It Is All About the Barrier…

Jacob P. Thyssen
Department of Dermato-Allergology, Copenhagen University Hospital Gentofte, Niels Andersens Vej 65, DK-2900 Hellerup, Denmark. E-mail: jacpth01@geh.regionh.dk

Jacob B. Thyssen received an award from Leo Pharma in 2010. This award finances a visit to Veterans Affairs Medical Center in San Fransisco, USA. Read about his experiences during this visit.

Successful genotyping of the filaggrin gene in 2006 has resulted in dramatic advances in our understanding of the pathomechanism of atopic diseases. Moreover, skin barrier dysfunction has recently been associated with psoriasis vulgaris in a genome-wide association study. It appears that some of the most common skin diseases we encounter as dermatologists may begin after bombardment of an inherited deficient skin barrier, resulting in secondary activation of the immune system. Perhaps the skin barrier, which permits terrestrial life, is not that perfect after all. Maybe we should focus more on keeping the skin barrier intact, in order to prevent disease.

Peter Elias, from the Dermatology Service, Veterans Affairs Medical Center, and Department of Dermatology, University of California, San Francisco, USA, is a global expert in the skin barrier. An award from the LEO Pharma Research Foundation offered me the opportunity to continue research in an area in which I am increasingly interested. With a relatively humble background in epidemiology, I chose to expand my knowledge by working with more basic science in San Francisco. Peter Elias, the inventor of the "brick-and mortar" model, has a relatively small group who work with great expertise in their niche of dermatology research. They mix *in vitro* studies with animal and human models to increase the understanding of skin barrier functions and morphology. Their focus is therefore on mechanistic studies, describing in detail how, for example, the lamellar bodies empty their contents in different diseases, or how lipids and proteins are organized.

There is no doubt that Peter Elias's lab is a great place to learn about the skin barrier. Over the years, more than 30 foreign researchers have worked there. In fact, 8 Koreans from the same university group have come to work with him. Work days are very long, and most weekends are busy, as the mice need daily treatments, biopsies have to be taken, and measurements performed; but, ultimately, the work is very rewarding.

When I moved to San Francisco I brought my wife and three children with me. It has been great deal of work to

Fig. 1. Co-workers at the Veterans Affairs Medical Center, UCSF, San Fransisco. *Left to right*: Debra Crumrine, Peter Elias, Elena Godoy, Jacob Thyssen.

move everyone. One might imagine that the most difficult aspects of relocating would be the children starting a new school, learning a new language, and for my wife to find hobbies while she is not working, and so on; but, in fact, by far the most trying aspects, before, during and after this research year have been the practical and administrative tasks: visa applications, healthcare checks, Mantoux testing, hepatitis vaccinations, X-rays, insurance, security checks, taxation issues in Denmark and the USA, car purchase and driver's license, renting out the house, and arranging accommodation.

I very much enjoy working at the Veteran Affairs Medical Center. The hospital caters only to veterans and their pride is visible everywhere you go. Cars have stickers saying: "I served in Vietnam", or "Korea Vet". In the hospital there are veterans' drawings depicting the horror of war, which are very real and frightening. The costs of war are very evident; alcoholism, psychiatric suffering, amputations, etc. The veterans proudly wear clothing identifying their old unit. Even doormats have mottos, such as: "the price of freedom is visible here" or "we serve those who served". New facilities are currently being constructed to care for the high number

Fig. 2. Visiting the largest trees on the planet.

of veterans returning from Iraq and Afghanistan. As such, war really is planned at the desk.

It has been very interesting to attend a few clinics as an observer and see how the American physicians work. The residents take notes, whereas the consultants who are running the clinics have no paperwork at all. The time spent with each patient is very generous, typically 20–30 min; the patient will be waiting in the room undressed ready for the clinic. Compared with Denmark, there is much more time to talk to the patient and deal with their problems. At a tertiary clinic, dermatology is an art, and is not carried out solely according to a guideline. This was something that really surprised me. One aspect that concerns me is that the patient is exposed to different treatment options by the physician and then a new visit is scheduled. In the meantime, the patient has to contact the insurance company to determine what their insurance plan covers and then decide which treatment to ask for.

My experience so far in San Francisco has been phenomenal. I appreciate the opportunity to be here and I am grateful to LEO Pharma Research Foundation for making my time here possible through their generous financial support. It is always inspiring to see how things are done in other parts of the world; it makes one reflect on many things, including the pros and cons of the US and Scandinavian models.