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Commentary on Talamonti et al. *BJD* 2017.

Genetic prediction of treatment response in psoriasis is still a work in progress.

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Conflict of interest

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The availability of biologic therapies for dermatological indications is increasing, but the targeted mechanisms and high cost necessitate careful patient selection. Treatment selected on the basis of genomic variation is already a reality for the management of advanced malignant melanoma, but in inflammatory skin disease we have yet to integrate genomic testing in to clinical practice.

In this issue of the *BJD*, Talamonti *et al.*¹ report a retrospective study of 255 patients with psoriasis treated with the anti-IL12/23 biologic ustekinumab. The authors investigated an association between HLA-Cw*06 genotype and response to ustekinumab, defined by 50% reduction in the Psoriasis Area and Severity Index (PASI 50) after 4 weeks of treatment. HLA-Cw*06 is an allele of the human leucocyte antigen (HLA) class I *HLA-Cw6* gene; it is a significant genetic determinant of psoriasis² and its role has therefore been investigated in treatment response. *HLA-C* genotyping is a straightforward and relatively inexpensive laboratory test. In the current study¹, 71.7% of Cw*06 positive patients reached PASI 50 at week four in comparison to 35.2% of those who were Cw*06 negative ($p < 0.0001$).

Other studies have shown somewhat conflicting findings when assessing HLA genotype as a predictor of treatment response in psoriasis. Talamonti *et al.* previously reported an association between the presence of HLA-Cw*06 and higher rates of response to ustekinumab in 51 patients with psoriasis³. A differential response was also reported by Li *et al.*⁴ in a study of 332 patients who had received ustekinumab: 62% of Cw*06 positive patients versus 48% of Cw*06 negative patients reached PASI 50 after 4 weeks of therapy ($p < 0.05$). However the Cw*06 positive patients showed only up to 10% greater efficacy, a difference that is unlikely to be sufficient rationale for using Cw*06 genotype in choice of therapy⁴. In contrast, Prieto-Perez *et al.* found no association of Cw*06 genotype with response to ustekinumab treatment in 69 psoriasis patients treated with ustekinumab⁵. These inconsistent findings are likely to result from differences in study methodology, including the ethnicity of participants and details of disease phenotype. Variation in methodology is considered to be the primary reason for a lack of replication amongst pharmacogenomic studies⁶.

It is unlikely that a single immune-genetic variant would substantially predict treatment response in a complex inflammatory skin disease such as psoriasis. The study by Talamonti *et al.*¹ has contributed additional insight into the utility of *HLA-C* genotype as a biomarker to contribute to treatment selection. However, adequately powered prospective studies will be required before clinical application of pharmacogenomics can become a reality. Genotype and phenotype assessment is facilitated by the availability of ever more detailed molecular analyses and data integration. The Psoriasis Stratification to Optimise Relevant Therapy (PSORT) is one example of a stratified medicine consortium aiming to develop molecular testing to direct personalised treatment for patients⁸. Careful assessment of prospective data will be needed to integrate findings into the clinical decision-making process, to optimise the treatment of patients with psoriasis in the future.

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