

## **IL.13 Predict to prevent - harnessing the skin microbiome to transform atopic dermatitis care [Abstract]**

**Claudia Traidl-Hoffmann, Robin Rohayem, Matthias Reiger, Claudia Hülpmusch, Avidan Uriel Neumann**

### **Angaben zur Veröffentlichung / Publication details:**

Traidl-Hoffmann, Claudia, Robin Rohayem, Matthias Reiger, Claudia Hülpmusch, and Avidan Uriel Neumann. 2025. "IL.13 Predict to prevent - harnessing the skin microbiome to transform atopic dermatitis care [Abstract]." Acta Dermato-Venereologica 105: 11. <https://doi.org/10.2340/actadv.v105.44874>.

### **Nutzungsbedingungen / Terms of use:**

**CC BY-NC 4.0**

Dieses Dokument wird unter folgenden Bedingungen zur Verfügung gestellt: / This document is made available under these conditions:

**CC-BY-NC 4.0: Creative Commons: Namensnennung - Nicht kommerziell**

Weitere Informationen finden Sie unter: / For more information see:

<https://creativecommons.org/licenses/by-nc/4.0/deed.de>



# Abstracts from 15<sup>th</sup> Georg Rajka International Symposium on Atopic Dermatitis Melbourne, Australia October 24–26, 2025

## Contents of this Abstract Book

Welcome Address	2
ISAD: Setting Atopic Dermatitis in a Global Health Perspective	2
International Scientific Committee	3
ISAD Melbourne 2025 Program	3
<b>Abstracts – Oral Presentations</b>	
Keynote Lecture abstracts (KL)	6
Invited Lecture abstracts (IL)	9
Oral Lecture abstracts (OL)	11
What's new from the Industry Lecture abstracts (WL)	23
<b>Abstracts – poster presentations (P)</b>	
P1. Innate and Adaptive Immunity	22
P2. Regulation of T Cell Immunity & Systemic Immunity and Immune Crosstalk	22
P3. Skin Barrier and Phenotypes	22
P4. Epidemiology and Outcome Research	22
P5. Itch and Prurigo	30
P6. Systemic and New Therapies for AD	32
P7. Complications and Comorbidities of AD	45
P8. Pediatric AD and Comparative Dermatology	51
P9. Atopic Dermatitis in Diverse Skin Types	51
P10. Topical Treatment and Phototherapy	53
P11. Mechanisms of Disease and Models	54
P12. Environment and Atopic Dermatitis	55
P13. Multispecialty Approach	57
P14. Technology and AD	57
P15. Other	59
<b>Authors Index</b>	63

Acta Derm Venereol 2025; 105: adv44874  
DOI: 10.2340/actadv.v105.44874

**IL.13****PREDICT TO PREVENT - HARNESSING THE SKIN MICROBIOME TO TRANSFORM ATOPIC DERMATITIS CARE**

*Claudia TRAIDL-HOFFMAN<sup>1,2,3</sup>, Robin ROHAYEN<sup>1</sup>, Matthias REIGER<sup>1,3</sup>, Claudia HÜLPÜSCH<sup>2</sup>, Avidan Uriel NEUMANN*

*<sup>1</sup>Institute of Environmental Medicine and Integrative Health, Faculty of Medicine, University of Augsburg, Augsburg, Germany, <sup>2</sup>Christine Kühne Center for Allergy Research and Education (CK-CARE), Davos, Switzerland, <sup>3</sup>Institute of Environmental Medicine, Helmholtz Munich, Augsburg, Germany*

The skin microbiome plays a pivotal role in the onset, severity, and chronicity of atopic dermatitis (AD), yet its clinical translation has long been hampered by methodological and analytical challenges. In a series of studies, we have advanced methods to accurately capture, quantify, and interpret skin microbiome data. We developed approaches to correct extraction bias based on bacterial morphology and established MicroBIEM, a user-friendly tool for rigorous decontamination of low-biomass datasets. By combining next-generation sequencing with targeted qPCR, we demonstrated that *Staphylococcus aureus* not only dominates relative abundance in AD but also drives bacterial overgrowth, particularly in severe disease. We further linked microbial diversity, *S. aureus* burden, and host cofactors with AD severity, and showed in a randomized controlled trial that baseline *S. aureus* abundance, tightly associated with skin pH, predicts worsening of AD severity. Beyond pathogenic overgrowth, we identified protective microbe–lipid interactions as key determinants of barrier integrity: *Staphylococcus hominis* was found to directly modulate epidermal lipid metabolism and counteract type 2 inflammation, highlighting the therapeutic potential of commensal bacteria. These methodological and clinical insights culminated in translational proof-of-concept studies: in a longitudinal observational cohort, we demonstrated that baseline microbiome composition predicts the risk of severe radiodermatitis with striking accuracy, introducing the principle of “predict to prevent” in skin diseases. Most recently, strain-resolved analyses revealed genomic and functional divergence of *S. aureus* in AD compared with healthy skin, underscoring the relevance of functional microbiome profiling for therapeutic decision-making. Together, these advances establish the skin microbiome not only as a biomarker source but also as a predictive and actionable tool. By identifying host–microbiome interactions such as skin pH and lipid–commensal networks as modifiable drivers of disease, microbiome-informed diagnostics will soon guide therapy selection, open windows for disease modification, and ultimately transform atopic dermatitis care from reactive treatment to personalized prevention.