agent)—ipilimumab nearly doubled the number of patients with advanced cancer surviving for one year. The treated patients had advanced melanoma and had not improved on two available treatments: interleukin-2 and dacarbazine. The patients given ipilimumab alone lived on average 10 months—four months longer than those given the vaccine.



While preliminary, this study shows that immune stimulants can be used to increase the lifespan of patients with advanced melanoma and paves the way for further studies that examine immune activation in melanoma.

Siblings and eczema

Atopic dermatitis, or eczema, is the most common inflammatory disorder of the skin. The lifetime prevalence of this condition may be as high as 30%. A defect in barrier function is common in individuals with eczema, with a significant number of individuals harbouring defects in filaggrin, a protein that contributes to the Teflon-like barrier properties of the skin.

Environmental factors also play a role. According to one theory—the hygiene hypothesis—exposure to microbes in early childhood may instruct the skin's immune system to minimize eczema-related inflammation.

A recent study from Germany examined the possible interactions of genetic and environmental factors. Investigators examined two groups of children who were followed from birth to the age of six years. The association between eczema, filaggrin defects and the presence of older siblings was studied. It was proposed that the presence of older siblings may reduce the incidence of eczema by increasing the child's exposure to infectious agents. The investigators found that, to the contrary, the presence of older siblings among those genetically predisposed to eczema due to filaggrin mutations increased the prevalence of skin disease.

The authors suggest that the presence of older siblings in the household may actually increase exposure to allergens and microorganisms that worsen eczema. The study of the interaction of genes and environment is just beginning and is sure to lead to novel insights into this common affliction. CS

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