

A101 ALARMIN INTERLEUKIN 33 IS OVEREXPRESSED IN PSORIASIS AND INDUCES ST2-DEPENDENT PSORIASIS-LIKE DERMATITIS

A J Hueber, A M Miller, D L Asquith, N L Millar, D Gilchrist, A Gracie, I B McInnes *University of Glasgow, UK*

10.1136/ard.2010.129627n

Psoriasis is an inflammatory skin disease characterised by hyperproliferation of keratinocytes, infiltration of inflammatory cells, impaired barrier function and alteration of tight junction proteins.

The interleukin 1 (IL1) family member IL33 has recently been described as an alarmin expressed in epithelial cells at body barriers, for example epidermis, bronchial epithelials and intestine.¹ Interestingly, IL33 is expressed in the nucleus and is released upon cellular necrosis. Here the authors hypothesise that IL33 plays a crucial role in psoriasis initiation and maintenance of skin inflammation via 'koebnerization'-like damage.

Examining psoriasis skin biopsies, IL33 staining by immunohistochemistry revealed higher expression of keratinocytes in lesions compared with perilesional skin. Further TPA-induced skin inflammation in ST2-deficient mice (the receptor for IL33) showed a significant reduction in epidermal thickness compared with wild-type (WT) mice.

Adapting a model of psoriasis, IL33 was repeatedly injected intradermally into the ear pinna² which resulted in significantly increased ear thickness, epidermal thickness and inflammatory infiltration compared with WT controls. This effect was totally blocked in ST2KO mice. FACS analysis at the onset of swelling revealed an influx of macrophages and neutrophils by IL33.

In summary, the authors demonstrate that IL33 can induce skin inflammation and may be a key player in the initiation of psoriasis plaque formation; furthermore, this might explain a role for IL33 in 'deep Koebner's phenomenon' for initiation of psoriatic arthritis.

REFERENCES

1. Moussion C, Ortega N, Girard JP. *PLoS ONE* 2008;**3**:e3331.
2. Hedrick MN, Lonsdorf AS, Shirakawa AK, et al. *J Clin Invest* 2009;**119**:2317.