Professor Inger Rosdahl's Day in Linköping

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A special meeting of the Eastern Sweden section of the Swedish Society of Dermato-Venereologists was held on 4 March 2011 to celebrate the research interests of Professor Inger Rosdahl, who, although still extremely active in research and very involved in the Faculty of Health Sciences of the University of Linköping, was moving to an emeritus position after years of activity at both faculty and university level. The meeting's formal research programme included a range of subjects. A dinner, held after the meeting at Campus US of Linköping University, was a delightful gathering of colleagues and friends.

Fig. 1. Inger with two recent co-researchers, Cecilia Bivik and Petra Wäster, and Hans Rorsman, emeritus professor from Lund, a co-author from Inger's early research career.

At Inger's request, the invited lecture was given by Margareta Wallin Peterson, Professor in Zoophysiology, at the University of Gothenburg. The title of the lecture was "Why can fish and frogs quickly change the colour of their skin when we cannot? What happened during evolution". We learned that many "lower" species have the ability to redistribute melanosomes through reversible transport involving structures such as microtubules and filaments and the motor protein kinesine, allowing them to imitate the colour patterns of their surroundings. Evolution has led to a loss of such ability in higher-order species, including, of course, humans. We were given fascinating insights into possible roles for melanosomes in defence against microorganisms. The complexities of inheritance were explained; for example, current knowledge of the inheritance of eye colour is that it involves at least 60 genes. Thus "Mendelian" inheritance clearly understates the complexity of the process. Inger's own research has involved melanin biology, including a postdoctoral position at the laboratory of Professor Thomas B. Fitzpatrick, who often used to say: "... think if we could make the Celts produce pigment to protect themselves". We learnt that such biological attributes exist, although they are currently inaccessible to us.

Fig. 2. Inger surrounded by friends at the celebratory dinner at Café Cellskapet in Linköping University's University Hospital Campus.

Fig. 3. Inger, who is a good storyteller (though perhaps unable to move melanosomes with her stories!), has always been able to bring a blush to the faces of her listeners when required. It is hardly surprising then that the celebratory evening had its more light-hearted moments; for example, the highly acclaimed appearance of the Linköping Dermatology Department's Ladies Choir.

Fitzpatrick skin typing is a standard method for the characterization of phenotype for susceptibility to burn and ability to tan. Chris Anderson from Linköping gave a lecture on the negative and positive aspects of ultraviolet (UV) radiation in terms of physics, biology and cutaneous reactivity. Erythema is easily characterized subjectively by assessment with the naked eye, but the poor performance of assessment of grades of erythema has limited such assessment to focusing on minimal erythema dose (MED). The advent of bioengineering methods for quantification of erythema has improved our ability to describe in detail skin reactivity to UV, especially in terms of the degree of reactivity above the MED. Tissue viability imaging (TiVi) is a method developed in Linköping that allows rapid acquisition of data on erythema for more detailed quantification of the "susceptibility to burn" aspect of Fitzpatrick skin typing. Slower progress has been made in the quantification of pigmentation, but polarization spectroscopic methodology can also assess this and may offer the opportunity for a more detailed quantification of Fitzpatrick's ability to tan.

Cecilia Bivik and Petra Wäster, for whom Inger was supervisor during their doctoral studies, and who now hold postdoctoral positions at the Department of Clinical and Experimental Medicine in Linköping, presented their findings on the mechanisms of UV-induced apoptosis. Both UVB and UVA have negative effects on the skin. Apoptosis is the means by which a tissue rids itself of DNA-damaged cells. Aberrations in apoptotic mechanisms can have negative effects in a tissue. For instance, HSP70 is an anti-apoptotic protein, which is itself induced by UV in combination with warmth. The net effects of apoptotic and anti-apoptotic signals are thus of importance in the development of both melanoma and non-melanoma skin cancer. This important research is ongoing.

Magnus Falk, Genereal Practionioner and Lecturer at Department of Medical and Health Sciences, HU, LiU, presented findings from his research into the assessment of sun exposure habits and attitudes to sun exposure with respect to the effectiveness of skin cancer prevention in a primary care environment. A questionnaire is used to record a "score" for habits and attitudes pre- and post- intervention to assess the efficacy of prevention measures. In differentiated efforts to provide information it could be shown that the most effective "package" involved personal delivery of the information by the patient's doctor. This positive effect was most pronounced in patients with high sensitivity to UV. A scoring instrument is proposed for the standardization of assessment protocols and for the systematic documentation of prevention efforts, which should be a routine component of the day-to-day delivery of healthcare for skin cancer patients and, indeed, the general population, which will have varying needs.

Fig. 4. Many took the opportunity to express their appreciation of Inger during the evening, including her longstanding friend and colleague Birgitta Edmar.

Fig. 5. Inger has a new passion in life, which is shared by her husband Sivert: Nepal, with its fascinating clinical, educational, but also practical, challenges. Here Birgitta Stymne presents a problem-solving kit for the forthcoming trip to Nepal, and also a gift to help support a bee colony in the local community, with which Inger has become involved.

Charlotta Enerbäck, a Senior Lecturer in psoriasis research at Linköping University, used her clinical genetics and research background to address the genetics of Inger Rosdahl's main disease focus, malignant melanoma. Charlotta delineated a first group of familial predisposition to melanoma as a result of a high-risk, high-penetrance mutation in the gene *CDKN2A*. A second group with a lower risk and a lower penetration has its origin in many different genes. The usual principle for the development of melanoma, the accumulation of genetic events, needed fewer events in patients with hereditary risk. Grade of UV exposure affected the likelihood of development of melanoma. The occurrence of both melanoma and pancreas cancer in families is associated with increased risk. Knowledge of inherited risk can help to systematize the delivery of preventive information. Discrepancies between genotype and phenotype are among the challenges in the research area.

Inger herself gave an interesting lecture on the effects of pregnancy on melanocytic naevi and malignant melanoma in pregnancy. Since there is little solid evidence for growth or change in melanocytic naevi during pregnancy, naevi showing change should be treated with the same degree of diligence as in "non-pregnant" skin. There is no published evidence that melanoma is more likely to occur during pregnancy, or that pregnancy is a risk factor for the development of melanoma. Similarly, there is no support in the literature for the myth that the prognosis of melanoma in pregnancy is worse than in matched melanoma situations outside of pregnancy. There is also no evidence that subsequent pregnancy after a diagnosis of malignant melanoma is associated with increased risk.

The scientific programme was followed by an evening of celebration of a new milestone in Inger's career: academic emeritus status, with its promise of continued research and the opportunity to develop new goals in life, both personal and professional. We wish Inger every success in this new stage in her life and thank her sincerely for all her achievements in the service of dermato-venereology.

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Some milestones in Inger Rosdahl's career

Med.Dr., Gothenburg University 1970
Research Fellow, Harvard University 1974–76
Specialist in Dermato-Venereology 1977
Doctoral thesis 1979: "The epidermal melanocyte population and its reaction to ultraviolet light"
Docentur 1989
Senior Lecturer, Faculty of Health Sciences, Linköping 1993
Professor in Dermato-Venereology, Linköping 1994
President, Swedish Society of Dermato-Venereology 1998
Pro-Dean, Faculty of Health Sciences, Linköping 2000
Pro-vice Chancellor, Linköping University 2004