



Beyond the Barrier: Understanding Chronic Hand Eczema as a Multifactorial, Heterogeneous Skin Disease

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Infographic 1 of 2 in the 'CHE disease education' series

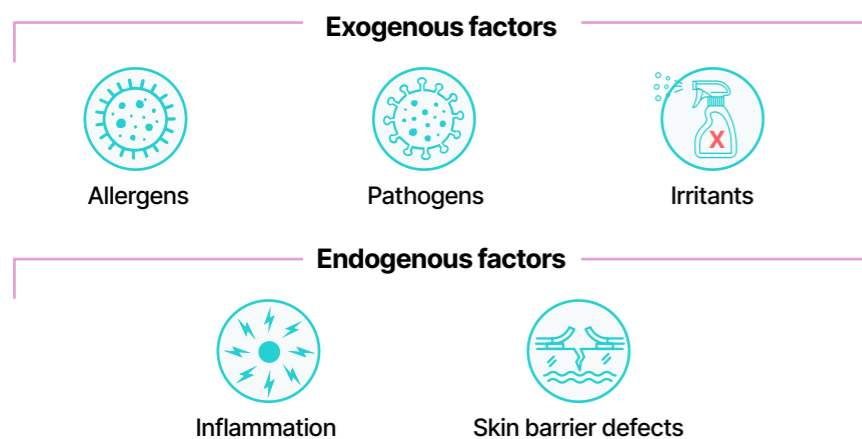
What is Chronic Hand Eczema?

CHE is a long-term, heterogenous, multifactorial inflammatory skin disease on the hands and wrist. Characterised by key symptoms of itch and pain with potentially overlapping aetiological subtypes.¹⁻⁵

Key signs include erythema, scaling, lichenification, hyperkeratosis, vesicles, oedema, and fissures with no reliable link between the visible signs of CHE and the underlying aetiological cause.³⁻⁶

Due to CHE, patients see increased risk of *S. aureus* infection.^{7,8}

CHE pathogenesis is multifactorial with exogenous and endogenous factors, warranting a holistic treatment approach.⁹



CHE and AD: Two Distinct Diseases

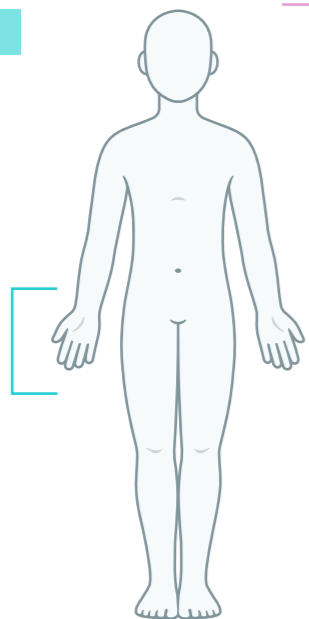
There is considerable overlap in the pathophysiology of CHE and AD,⁹ however, both have distinct immune profiles that require individual targeted approaches.¹⁰⁻¹⁴

CHE

Symptoms localised to hands and wrist¹⁻⁵

Different aetiological subtypes show different immune signatures including **Th1/Th17** and **Th2/Th22**¹⁰⁻¹²

Broad, potentially mixed immune signature activation may require broad coverage MoA therapeutic interventions^{11,12}



AD

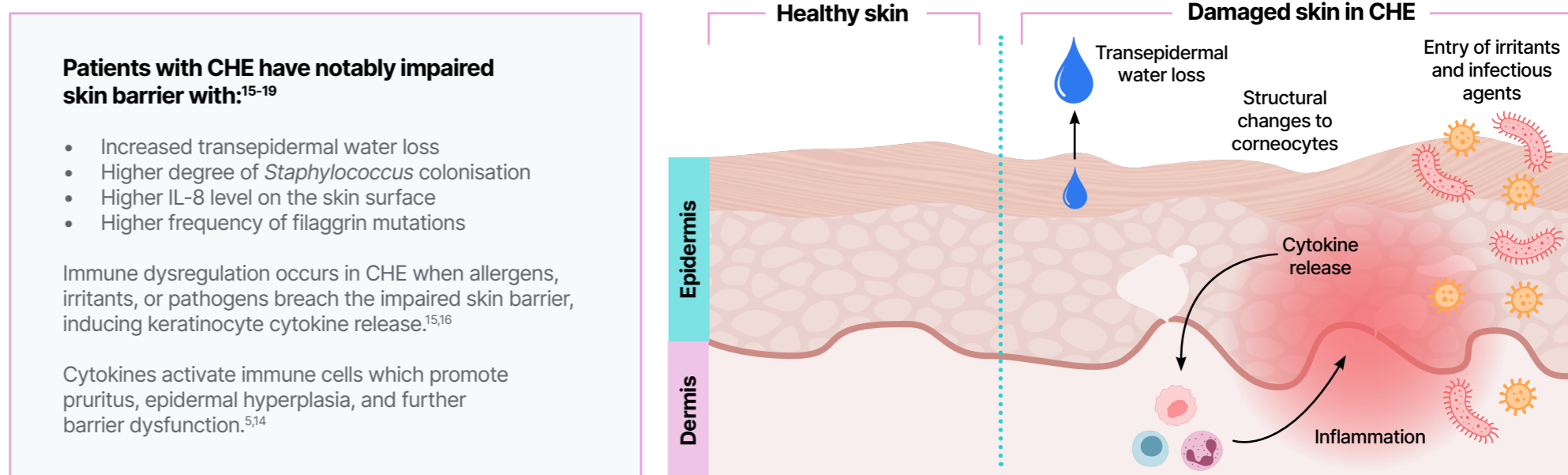
Symptoms can affect skin across the whole body¹⁰

Several immune pathways are involved in pathogenesis, with the **Th2/Th22** immune signatures playing a pivotal role¹¹⁻¹⁴

Narrow immune signature may require more selective treatment^{11,12}

Impaired Skin Barrier Function and Dysregulated Immune Response in CHE

Skin barrier dysfunction is a defining feature of CHE, independent of aetiology.^{5,15} In healthy skin, the barrier effectively protects against external stressors.¹⁶ In CHE, barrier impairment facilitates the penetration of irritants and allergens, eliciting immune activation that drives a self-perpetuating cycle of disease across all subtypes.^{15,16}



JAK-STAT Signalling Drives CHE Across Subtypes^{5,9,18,19}

Although CHE pathophysiology can vary by subtype,⁸ all subtypes are driven by multiple cytokines through the JAK-STAT pathways.^{5,18-21}

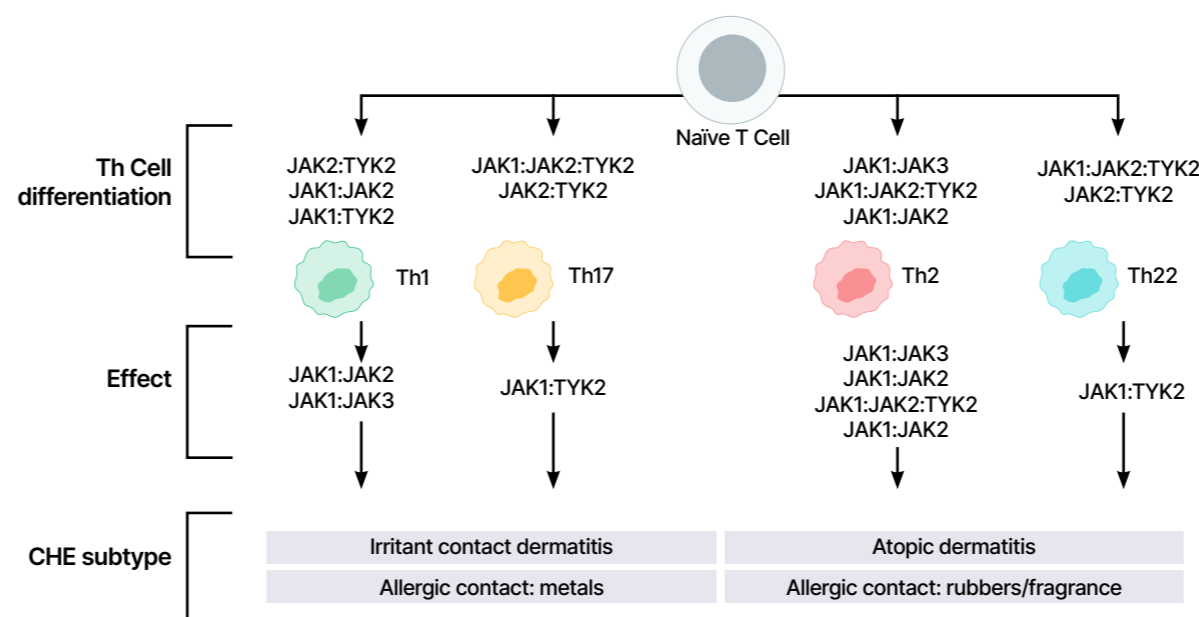


Figure adapted from Virtanen A et al.,¹⁸ Pan Y et al.,¹⁹ and Dubin C et al.⁹

The JAK-STAT pathway provides a broad target that may facilitate the holistic treatment approach required to address the complex nature of CHE.^{9,11,18-22}

Key Learnings:

- > CHE is a distinct inflammatory skin disease marked by **barrier dysfunction** and **immune dysregulation**.¹⁻⁹
- > CHE and AD have unique immune profiles that require their own individual targeted approaches.⁹⁻¹⁴
- > Although CHE pathophysiology can vary by subtype, all subtypes are driven by cytokine activity through **JAK-STAT signalling pathways**.^{5,18-21}
- > The JAK-STAT pathway provides a broad target that may contribute to the **holistic treatment approach** warranted to address the complex nature of CHE.^{9,11,18-22}

Abbreviations:

AD: Atopic dermatitis; CHE: chronic hand eczema; HR-QoL; health-related quality of life; IL: interleukin; JAK: Janus kinase; STAT: signal transducer and activator of transcription; *S. Aureus*: *Staphylococcus Aureus*; Th: T helper (cell); TYK: tyrosine kinase.

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