Chronic inflammatory skin diseases such as psoriasis and eczema are a major medical challenge. Development of highly specific therapies for both conditions is opposed by the lack of translation of basic knowledge into biomarkers for clinical use. Furthermore, to distinguish psoriasis from eczema might be difficult occasionally, but specific and costly therapies would not be efficient in misdiagnosed patients. In the era of high-throughput 'omics'-technologies, comparing the molecular signature of psoriasis and eczema is a promising approach to gain insight into their complex pathogeneses and develop new diagnostic and therapeutic strategies. Investigating patients affected by both psoriasis and eczema simultaneously, we recently constructed a disease classifier consisting of only two genes (NOS2 and CCL27) that reliably predicts the correct diagnosis even in clinically unclear cases. When such easy-to-handle approaches are combined with individual therapeutic response, we might reach the ultimate goal of personalized medicine in inflammatory skin diseases in near future.