

Correspondence

Multiplex platform technology and bioinformatics are essential for development of biomarkers in atopic dermatitis

To the Editor:

In the recently published letter to the Editor by Krause et al,¹ the authors tried to establish a combination of serum proteins that could predict disease severity in patients with atopic dermatitis (AD). Serum levels of 32 protein markers were determined in 52 patients with AD and 20 healthy controls. To our surprise, the authors found no significant differences between the levels of 31 serum proteins in patients and controls, with the exception of total IgE levels. This is highly remarkable because many previous publications have reported increased levels of these serum biomarkers, including IL-4, macrophage-derived chemokine, and thymus and activation-regulated chemokine (TARC/CCL-17) in patients with AD compared with healthy controls.²⁻⁴ Krause et al found serum TARC levels in healthy controls ranging from around 90 pg/mL to more than 20,000 pg/mL. This is remarkable because from literature and our own experience we know that serum TARC levels in healthy controls do not exceed 600 pg/mL.^{2,5-7}

Krause et al also investigated correlations between serum biomarker levels and disease severity measured by SCORing Atopic Dermatitis. Surprisingly, they found no significant correlations between biomarker levels and SCORing Atopic Dermatitis. This also is in contrast to several previous publications, which are summarized in a recently published meta-analysis.⁸ In this meta-analysis, we show that serum TARC levels have been determined in a relatively large number of patients from different studies, showing pooled correlation coefficients of 0.60 (95% CI, 0.48-0.70) and 0.64 (95% CI, 0.57-0.70) in longitudinal and cross-sectional studies, respectively.⁹

The authors conclude that their findings are in line with our publication. We indeed reported that TARC levels vary between patients within cross-sectional cohorts of patients who have similar disease severity scores; however, the overall correlation that we found between serum TARC levels and disease severity is still strong.^{5,10} Considering the interindividual differences in serum TARC levels and the heterogeneous character of AD, we do agree with the authors on the necessity of a combination of biomarkers for measuring disease severity in AD.

Therefore, we recently conducted a pilot study in which we demonstrated that a multivariate signature, consisting of serum TARC, PARC/CCL18, IL-22, and sIL-2R levels, showed a correlation coefficient of 0.86 to disease severity.¹¹

We strongly believe that state-of-the-art multiplex platform technology and bioinformatics can help in developing reliable and objective prediction tools to measure therapeutic effects in AD from serum.

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