In this issue of the *BJD*, Eleftheriadou *et al.* present the results of a consensus study on the definition of 'successful repigmentation' from the patients' perspective.[7] In three different focus groups involving a total of 73 patients with vitiligo, consensus was reached that 80% repigmentation of a target lesion is regarded successful by patients. Moreover, patients considered the face, neck and hands to be the most important sites of their bodies in terms of achieving satisfactory results. Also, patients recommended an objective and a subjective scale to measure repigmentation. Remarkably, this consensus was unanimous with a 100% agreement.

Does that mean that treatments where we anticipate much less than 80% improvement should not be started at all? It is wise not to jump too quickly to conclusions; for individual patients, substantially lower repigmentation rates may be acceptable or even successful. Other patients may just want to stop the progression of their vitiligo instead of aiming for repigmentation.[8] In the age of 'shared decision making' we need to discuss expectations and anticipated outcomes with our patients and achieve the best possible management of their skin condition. Inevitably, this study raises new questions and now needs to be repeated in other settings and other populations. These results also clarify that our treatments are not nearly as effective as patients require today. Given the great impact vitiligo may have on patient's quality of life, we need to follow a course for more effective treatments but also for valid outcomes in vitiligo.

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Conflicts of interest

None to declare.

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'En route' to precision medicine

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Linked Article: McAleer *et al.* *Br J Dermatol* 2019; **180**:586–596.

In this issue of the *BJD*, McAleer *et al.* present interesting and important research on biomarkers measured in stratum corneum and plasma of infants with atopic dermatitis (AD).[1] Although AD is much more common in childhood, most biomarker research until now has focused on the disease in adults. With many new drugs for children with AD in different stages of development this research is timely.

There are many different uses for biomarkers in AD,[2] among these are the objective determination of disease severity and the prediction of treatment response. Until now, disease severity in patients with AD is mostly determined by using clinician-rated severity scores [e.g. Six Area, Six Sign Atopic Dermatitis, the Eczema Area and Severity Index (EASI) and the Severity Scoring of Atopic Dermatitis index (SCORAD)], each of which has advantages and disadvantages. The search for better clinician-rated disease severity measures in AD has resulted in more than 20 different scores being used in clinical studies, which hampers study comparability. Although the EASI and SCORAD are now the preferred measures, they also both have the problem of high inter- and intraobserver variability.[3] An objective biomarker for disease severity determined in blood or skin could greatly improve the way we measure disease severity in AD.

A recent systematic review showed serum CCL17/TARC levels to be the best objective biomarker for disease severity in adults with AD.[4] Now McAleer *et al.* have confirmed that AD plasma CCL17/TARC levels also correlates to disease severity in children.[1] Their study comprised the investigation of a set of potential biomarkers in stratum corneum. The user-friendly

availability of less-invasive techniques for biomarker retrieval, such as tape stripping or the use of dried blood spots, can greatly expand their use, which will result in increased knowledge on processes involved in the early development of the disease. These developments may also help us to explain the heterogeneity of the disease and underlying pathways that will determine the specific path a child will follow in the atopic disease march better.

It is interesting to read about the comparison of blood and skin biomarkers in McAleer *et al.*'s study, as some biomarkers are known to be expressed highly in the skin, but difficult to measure in blood. Cytokines and chemokines produced in the skin can be measured in blood after diffusion from skin into blood or after expression (e.g. chemokines) on endothelial cells and subsequent shedding into the circulation. The concentrations of these skin-derived inflammatory biomarkers in blood gives an indication of the inflammatory activity encompassing the total skin surface.

In contrast, biomarker levels measured in tape strips only reflect the 'local level of inflammation' in the sampled area. Correlating disease severity with expression of biomarkers in tape strips is therefore less likely to correlate to a disease severity measure that encompasses the total skin area. Biomarkers measured in the stratum corneum may, however, be helpful in the identification of patients with different endophenotypes. Indeed, our research group have recently described different clusters of adults with AD based on serum biomarker expression levels, that may represent different endophenotypes.[5] Thus, the use of noninvasive biomarker sampling methods paves the way for large-scale endophenotyping in both children and adults. As patients with different endophenotypes are supposed to respond differently to new, highly targeted treatments, this may help us with the identification of the right patient for the right drug on our journey to precision medicine.

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Shining light on darker skins

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Sunlight is essential for life. The sun's ultraviolet radiation (UVR) has many effects on human health and well-being. Some are beneficial such as cutaneous vitamin D synthesis and others harmful, such as skin cancer. Human sight is dependent on visible radiation (light) that is also important for setting circadian rhythms. Infrared radiation may have potential for the biomodulation of fibroblasts for treatment of cutaneous conditions.[1] We have a good understanding of the cellular and clinical consequences of direct photodamage by sunlight caused when the cutaneous chromophore[2] (radiation absorbing molecule) is the target molecule (e.g. DNA) but less so in the case of indirect damage when a chromophore generates free radicals such as reactive oxygen species (ROS) that can damage other molecules, or trigger gene expression for adverse effects.

Most photobiological research has been done on Fitzpatrick skin types (FST) I–IV and there is a lack of data on FST V and VI.[3] Furthermore most work has focused on the UVR component of sunlight. Thus, sunscreen photoprotection is directed towards UVR, with increasing emphasis on greater ultraviolet A (UVA) protection. One possible consequence of this is increased exposure to solar visible and infrared radiation. There is increasing evidence that these spectral regions have adverse effects on skin,[4] especially photoageing.[5]

Albrecht *et al.*,[6] in this issue, have extended our knowledge of skin types IV and V, the UVR (using 302–375 nm), visible (using 420–695 nm) and near infrared radiation (NIR; using 695–2000 nm) components of sunlight, and ROS production. They assessed free radical formation *in vivo*. Their main conclusions are given in Figure 2 of their paper. This shows that FST IV–V are more susceptible to visible + NIR-induced ROS than NIR or UVR alone. Figure 3 shows no skin type difference for ROS induced by visible + NIR, and that FST IV–V are