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# ABSTRACT BOOK

## 16th Georg Rajka International Symposium on Atopic Dermatitis

## Beijing, China

## October 17–19, 2026

Affiliated with
- The International Forum for the Study of Itch

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# Abstracts from 16th Georg Rajka International Symposium on Atopic Dermatitis

Beijing, China

October 17–19, 2026

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# Welcome Address from ISAD 2026 General Chair

Dear Friends, Long time no see! I am proud and excited to welcome our guests to the 16th Georg Rajka Symposium on Atopic Dermatitis in Beijing, China. The 16th symposium embraces the motto "Science and Empathy in Atopic Dermatitis", reflecting our dual commitment to advancing rigorous science and honoring the experience of those living with AD. The symposium will foster dialogue between Eastern and Western medical paradigms, and showcase the latest evidence on TCM's role in AD management. We will be proud to make Beijing not only the host city of ISAD, but also a global stage for Traditional Chinese Medicine (TCM). New in Beijing, "All you need to know about atopic dermatitis": We aim to create a balanced agenda for basic scientists, clinicians, residents, students, and industry partners. So residents and students: prepare to be challenged and rewarded! Keynote lectures will address bench and bedside innovations that matter – the pathophysiology of pruritus and immune mechanisms, pediatric and adolescent atopic dermatitis, and therapeutic development. Beijing is a city where ancient scholarship meets cutting-edge innovation. Within minutes of the conference venue, you will find world-class museums and historic landmarks – alongside vibrant neighborhoods, art districts, and an international melting pot of cuisines. It is a city that rewards curiosity: thoughtful conversations at the meeting by day, and fine dining with immersive cultural experiences by night. We warmly invite you to bring your questions, your data, and your ideas – and to discover Beijing's hospitality with the ISAD family. Together we will advance science, elevate empathy, and build collaborations that last well beyond.

*Prof. Lin MA*
*ISAD Beijing 2026 General Chair*
*Beijing Children's Hospital, Capital Medical University,*
*Beijing, China*

# Foreword from ISAD President

**From Melbourne to Beijing: Turning Principles into Action**

Since Rajka Melbourne 2025, the International Society of Atopic Dermatitis (ISAD) has continued to develop its role as a global forum connecting science, clinical care, patients and public health. The themes discussed in Melbourne—One Health, equity and access, misinformation, and patient-centered care—are now increasingly being translated into concrete collaborative projects.

**From Treat-to-Target Concept to International Consensus**

A major development has been the international Treat-to-Target initiative for atopic dermatitis. The multidisciplinary discussions initiated in Melbourne led to an ISAD position paper, now published in Acta Dermato-Venereologica. ISAD, the International Eczema Council (IEC) and the Global Atopic Dermatitis Atlas (GADA) have established a common pathway toward a patient-centered and methodologically rigorous consensus. Beijing represents a key step in this process: defining meaningful domains of long-term disease control, integrating patient-reported outcomes, and ensuring that future targets can be applied across different healthcare and resource settings. The ambition is not simply to define another numerical threshold, but to establish what sustained and meaningful disease control should mean for patients and clinicians worldwide.

**From Essential Medicines to Global Access**

The inclusion, supported by ISAD, of urea- and glycerol-based emollients in the WHO Model List of Essential Medicines was an important milestone for our patient community. Our collaboration with WHO and the International League of Dermatological Societies (ILDS) now turns to the next challenges: access to systemic treatment, affordability, and support for the ILDS-led initiative for the future inclusion of both methotrexate and dupilumab in the WHO Essential Medicines List for AD.

The ISAD × WHO Day preceding the Beijing meeting will therefore link scientific innovation with the realities of implementation, with the new regional guideline groups reporting on their work and patient perspectives being brought together with regional experiences from Africa, Asia-Pacific, the Middle East and Latin America.

**Responding to Concerns in the Digital Era**

Another priority has been the growing concern surrounding topical corticosteroids and topical steroid withdrawal. Since Melbourne, ISAD has moved from identifying misinformation as a problem to developing a structured scientific response, combining dialogue with patient organizations, quantitative research on prescribing practices, a position paper, and support for new research projects. This reflects a broader responsibility for scientific societies: not merely to correct misinformation, but to understand why concerns emerge and to improve communication between patients and healthcare professionals.

Scan the QRcode!
LAST PROGRAM UPDATE

**Looking Forward**

Beijing thus represents a transition from principles to implementation. It also reminds us that advances in atopic dermatitis must remain globally relevant: scientific progress has limited meaning if effective care cannot reach the patients who need it.

The Rajka meetings have always combined scientific curiosity, friendship and an international spirit. In Beijing, we hope to continue this tradition while preparing the next stages of our collective journey—from Beijing to Augsburg in 2027 and Santiago in 2028.

Enjoy the meeting!

*Alain TAÏEB*
*President ISAD*
*Bordeaux, France*

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## Saturday, October 17, 2026 — Science and Empathy in Atopic Dermatitis

| Time (UTC+8/CST) | Program | Speaker | |
|---|---|---|---|
| **08:00-08:30** | **Welcome addresses** | | |
| 08:00 | Welcome to China | *Lin MA* | WA2 |
| 08:04 | Welcome from Chinese Society of Dermatology, Chinese Medical Association | *Furen ZHANG* | WA3 |
| 08:08 | Welcome from Chinese Association of Rehabilitation Medicine, Dermatology branch | *Jianzhong ZHANG* | WA4 |
| 08:12 | Welcome from Beijing Children's Hospital | *Xin NI* | WA5 |
| 08:16 | Welcome from Chinese Association of Rehabilitation Medicine | *Lidian CHEN* | WA6 |
| 08:21 | President Address | *Alain TAÏEB* | WA1 |
| **08:30–09:30** SESSION 1 | **Atopic dermatitis prevention and pediatric aspects** *Chairs: Michele RAMIEN, Canada / Li-Chuen WONG, Australia* | | |
| 08:30 | Can we prevent or modify atopic dermatitis with early life interventions? | *Alan IRVINE* | KL1 |
| 08:50 | Atopic dermatitis in early life: Pediatric and adolescent perspectives | *Yuan LIANG* | IL1 |
| 09:02 | Maternal first-trimester unsaturated fatty acids and 8-year childhood atopic dermatitis risk | *Limin DOU* | OL1.1 |
| 09:10 | Persistent tissue remodeling and immune adaptation in long-term natural remission in atopic dermatitis | *Sarang CHAFLE* | OL1.2 |
| **09:30–10:15** | **Booth presentations 1 – Visit exhibits and coffee break** | | |
| **10:15–11:25** SESSION 2 | **Head and neck atopic dermatitis / skin barrier** *Chairs: Magdalena Monika TRZECIAK, Poland / Furen ZHANG, China* | | |
| 10:15 | Atopic dermatitis of the face and neck: From molecular signature to targeted therapy | *Wei LI* | KL2 |
| 10:35 | Selective disruption of the betacellulin–EGFR homeostatic axis contributes to epidermal dysfunction in atopic dermatitis | *François NIYONSABA* | IL2 |
| 10:47 | A moisturizing cream containing Prinsepia utilis oil ameliorates phenotypes in a mouse model of atopic dermatitis | *Ying TU* | OL2.1 |
| 10:55 | An endogenous antimicrobial peptide restores epidermal homeostasis through LRP1-dependent autophagy in atopic dermatitis | *Ge PENG* | OL2.2 |
| 11:03 | Epidermal TET2 deficiency aggravates atopic dermatitis by impairing SPINK7-associated antiprotease homeostasis | *Miao QIN* | OL2.3 |
| **11:25–12:35** SESSION 3 | **Psychiatric and other comorbidities** *Chairs: Paul BIGLIARDI, United States of America / Yuxiang ZHI, China* | | |
| 11:25 | The mind-skin axis in atopic dermatitis | *Carsten FLOHR* | KL3 |
| 11:45 | Beyond the skin: the systemic comorbidity of allergic rhinitis and asthma in atopic dermatitis | *De-Yun WANG* | IL3 |
| 11:57 | Anxiety and depression in Chinese adults with atopic dermatitis: A cross-sectional study of prevalence and association with disease severity | *Xueshan DU* | OL3.1 |
| 12:05 | Inflammatory mechanisms mediate the association between frailty and atopic dermatitis in the UK Biobank cohort | *Peizhi DENG* | OL3.2 |
| 12:13 | Sex-specific psychological burden of atopic dermatitis severity in Chinese children: A cross-sectional study on anxiety and depression | *Xing ZOU* | OL3.3 |
| **12:35–13:45** | **Lunch and visit exhibits** | | |
| **13:45–15:35** | **Scientific workshops** | | |
| 13:45 | Early Career Professionals training and competition | *BCH* | SW11 |
| | Patient-centered care in atopic dermatitis: The expanding role of digital tools in clinical management | *OPENED* | SW12 |
| | Asian Pacific atopic dermatitis guidelines | *APADtf* | SW13 |
| | Traditional Chinese Medicine in atopic dermatitis: Evidence and practice | *BCH* | SW14 |
| **15:35–16:30** | **Booth presentations 2 – Visit exhibits and coffee break** | | |
| **16:30–18:20** | **Scientific workshops** | | |
| 16:30 | Early Career Professionals training and competition | *BCH* | SW21 |
| | Patient-centered care in atopic dermatitis: Integrative medicine (Trad. Chinese Medicine) | *OPENED* | SW22 |
| | Implementation of the African atopic dermatitis guidelines | *ASDV* | SW23 |
| | Music therapy in atopic dermatitis workshop: From Beethoven to Jobim | *AADA* | SW24 |
| **19:00–22:00** | **Welcome reception** | **China World Hotel** | |

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## Sunday, October 18, 2026 — Science and Empathy in Atopic Dermatitis

| Time (UTC+8/CST) | Program | Speaker | |
|---|---|---|---|
| **08:00–09:10** SESSION 4 | **Scratching the surface: The itch–brain connection** *Chairs: Fang WANG, China / Martin STEINHOFF, Germany* | | |
| 08:00 | Stress and itch: A two-way street in atopic dermatitis | *Sonja STÄNDER* | KL4 |
| 08:20 | How does pain inhibit itch? | *Zhou-Feng CHEN* | IL4 |
| 08:32 | Spatial transcriptomic profiling reveals coordinated neuroimmune remodeling between skin and sensory neurons in experimental atopic dermatitis | *Alina TYO* | OL4.1 |
| 08:40 | Construction and evaluation of a new comprehensive all-age diagnostic tool for atopic dermatitis | *Jiahui ZHAO* | OL4.2 |
| **09:10–09:55** | **Booth presentations 3 – Visit exhibits and coffee break** | | |
| **09:55–11:05** SESSION 5 | **From tradition to molecular targets: Traditional chinese medicine in atopic treatment** *Chairs: Yanping BAI, China / Linfeng LI, China* | | |
| 09:55 | Traditional Chinese Medicine for atopic dermatitis: History, present and future | *Dacan CHEN* | KL5 |
| 10:20 | The role of Traditional Chinese Medicine in the modern treatment of atopic dermatitis | *Trevor ERIKSON* | IL5 |
| 10:36 | Endocannabinoid system involvement in atopic dermatitis: A study of cannabinoid receptor expression | *Mark KIRCHHOF* | OL5.1 |
| 10:44 | A classical herbal medicine for a modern indication: Experimental evidence and bioactive constituent analysis of Artemisia annua extract against atopic dermatitis | *Dong ZHANG* | OL5.2 |
| **11:05–12:15** SESSION 6 | **Atopic dermatitis treatment: From randomized controlled trials to real life** *Chairs: Roberto TAKAOKA, Brazil / Yunsheng LIANG, China* | | |
| 11:05 | Latest advances in the treatment of atopic dermatitis | *Andreas WOLLENBERG* | KL6 |
| 11:25 | An unmet need persists for topical treatment options in atopic dermatitis | *Xu YAO* | IL6 |
| 11:37 | Real-world comparison of efficacy between dupilumab and JAK inhibitors in atopic dermatitis | *Ruojun WANG* | OL6.1 |
| 11:45 | More about Stapokibart: Robust response of extended dosing in fast responders with moderate-to-severe atopic dermatitis, regardless of comorbidity, age, or prior systemic therapy | *Yan ZHAO* | OL6.2 |
| **12:15–13:45** | **Lunch and visit exhibits** | | |
| **12:15–15:15** SESSION IW1 | **Industry workshops (globals)** *LEO Pharma, Lilly, Pfizer, Sanofi* | | |
| **15:15–16:00** | **Booth presentations 4 – Visit exhibits and coffee break** | | |
| **16:00–17:10** SESSION 7 | **Artificial intelligence and precision dermatology** *Chairs: Sébastien BARBAROT, France / Zigang XU, China* | | |
| 16:00 | Precision dermatology for atopic dermatitis: What AI can deliver today — and what it cannot yet | *Somesh GUPTA* | KL7 |
| 16:20 | Beyond severity: Cellular endotypes of atopic dermatitis | *Dong Hun LEE* | IL7 |
| 16:32 | Integrated machine learning of skin microbiome and transcriptome identifies atopic dermatitis in a Latin American cohort | *Min Ha LEE* | OL7.1 |
| 16:40 | Dissociation between subjective itch perception and objective scratching behaviour in atopic dermatitis | *Xin Yi NG* | OL7.2 |
| 16:48 | Glycoproteomics analyses of atopic dermatitis reveal immune-associated glycopeptides | *Rønghui ZHU* | OL7.3 |
| **17:10–18:40** SESSION IW2 | **Industry workshops (locals)** *Avene, Bioderma, Botanee, Cetaphil, Jumpcan, Kenvue, L'Oréal, Viatris* | | |
| **19:30–22:30** | **Georg Rajka award ceremony** | **China World Hotel** | |

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## Monday, October 19, 2026 — Science and Empathy in Atopic Dermatitis

| Time (UTC+8/CST) | Program | Speaker | |
|---|---|---|---|
| **08:00–09:10** SESSION 8 | **Lessons from targeting cytokines in atopic dermatitis**<br>*Chairs: Daria S FOMINA, Russia / Zhirong YAO, China* | | |
| 08:00 | Role of IL-31 in pruritus of atopic dermatitis | *Kenji KABASHIMA* | KL8 |
| 08:20 | Targeting cytokine signaling in atopic dermatitis: opportunities and challenges | *Ke SHUAI* | IL8 |
| 08:32 | Tissue-resident memory T cells are associated with pathology and itch in a chronic atopic dermatitis mouse model | *Jiwoo CHOI* | OL8.1 |
| 08:40 | Skin-associated E-cadherin-Expressing CD4+ memory T cells exacerbate colitis in atopic dermatitis | *Yijun YANG* | OL8.2 |
| **09:10–09:55** | **Booth presentations 5 – Visit exhibits and coffee break** | | |
| **09:55–11:05** SESSION 9 | **Hot topics in research: What changed this year in atopic dermatitis?**<br>*Chairs: Yang WANG, China / John C. SU, Australia* | | |
| 09:55 | From OX40 to GLP-1: A year of surprises in atopic dermatitis | *Christian VESTERGAARD* | KL9 |
| 10:15 | Evolving atopic dermatitis therapy in children under 12 years of age | *Lawrence EICHENFIELD* | IL9 |
| 10:27 | APOE drives immunometabolic reprogramming in dermal fibroblasts to aggravate atopic dermatitis | *Qiaochu JIANG* | OL9.1 |
| 10:35 | Roseburia hominis derived nicotinic acid ameliorates atopic dermatitis-like dermatitis | *Mengxin DONG* | OL9.2 |
| **11:05–12:15** SESSION 10 | **Atopic dermatitis: Unmet needs, emerging concepts and therapies**<br>*Chairs: Dirk-Jan HIJNEN, The Netherlands / Erereoghor OTROFANOWEI, Nigeria* | | |
| 11:05 | Addressing the unmet needs in atopic dermatitis — new technologies, targets and translational advances | *Eric SIMPSON* | KL10 |
| 11:25 | Emerging topical and systemic treatments for atopic dermatitis | *Jianzhong ZHANG* | IL10 |
| 11:37 | Global core set of items for standardised atopic dermatitis prevalence research | *Karl Philipp DREWITZ* | OL10.1 |
| 11:45 | Staphylococcus aureus exacerbates atopic dermatitis via the PPARγ/ELOVL7 axis in inflammatory dendritic epidermal cells | *Xin SUI* | OL10.2 |
| 11:53 | IL-37 promotes epidermal homeostasis through autophagy-dependent mechanisms in atopic dermatitis | *Alafate ABUDOUWANLI* | OL10.3 |
| **12:15–14:00** | **Lunch + Skin Matters reception** | | |
| **14:00–14:50** SESSION IND | **What's new from the industry**<br>*Chairs: Kyu Han KIM, South Korea / Javier Andres de Jesus ARELLANO LORCA, Chile* | | |
| 14:00 | Atopic dermatitis in transition: emerging science and future directions | *Nadir MAMMAR* | SL1 |
| 14:20 | Lilly's commitment to dermatology | *Jens GERWIEN* | SL2 |
| 15:33 | Emollient design for atopic dermatitis: efficacy and safety for skin barrier repair | *Anna BELLONI-FORTINA* | SL3 |
| **14:50–15:35** | **Grand finale of the youngsters** | | |
| **15:35–16:20** | **Booth presentations 6 – Visit exhibits and coffee break** | | |
| **16:20–16:45** SESSION 11 | **Essential drugs in atopic dermatitis**<br>*Chairs: Alain TAÏEB, France / Zuotao ZHAO, China* | | |
| 16:20 | Expanding access to medicines for atopic dermatitis: WHO EML perspective | *Lorenzo MOJA* | KL11 |
| **16:45–17:40** REPORTINGS | **Reports from the groups / workshops**<br>*Chairs: Peter SCHMID-GRENDELMEIER, Switzerland / Xinghua GAO, China* | | |
| 17:40 | APADtf, ASDV, Social Media Group, OpenED, Music Therapy | | |
| **17:40** | **Closing Ceremony** | | |
| 17:40 | Best poster / presentation awards | *Lin MA* | |
| 17:45 | Next Rajka symposium: Augsburg, Germany | *Andreas WOLLENBERG* | |
| 17:50 | Closing remarks | *Alain TAÏEB* | |

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# KEYNOTE LECTURE ABSTRACTS (KL)

## *KL.1*
## CAN WE PREVENT OR MODIFY ATOPIC DERMATITIS WITH EARLY LIFE INTERVENTIONS?

*Alan D. IRVINE*
*Trinity College Dublin, Dublin, Ireland*

Atopic dermatitis (AD) disproportionately develops in early life, making early intervention an attractive proposition. Interventions could potentially be aimed at primary prevention or secondary disease modification AD early in the life course, either lessening disease severity, duration or atopic comorbidities. These are highly attractive goals but so far progress towards developing robust evidence for interventions towards any of these aims has been slow and uneven. This talk will review progress to date, including successes and failures and suggest possible ways forward to advance these aims more rapidly.

## *KL.2*
## ATOPIC DERMATITIS OF THE FACE AND NECK: FROM MOLECULAR SIGNATURE TO TARGETED THERAPY

*Wei LI*
*Department of Dermatology, Huashan Hospital, Fudan University, Shanghai, China*

Atopic dermatitis (AD) affecting the face and neck has recently attracted considerable attention, largely because of its suboptimal response to dupilumab treatment. Using single-cell RNA sequencing, we found that facial lesions in AD patients were characterized by a Th17-type inflammatory infiltration, in contrast to the Th2-dominant inflammation observed in the leg. We further demonstrated that sebum induced Th17-type inflammation, which may partially account for the complex inflammatory milieu of the sebum-rich facial region. In addition, OPN3 expression was upregulated in the lesional keratinocytes of AD patients, but not in those of psoriasis. Moreover, OPN3 mediated the production of IL-36, TNF-α, and IL-8 by keratinocytes upon visible light exposure. To achieve better control of facial AD, JAK inhibitors were first evaluated. These agents showed consistent favorable efficacy in the face and neck compared with the trunk and extremities at 12 weeks; however, a substantial number of patients experienced relapse in the face and neck during 52-weeks' long-term treatment. Anti-IL-36 therapy with spesolimab demonstrated favorable efficacy for facial dermatitis in AD patients who had failed JAK inhibitor treatment. We also investigated the efficacy of ritlecitinib, a JAK3/TEC inhibitor, and found that it provided good control of both facial lesions and pruritus. Notably, stapokibart, an anti-IL-4Rα antibody, showed increased efficacy in most of the patients whose facial dermatitis was inadequately controlled by dupilumab or JAK inhibitors. These findings indicate that AD in the face and neck involves a complex inflammatory infiltrate, and that targeting therapies with broader coverage of inflammatory pathways lead to better outcomes, while Th2 inflammation may still play an upstream role in this complex inflammatory cascade.

## *KL.3*
## THE MIND-SKIN AXIS IN ATOPIC DERMATITIS

*Carsten FLOHR*
*St John's Institute of Dermatology - King's College London, London, United Kingdom*

Atopic dermatitis (AD) is increasingly recognised as a systemic inflammatory disease in which itch, sleep disruption and neuroinflammation interact through a bidirectional skin–brain axis. Chronic pruritus often persists after cutaneous inflammation subsides, contributing to nocturnal arousals and sleep loss, while sleep disruption may promote cellular inflammation and alter immune-cell distribution and inflammatory cytokines. In AD, Th2 cytokines including IL-4, IL-13 and IL-31, together with TSLP and IL-22, are increased in the skin and systemically, providing potential links between cutaneous, systemic and possible brain inflammation and psychological comorbidities, such as anxiety and depression. An ectodermal developmental connection between skin and nervous system may provide an additional mechanistic framework, with associations reported between atopic disease, impaired skin barrier function and neurodevelopmental outcomes. Our team are investigating these relationships in adolescents with severe AD, milder AD and healthy controls, assessing sleep and circadian rhythms, cognition, structural and functional MRI, disease severity, and skin/systemic inflammatory biomarkers, with reassessment after 4–6 months of systemic treatment in severe AD. This multidisciplinary programme aims to determine whether brain and cognitive abnormalities relate to AD severity and sleep disruption and whether they improve when inflammation and sleep improve, potentially identifying opportunities for earlier intervention, and I will present findings from this work.

## *KL.4*
## STRESS AND ITCH: A TWO-WAY STREET IN ATOPIC DERMATITIS

*Sonja STÄNDER*
*Center for Chronic Pruritus, Department of Dermatology, University Hospital Münster, Germany*

Atopic dermatitis (AD) exemplifies bidirectional communication between the brain, immune system and skin, particularly in relation to itch. Pruritus itself causes psychological stress, sleep disturbance and impaired quality of life. Stress, in turn, activates the hypothalamic–pituitary–adrenal axis and sympathetic nervous system. When persistent, altered cortisol dynamics and neuroendocrine–immune signaling may impair cutaneous barrier function, amplify type 2 inflammation and sensitize itch pathways, thereby worsening AD and itch. Experimental data identify skin-innervating noradrenergic sympathetic neurons that respond to psychological stress and aggravate AD-like inflammation by recruiting eosinophils to the skin. Experimentally induced acute stress was shown to worsen scratching and induce neuronal plasticity, thereby reinforcing the itch–brain connection. Restoration of nerve fiber architecture during biologic treatment highlights that stress-induced changes at the neuroimmune interface can be reversed. Further, emerging evidence suggests that mindfulness-based interventions may improve stress regulation, psychological well-being and disease severity, although larger controlled studies are needed. Stress and itch should therefore be viewed as mutually reinforcing components of AD within a bidirectional skin-brain relationship. Assessment should capture pruritus-associated stress, while management should combine control of inflammation and itch with attention to stress reduction and psychological support.

## *KL.5*
## TRADITIONAL CHINESE MEDICINE FOR ATOPIC DERMATITIS: HISTORY, PRESENT AND FUTURE

*Dacan CHEN*
*Guangdong Provincial Hospital of Chinese Medicine, Guangzhou, China*

Abstract not available by the time of publishing

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### *KL.6*
### LATEST ADVANCES IN THE TREATMENT OF ATOPIC DERMATITIS

*Andreas WOLLENBERG*
*Department of Dermatology and Allergy, University Hospital Augsburg, Augsburg, Germany*

Abstract not available by the time of publishing

### *KL.7*
### PRECISION DERMATOLOGY FOR ATOPIC DERMATITIS: WHAT AI CAN DELIVER TODAY — AND WHAT IT CANNOT YET

*Somesh GUPTA*
*Department of Dermatology & Venereology, All India Institiute of Medical Sciences, Ansari Nagar East, New Delhi, India*

Atopic dermatitis is heterogeneous in phenotype, endotype and treatment response, yet decisions still rest largely on visual assessment and clinician judgement. Precision dermatology promises to change this, and artificial intelligence is widely presented as the technology that will deliver it. This lecture separates what is achievable today from what remains aspirational. Real gains are within reach. Automated segmentation and severity estimation can reduce the observer variability that limits EASI and SCORAD scoring in multicentre trials. Smartphone imaging and patient-reported data allow flares and disease trajectories to be tracked between visits. Multimodal foundation models, learning jointly from images, records and patient data, are the likeliest source of the next advance. What AI cannot yet do matters equally. Most models are trained on datasets that under-represent darker skin, where erythema is unreliably captured, and few are validated prospectively in the populations they are meant to serve. No system dependably predicts individual response to biologics or JAK inhibitors: the underlying endotype and biomarker science is itself incomplete, and an algorithm cannot supply knowledge that does not exist. Explainability, regulation, workflow integration and cost-effectiveness remain unsettled. AI is better understood as a partner to clinical judgement than its substitute. Progress will come from narrow, well-validated tools embedded in real practice rather than general-purpose promises. Precision in atopic dermatitis will be earned incrementally, and honestly.

### *KL.8*
### ROLE OF IL-31 IN PRURITUS OF ATOPIC DERMATITIS

*Kenji KABASHIMA*
*Department of Dermatology, Kyoto University Graduate School of Medicine, Kyoto, Japan*

Pruritus is a defining and debilitating symptom of atopic dermatitis and is sustained by bidirectional interactions among immune cells, epidermal cells, and cutaneous sensory neurons. Interleukin-31 (IL-31), a type 2 cytokine produced primarily by activated T cells, has emerged as a key mediator of this neuroimmune circuit. Its receptor, composed of IL-31 receptor A and oncostatin M receptor β, is expressed on peripheral sensory neurons as well as several skin-resident cell populations. IL-31 can directly activate pruriceptive neurons and may also amplify itch by affecting epidermal barrier function and inflammatory responses. These effects contribute to the itch–scratch cycle, which further disrupts the skin barrier and perpetuates inflammation. Clinical blockade of the IL-31 receptor pathway has provided proof of concept that targeting this axis can rapidly reduce itch and improve disease activity. This presentation will discuss the cellular sources and targets of IL-31, the mechanisms linking IL-31 to neuronal sensitization and chronic pruritus, and the therapeutic implications of modulating the IL-31 pathway in atopic dermatitis.

### *KL.9*
### FROM OX40 TO GLP-1: A YEAR OF SURPRISES IN ATOPIC DERMATITIS

*Christian VESTERGAARD*
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The past year has reshaped how we think about systemic therapy, treatment goals, and disease biology in atopic dermatitis (AD). This talk reviews five developments redefining "hot topics" in 2026. First, the OX40/OX40L pathway, once seen as a route to durable, disease-modifying remission, collapsed within months: rocatinlimab, amlitelimab, and telazorlimab were all discontinued after a Kaposi sarcoma safety signal, offering lessons on immune-memory-targeted therapeutics and long-term pharmacovigilance. Second, nemolizumab, an anti-IL-31RA antibody, moved into children aged 2–11, with phase 2 data showing sustained itch and lesion control, setting the stage for the following session on paediatric therapy. Third, the International Eczema Council published the first consensus definitions of disease control and remission, a shared framework (low/very low disease activity, on- and off-drug complete control) set to reshape trial endpoints and clinical conversations about stopping therapy. Fourth, early real-world data raise an unexpected question about GLP-1 receptor agonists and AD, with mixed signals of both improved and worsened disease activity. Finally, a 2026 review reframes AD as a systemic disease, highlighting under-recognised mental health, cardiovascular, and immune-mediated comorbidities. Together, these stories capture a field navigating both setback and progress.

### *KL.10*
### ADDRESSING THE UNMET NEEDS IN ATOPIC DERMATITIS- NEW TECHNOLOGIES, TARGETS AND TRANSLATIONAL ADVANCES

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While the current array of biologics and oral JAK inhibitors have transformed the lives of many of our patients, there remain unmet needs in pediatric and adult patients with atopic dermatitis. Some patients do not respond adequately to current therapies or develop intolerable side effects. Some therapies can lose efficacy over time and some patients prefer more convenient dosing. In this talk, an overview of current drug development will be covered including exciting new technologies such as bi- and multi-specific antibodies, half-life extension technologies, and novel approaches to targeting inflammatory pathways beyond monoclonal antibodies. The emergence of new and future potential targets will also be discussed.

### *KL.11*
### EXPANDING ACCESS TO MEDICINES FOR ATOPIC DERMATITIS: WHO EML PERSPECTIVE

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# INVITED LECTURE ABSTRACTS (IL)

## *IL.1*
## AD IN EARLY LIFE: PEDIATRIC AND ADOLESCENT PERSPECTIVES

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Atopic dermatitis (AD) is one of the most prevalent chronic inflammatory skin disorders in children and adolescents, with increasing global incidence and significant long-term health implications. Early-life AD represents a critical window for immune and barrier development, influencing disease trajectory and the atopic march. Recent advances in molecular immunology, microbiome research, and targeted therapeutics have reshaped our understanding of pediatric AD. This review synthesizes current evidence focusing on epidemiology, pathophysiology, genetic and environmental determinants, microbiome interactions, biomarkers, clinical phenotypes, and evolving management strategies. Special emphasis is placed on early-life immune programming, prevention strategies, and novel biologics and small molecules approved or under investigation for pediatric populations. AD begins as a barrier disease; Immune and microbiome amplify disease; Early targeted intervention may change trajectory. Understanding these developments is essential for optimizing individualized care and improving long-term outcomes.

## *IL.2*
## SELECTIVE DISRUPTION OF THE BETACELLULIN–EGFR HOMEOSTATIC AXIS CONTRIBUTES TO EPIDERMAL DYSFUNCTION IN ATOPIC DERMATITIS

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Epidermal growth factor receptor (EGFR) signaling is essential for epidermal homeostasis; however, the distinct roles of individual EGFR ligands in atopic dermatitis (AD) remain poorly understood. We hypothesized that selective disruption of the betacellulin (BTC)-EGFR axis contributes to AD pathogenesis. The aim of this study is to define the role of the BTC-EGFR axis in maintaining epidermal homeostasis and its contribution to AD. BTC and EGFR ligand expression were analyzed using public transcriptomic datasets, human skin samples, primary keratinocytes, and an MC903-induced AD mouse model. Barrier function, inflammatory responses, Staphylococcus aureus invasion, autophagy, and EGFR signaling were evaluated using molecular and pharmacological approaches. BTC was selectively downregulated together with EGFR in skin lesion of patients with AD, indicating disruption of a distinct BTC-EGFR signaling axis. BTC deficiency in keratinocyte was associated with impaired expression of epidermal differentiation markers, tight junction proteins, antimicrobial peptides, and autophagy-related pathways. Recombinant BTC restored epidermal barrier integrity, activated EGFR-JNK/ERK-dependent autophagy, suppressed type 2 inflammation, reduced *S. aureus* invasion, and significantly improved AD-like skin inflammation. These protective effects were abolished by EGFR inhibition or keratinocyte-specific autophagy deficiency. Our findings identify the BTC-EGFR axis as a previously unrecognized homeostatic pathway that coordinates epidermal barrier integrity, antimicrobial defense, and autophagy. Selective disruption of this axis may represent a key mechanism underlying epidermal dysfunction in AD and provides a rationale for therapies aimed at restoring skin homeostasis.

## *IL.3*
## BEYOND THE SKIN: THE SYSTEMIC COMORBIDITY OF ALLERGIC RHINITIS AND ASTHMA IN ATOPIC DERMATITIS

*De-Yun WANG*
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Allergic rhinitis and asthma frequently coexist and are part of the broader atopic march, reflecting shared type 2 inflammation, epithelial barrier dysfunction, and systemic allergic predisposition. Atopic dermatitis is likewise strongly associated with asthma and allergic rhinitis, supporting a unified airway-skin concept rather than isolated organ disease. This presentation reviews the link between allergic rhinitis, asthma, and atopic dermatitis from epidemiologic, immunopathogenic, diagnostic, and therapeutic perspectives, highlighting how recognition of comorbidity can improve assessment of disease burden, guide biomarker-informed diagnosis, and support integrated management across the airway and skin. Allergic rhinitis and asthma should prompt active evaluation for atopic dermatitis, especially in patients with early-onset, persistent, or treatment-resistant disease. A comorbidity-aware approach enables earlier diagnosis, more tailored treatment, and better disease control through coordinated management of shared inflammatory pathways.

## *IL.4*
## HOW DOES PAIN INHIBIT ITCH?

*Zhou-Feng CHEN*
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Spinal itch circuits are gated by inhibitory neurons, which can be activated by pain, but pain-mediated inhibition of itch remains incompletely understood. We identify a subset of inhibitory interneurons that uniquely express neurokinin receptor 3 (NK3R) in the spinal cord of mice. NK3R neurons receive monosynaptic input from Tac1+ sensory neurons, which release substance P (SP) and project directly to gastrin-releasing peptide receptor (GRPR)-expressing neurons that are dedicated to itch transmission. Silencing of NK3R neurons disinhibits GRPR neurons and induces neuropathic itch, whereas their activation profoundly impairs itch but not pain transmission. These findings suggest that spinal NK3R inhibitory neurons serve as a pivotal and specific microcircuit for tonically gating of itch, and that the SP-NK3R-GRPR pathway may underlie the inhibition of itch by pain that activates the primary afferents to release SP onto the spinal cord.

## *IL.5*
## THE ROLE OF TRADITIONAL CHINESE MEDICINE IN THE MODERN TREATMENT OF ATOPIC DERMATITIS

*Trevor ERIKSON*
*British Columbia, Canada*

Atopic dermatitis (AD) is a chronic relapsing inflammatory skin disease with no known cure. A growing number of patients worry about the long term effectiveness, side effects and cost of modern treatments like topical corticosteroids and biologics. Many seek out alternative forms of health care, such as Traditional Chinese Medicine (TCM). AD is a skin disease known in China as Si Wan Feng 四弯风 (Wind of the four bends) since at least 1739 CE. Treatment has traditionally involved individually prescribed herbal medicines and dietary changes. Modern clinical trials

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have shown TCM to be both effective and safe in the treatment of AD. Of special interest was that many patients continued to have stable skin one year after stopping treatment. The treatment of skin disease in China is old, with records dating back to at least 300 BCE indicating that physicians with appropriate specialty training in dermatology were necessary for effective treatment. Similarly, in our modern world, the ability to diagnose AD and then properly escort the AD patient from acute flare to healthy skin using herbal medicine also demands specialty training. Showcase why TCM can be a safe and effective option for the treatment of AD, particularly for patients unhappy with modern pharmaceutical based medicines. Case studies and modern clinical trials using Chinese herbal medicine for the treatment of AD will be reviewed. With an emphasis on lower cost treatments with herbal medicine, dietary modifications and the possibility of long term remission, TCM, when practiced by physicians with proper specialty training in dermatology, represents a valid option for the treatment and management of AD.

### *IL.6*
### AN UNMET NEED PERSISTS FOR TOPICAL TREATMENT OPTIONS IN ATOPIC DERMATITIS

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*Department of Allergy and Rheumatology, Hospital for skin diseases, Institute of Dermatology, Chinese Academy of Medical Sciences & Peking Union Medical College, Nanjing, China*

Atopic dermatitis (AD) is a chronic, relapsing inflammatory skin disorder that imposes a substantial burden on patients' quality of life. Although biologic agents have captured much of the current spotlight in AD research, topical therapies remain the cornerstone of daily disease management for the vast majority of patients. However, many existing topical options-including corticosteroids, calcineurin inhibitors, and phosphodiesterase-4 (PDE4) inhibitor-are constrained by suboptimal efficacy, safety concerns with prolonged application, or local tolerability issues such as burning and irritation. These persistent limitations underscore the pressing clinical need for novel topical agents that combine potent efficacy with enhanced safety and acceptability. In recent years, the topical landscape has been invigorated by two new small-molecule classes: aryl hydrocarbon receptor (AhR) agonists and Janus kinase (JAK) inhibitors. The AhR agonist tapinarof achieved 35.4%-40.2% clear/almost-clear rates at week 8 in phase 3 trials, with a favorable safety profile. The topical JAK inhibitor ruxolitinib showed higher responses, with 49.5%-53.8% of patients reaching IGA success by week 8 and significant pruritus relief within 48 hours. These agents fill efficacy gaps left by conventional therapies and offer rapid symptom control, positioning them as valuable additions to the topical arsenal. Beyond these approved small molecules, growing evidence has turned attention to microbiome-derived metabolites, given the recognition of skin dysbiosis as a key AD driver. Modulating the cutaneous microbiota or directly applying microbial metabolites offers a biologically grounded strategy to restore immune homeostasis and barrier function. Through our preclinical and Phase I studies of skin microbiota-derived metabolites, we have observed a favorable safety profile alongside measurable clinical efficacy, supporting feasibility of this approach. However, this class still requires larger-scale efficacy validation. We acknowledge that this approach remains early-stage; further well-powered controlled trials will be essential to translate this promising concept into a reliable, widely accessible therapeutic option.

### *IL.7*
### BEYOND SEVERITY: CELLULAR ENDOTYPES OF ATOPIC DERMATITIS

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Atopic dermatitis is graded by severity and managed as one disease, yet patients who share an EASI score can differ in immune architecture and in how they respond to targeted therapy. Severity remains valid for treatment decisions but fails as a biological classifier. When several dermatologists grade the same lesions, their labels disagree, and supervised models inherit that disagreement; training on multi-observer data reduces the error without removing the ceiling it imposes. Clinical stratification performs better, and clustering children by allergen sensitization separates groups that differ in age of onset, comorbidity burden, and quality-of-life impact. Single-cell and high-dimensional profiling of Korean cohorts moves stratification to the cellular level. Circulating type 2 innate lymphoid cells and interferon-stimulated monocytes expand with severity, natural killer cells decline and lose cytotoxic programs, and conventional type 1 dendritic cells are depleted in proportion to disease activity. Pediatric and adult disease diverge, with JAK/STAT activation confined to adults and CD6-ALCAM signaling to children. Blood proteomic signatures track severity and overlap with cardiovascular pathways. A skin-homing OX40+ regulatory T cell subset shows selective loss of suppressive function, a mechanistic rationale for OX40-directed therapy. Machine learning applied to these layers should predict endotype and treatment response rather than severity. Getting there depends on shared cohorts and cross-modal validation.

### *IL.9*
### EVOLVING ATOPIC DERMATITIS THERAPY IN CHILDREN UNDER 12 YEARS OF AGE

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Abstract not available by the time of publishing

### *IL.8*
### TARGETING CYTOKINE SIGNALING IN AD: OPPORTUNITIES AND CHALLENGES

*Ke SHUAI*
*Nanjing University, China*

Cytokine signaling shapes every phase of atopic dermatitis (AD), linking epidermal barrier dysfunction with immune hyper-reactivity. Biologics targeting individual cytokine pathways and small-molecule JAK inhibitors that suppress signaling downstream of multiple cytokine receptors have transformed AD treatment. Nevertheless, many patients experience incomplete responses, treatment dependence, and disease relapses after therapy is discontinued. To examine the molecular mechanisms underlying treatment dependence and relapses in AD and to identify opportunities for developing more durable cytokine-targeted therapies. This lecture will integrate mechanistic and translational findings on cytokine signaling in AD, with emphasis on interactions among the JAK–STAT, NF-kB, and

TGF-β pathways and their relevance to therapeutic response. An unconventional regulatory mechanism coordinating JAK–STAT and NF-kB signaling will be presented, together with a newly identified therapeutic target within the TGF-β pathway. More durable control of AD may require rational combination strategies that rebalance interconnected cytokine networks, restore barrier–immune homeostasis, and reduce relapse after treatment withdrawal.

### *IL.10*
### EMERGING TOPICAL AND SYSTEMIC TREATMENTS FOR ATOPIC DERMATITIS

*Jianzhong ZHANG, Yan ZHAO, Cheng ZHOU, Ping LIU, Xiaojie WANG, Qiuyu JIA*
*Peking University People's Hospital, Beijing, China*

Several topical and systemic treatments for atopic dermatitis have been studied and launched in recent years. Benvitimod or tapinarof, an aryl hydrocarbon receptor agonist has been shown to be effective and safe for pediatric and adult patients with mild to moderate atopic dermatitis and was launched in China, Japan and United States. Studies showed that It inhibits type two inflammation and up-regulate skin barrier molecules. In addition, several topical JAK inhibitors are under investigation. After dupilumab, several new biologics targeting IL-4R have been developed. Stapokibart, rademikibart and comekibart all showed high efficacy and good safety profile for moderate to severe atopic dermatitis. Stapokibart was launched in China in 2024 and the other two biologics will be launched soon. It has shown that comekibart once every 4 weeks had high efficacy for moderate to severe adult atopic dermatitis. Several new JAK inhibitors have been studied. Gecacitinib, a pan-JAK inhibitor, had shown a high efficacy and good safety profile in Chinese patients with moderate to severe atopic dermatitis. LW402, a high selective JAK1 inhibitor also showed high efficacy and good safety profile in Chinese patients with moderate to severe atopic dermatitis in a phase 2 trial. More biologics and small molecule target drugs are under investigation. It is expected that there will be more new treatments available for atopic dermatitis in near future.



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# ORAL LECTURE ABSTRACTS (OL)

## *OL1.1#2234*

### MATERNAL FIRST TRIMESTER UNSATURATED FATTY ACIDS AND 8 YEAR CHILDHOOD ATOPIC DERMATITIS RISK: A LONGITUDINAL COHORT STUDY

*Limin DOU[1], Wei SONG[1], Piaoping ZHAO[1], Weili YAN[2], Ming LI[1], Liuhui WANG[1], Xiaotian CHEN[2], Ying YE[1]*

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The association between maternal serum unsaturated fatty acid concentrations in early gestation and longitudinal trajectories of childhood atopic dermatitis (AD) remains unclear. To investigate whether maternal first-trimester serum unsaturated fatty acid (UFA) concentrations are associated with the longitudinal prevalence of childhood atopic dermatitis (AD). This prospective cohort study included 438 mother-infant pairs from the MKFOAD cohort. Maternal serum samples were collected at 12-14 weeks of gestation, and 17 UFA metabolites were quantified by GC-FID/MS. Childhood AD was diagnosed at ages 1, 2, 5, and 8 years by pediatric dermatologists based on symptoms in the preceding 12 months. Multilevel mixed-effects logistic regression was used to estimate adjusted odds ratios (aORs) and 95% confidence intervals (CIs) after adjustment for covariates. Higher maternal serum C24:1n9 (nervonic acid) concentrations were significantly associated with a lower annual period prevalence of childhood AD (aOR per 1-SD increase, 0.64; 95% CI, 0.44–0.94). Maternal C24:1n9 was also inversely associated with neonatal forehead transepidermal water loss (β = −0.94; 95% CI, −1.76 to −0.12). Maternal C24:1n9 levels were associated with 23% lower odds of early-onset AD (onset before 2 years of age; aOR, 0.77; 95% CI, 0.60-0.98). Sensitivity analyses of the weighted quantile sum index showed an inverse association with AD prevalence (aOR, 0.71; 95% CI, 0.55–0.91), with C24:1n9 as the predominant contributor (weight = 0.45). Maternal nervonic acid in early pregnancy was associated with a lower annual period prevalence of childhood AD, particularly for early-onset AD. These findings suggest an important role for maternal monounsaturated UFAs in the etiology of childhood AD and the potential of nervonic acid as a predictive biomarker for early-onset AD.

## *OL1.2#2148*

### PERSISTENT TISSUE REMODELING AND IMMUNE ADAPTATION IN LONG-TERM NATURAL REMISSION IN ATOPIC DERMATITIS

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The biological basis for why atopic dermatitis (AD) resolves spontaneously in some individuals yet persists lifelong in others remains a clinically important and mechanistically unresolved question with direct implications for prognosis, biomarker discovery, prevention, and drug development. We aim to define the immune, stromal, and epigenetic programs underlying AD remission. We performed spatial transcriptomics on skin biopsies from patients with active AD, long-term natural remission, and healthy controls, complemented by DNA methylation profiling of peripheral CD4 T cells. Spatial profiling identified 21 cell types. Long-term remission represented a near homeostatic tissue state that remained distinct from healthy skin and was characterized by selective immune regulation. Keratinocytes (KC) normalized expression of the T-cell chemoattractant CCL27 but retained features of barrier dysfunction, including reduced filaggrin expression and increased SPRR expression, indicating persistent alterations in KC differentiation. Remission fibroblasts showed reduced interferon signaling and restoration of immune homeostasis but only partial stromal normalization, with elevated complement genes expression and incomplete recovery of extracellular matrix components. Spatial niche analysis identified conserved microenvironments shared between active AD and remission, suggesting persistent localized tissue remodeling despite clinical resolution. Epigenetic profiling showed differential promoter methylation of GATA3 and Th2-associated genes, including IL25 and IRF4 across conditions. We provide the first high-resolution map of long-term AD remission, demonstrating that remission represents a distinct immunological state characterized by persistent tissue remodeling and unique cellular and molecular adaptations.

## *OL2.1#2015*

### A MOISTURIZING CREAM CONTAINING PRINSEPIA UTILIS OIL AMELIORATES PHENOTYPES IN A MOUSE MODEL OF ATOPIC DERMATITIS

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Skin barrier dysfunction is a core pathogenic mechanism of atopic dermatitis (AD). Downregulation of tight junction proteins (Claudin-1, ZO-1) exacerbates transepidermal water loss (TEWL) and invasion of external stimuli. A moisturizing cream containing Prinsepia utilis oil has been shown to reduce AD relapse risk in infants, but its specific effects on tight junction proteins and inflammation remain unclear. To investigate the effect of this cream on skin barrier function in an AD mouse model, focusing on its regulation of Claudin-1 and ZO-1 expression. BALB/c mice were randomized into normal, model, vehicle, and cream groups. AD-like lesions were induced by DNCB. The cream group received topical cream twice daily from day 16 to day 37. Dermatitis severity scores and scratching behavior were assessed. TEWL was measured. Expression of Claudin-1 and ZO-1 was detected by immunofluorescence and Western blot. Mast cell infiltration was examined by histopathological staining. Levels of IL-5, IL-31, and TNF-α in skin tissues were measured by ELISA. Compared with the model group, the cream group showed significantly reduced dermatitis severity scores and scratching bouts ($p<0.01$); expression of Claudin-1 and ZO-1 was significantly upregulated ($p<0.01$); mast cell infiltration decreased; levels of IL-5, IL-31, and TNF-α were markedly reduced ($p<0.05$); and TEWL values decreased significantly. The moisturizing cream containing Prinsepia utilis oil upregulates Claudin-1 and ZO-1 expression, reduces Th2-related inflammatory cytokines, and lowers TEWL, thereby repairing skin barrier function in an AD-like mouse model. This study provides direct experimental evidence for its barrier-repairing application in AD patients.

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***OL2.2#2078***

## AN ENDOGENOUS ANTIMICROBIAL PEPTIDE RESTORES EPIDERMAL HOMEOSTASIS THROUGH LRP1-DEPENDENT AUTOPHAGY IN ATOPIC DERMATITIS

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The antimicrobial peptide derived from insulin-like growth factor-binding protein 5 (AMP-IBP5) has antimicrobial and immunomodulatory activity, but its role in epidermal barrier regulation remains unclear. We aimed to determine whether AMP-IBP5 restores skin barrier function and suppresses atopic dermatitis (AD)-like inflammation through low-density lipoprotein receptor-related protein 1 (LRP1) and autophagy. Tight junction function was assessed in primary human keratinocytes using transepithelial electrical resistance and permeability assays. A 2,4-dinitrochlorobenzene-induced AD mouse model was used to evaluate dermatitis severity, barrier function, cytokine expression, and tight junction proteins. LRP1 signaling and autophagy dependence were examined using pathway inhibition. AMP-IBP5 increased tight junction protein expression and promoted their localization at intercellular borders through atypical protein kinase C and Rac1 signaling. In AD-like mice, AMP-IBP5 reduced dermatitis severity, restored tight junction proteins, improved barrier function, and suppressed inflammatory and pruritic cytokines. Mechanistically, AMP-IBP5 activated LRP1, restored nuclear LRP1 signaling, and increased autophagy activity. Its anti-inflammatory and barrier-protective effects were abolished by LRP1 antagonism and inhibition of autophagy signaling. AMP-IBP5 restores epidermal barrier integrity and limits AD-like inflammation through LRP1-dependent autophagy. These findings identify an endogenous peptide–receptor pathway that coordinates tight junction repair and inflammatory control in AD.

***OL2.3#2298***

## EPIDERMAL TET2 DEFICIENCY AGGRAVATES ATOPIC DERMATITIS BY IMPAIRING SPINK7-ASSOCIATED ANTIPROTEASE HOMEOSTASIS

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Atopic dermatitis (AD) involves barrier dysfunction and type 2 inflammation. Ten-eleven translocation 2 (TET2) catalyzes the oxidation of 5-methylcytosine to 5-hydroxymethylcytosine (5-hmC), contributing to DNA demethylation and gene regulation. Its role in epidermal antiprotease homeostasis remains unclear. To investigate the role of epidermal TET2 in AD and its regulation of serine peptidase inhibitor Kazal type 7 (SPINK7). TET2 and 5-hmC were assessed in human skin. Calcipotriol-induced dermatitis was established in epidermis-specific Tet2-deficient and control mice, followed by histological assessment and RNA sequencing. TET2 was silenced or overexpressed in human keratinocytes under interleukin-4/interleukin-13 stimulation; SPINK7 expression and secretion were measured. TET2 and 5-hmC were reduced in AD epidermis. Tet2 deficiency exacerbated AD-like dermatitis, with increased ear thickness, epidermal thickening and inflammatory infiltration, alongside reduced barrier-marker expression. RNA sequencing identified Spink7 downregulation in Tet2-deficient AD skin, supported by tissue staining. Under type 2 inflammatory conditions, TET2 knockdown reduced SPINK7 expression and secretion, whereas TET2 overexpression increased SPINK7 expression relative to the corresponding controls. Epidermal TET2 protects against experimental AD-like dermatitis and supports SPINK7 expression. These findings suggest a potential link between epigenetic regulation and epidermal antiprotease homeostasis.

***OL3.1#2134***

## ANXIETY AND DEPRESSION IN CHINESE ADULTS WITH ATOPIC DERMATITIS: A CROSS-SECTIONAL STUDY OF PREVALENCE AND ASSOCIATION WITH DISEASE SEVERITY

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Limited studies have examined the link between atopic dermatitis and psychosocial distress in Chinese patients. To estimate the prevalence of anxiety and depression among Chinese adults with AD and to examine their association with disease severity. We conducted a cross-sectional, population-based study of 3021 adults (≥18 years) with AD recruited from the largest dermatology center in northwest China between September 2021 and October 2025. Disease severity was assessed by dermatologists using EASI, while anxiety and depression were evaluated using the Hospital Anxiety and Depression Scale (HADS). The primary outcomes were odds ratios for anxiety and depression in patients with moderate or severe AD compared with those with mild AD. Using HADS-A/D cutoff scores of ≥8, the overall prevalence of anxiety and depression was 40.1% (38.3–41.8) and 26.8% (25.3–28.4), respectively. Anxiety and depression prevalences increased with AD severity, ranging from 26.8% and 16.5% in mild cases to 71.6% and 55.2% in severe cases. After covariate adjustment, moderate-to-severe AD was associated with approximately fourfold higher odds of anxiety versus mild AD (OR, 4.18; 95% CI: 3.53–4.97). When stratified by severity, the ORs were 3.87 (95% CI: 3.25–4.61) for moderate and 8.49 (95% CI: 5.53–13.29) for severe AD. Similarly, the adjusted ORs for depression were 3.80 (95% CI: 3.17–4.57) for moderate-to-severe AD, and 3.52 (95% CI: 2.92–4.26) and 7.29 (95% CI: 4.82–11.09) for moderate and severe AD, respectively. In the Chinese population, AD is associated with a higher prevalence of anxiety and depression and an increased risk that escalates with greater disease severity. Routine mental health screening and early management of psychiatric comorbidities should be considered in patients with AD.

***OL3.2#2222***

## INFLAMMATORY MECHANISMS MEDIATE THE ASSOCIATION BETWEEN FRAILTY AND ATOPIC DERMATITIS IN THE UK BIOBANK COHORT

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Atopic dermatitis (AD) is a chronic inflammatory skin disease. Frailty reflects reduced physiological reserve and inflammation, but its association with incident AD remains unclear. To assess whether pre-frailty and frailty increase long-term AD risk and to explore age differences, inflammatory mediation, and plasma proteins. Over 450,000 UK Biobank participants without baseline AD were included. Frailty was measured using the physical frailty phenotype and a 49-item frailty index. Cox models estimated AD risk. Splines, subgroup analyses, multiple imputation, exclusion of early cases, and propensity-score matching tested robustness. Fourteen inflammatory markers underwent mediation analysis. Olink data from 54,219 participants identified proteins related to frailty and AD. During a median follow-up of 13.11 years, 7,048 participants developed AD. Compared with non-frail

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participants, pre-frail and frail individuals had higher risks. For physical frailty, adjusted HRs were 1.23 and 1.85; for the frailty index, they were 1.16 and 1.43. Associations were stronger in adults younger than 65 years. CRP, neutrophils, eosinophils, and other markers partially mediated the association. MMP12 was the plasma protein linked to frailty and AD. Frailty is associated with increased long-term AD risk, especially in middle-aged adults. Systemic inflammation partly explains the association, and MMP12 may be a candidate biomarker. Frailty screening may support earlier risk identification.

### *OL3.3#2200*

## SEX-SPECIFIC PSYCHOLOGICAL BURDEN OF ATOPIC DERMATITIS SEVERITY IN CHINESE CHILDREN: A CROSS-SECTIONAL STUDY ON ANXIETY AND DEPRESSION

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Emerging evidence highlights the association of atopic dermatitis (AD) with psychological comorbidities. However, it remains unclear whether AD severity contributes to anxiety and depressive symptoms, as well as whether these effects differ by child sex. The study aimed to investigate the associations of AD severity with anxiety and depressive symptoms in children, and to explore sex-specific differences in these associations. This cross-sectional study included 226 children aged 7-17 years with AD in Shanghai enrolled from January 2023 to October 2024. AD severity was assessed using the Investigator's Global Assessment scale. Anxiety and depression symptoms were evaluated using the Screen for Child Anxiety-Related Emotional Disorders (SCARED) and the Children's Depression Inventory (CDI), respectively. Children with severe AD exhibited significantly higher SCARED total score (aβ=5.74, 95%CI: 0.91 to 10.58) and CDI total score (aβ=4.33, 95%CI: 1.72 to 6.94) compared to those with mild AD. Stratified analyses revealed that boys with severe AD showed significantly higher SCARED total score (aβ=7.89, 95%CI: 1.50 to 14.27), particularly in the subscales of somatic/panic disorder, generalized anxiety, and separation anxiety, whereas no significant differences were observed in girls. Similarly, boys with severe AD had significantly higher CDI total score(aβ=5.50, 95%CI: 2.05 to 8.94), particularly in the subscales of anhedonia, negative mood, ineffectiveness, and interpersonal problems. For girls, however, significant differences were limited to the negative mood subscale. Children with severe AD were more likely to experience anxiety and depressive symptoms, with a more pronounced psychological burden in boys. These findings underscore the need for targeted psychological support in the management of severe AD, especially for boys.

### *OL4.1#2155*

## SPATIAL TRANSCRIPTOMIC PROFILING REVEALS COORDINATED NEUROIMMUNE REMODELING BETWEEN SKIN AND SENSORY NEURONS IN EXPERIMENTAL ATOPIC DERMATITIS

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Chronic itch is a hallmark of atopic dermatitis (AD) and is driven by complex interactions between the skin and sensory nervous system. Although neuroimmune communication plays a central role in itch, its spatial organization remains poorly understood. To characterize spatial neuroimmune alterations in skin and dorsal root ganglion (DRG) tissues using spatial transcriptomics in an MC903-induced mouse model of AD. AD-like dermatitis was induced by topical MC903 application. Full-thickness skin and DRG tissues were profiled using Xenium spatial transcriptomics, followed by cell type annotation, differential expression, and pathway analyses. Spatial transcriptomic profiling generated a high-quality atlas of skin and DRG tissues from control and AD mice. Overall cellular composition was largely preserved, indicating that AD-associated changes primarily reflected transcriptional remodeling. DRG neurons were classified into ten neuronal subtypes, with NP3 neurons showing the strongest enrichment of itch-related transcriptional programs. In the skin, itch-associated ligand signatures were enriched in keratinocytes and mast cells, with significantly increased keratinocyte signatures in AD. Integrated analysis suggested coordinated transcriptional remodeling between epidermal cells and sensory neurons during chronic itch. Spatial transcriptomics revealed coordinated neuroimmune remodeling between skin and sensory neurons in experimental AD. These findings provide a spatial framework for understanding neuroimmune mechanisms underlying chronic itch.

### *OL4.2#2096*

## CONSTRUCTION AND EVALUATION A NEW COMPREHENSIVE ALL-AGE DIAGNOSTIC TOOL FOR ATOPIC DERMATITIS

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Developing a convenient diagnostic tool for atopic dermatitis (AD) is essential to improve diagnostic accuracy, reduce misdiagnosis, and streamline clinical workflows. By incorporating age-specific criteria, key clinical features, and advanced analytical methods such as machine learning, a refined tool can address the variability of AD manifestations across age groups. This approach enhances the precision of diagnosis and standardizes clinical practice. We aimed to create a comprehensive diagnostic tool for AD applicable across all age groups and to evaluate its sensitivity and specificity. We recruited 33,628 patients from 305 hospitals and analyzed 23,628 subjects to examine the association between atopic characteristics and AD using chi-square tests. From 20 selected atopic features, we identified coefficient-positive features with the smallest P-values to construct a diagnostic tool. Diagnosis was determined by a weighted summation of these features. The tool's performance was validated using testing data and compared to existing diagnostic criteria. The new all-age diagnostic tool incorporates 8 features categorized into 4 types. Notably, sensitivity for the ≤2 years group increased by 25%, and for the ≥12 years group, it was six times higher than the H.R. criteria. Validation results aligned with training data, showing superior accuracy (66.36%, 69.88%, and 74.45%) and sensitivity (60.47%, 68.85%, and 74.89%) across age groups. The tool excelled in the ≤2 years group, achieving particularly high accuracy and sensitivity while maintaining PPV and NPV comparable to existing criteria. The newly developed all-age diagnostic tool

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exhibits superior accuracy, sensitivity, and overall performance across all age groups, particularly in infants and young children, effectively addressing the limitations of existing criteria.

### *OL5.1#2119*
### ENDOCANNABINOID SYSTEM INVOLVEMENT IN ATOPIC DERMATITIS: A STUDY OF CANNABINOID RECEPTOR EXPRESSION.

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by epidermal barrier dysfunction, immune dysregulation, and pruritus. The endocannabinoid system (ECS) regulates skin homeostasis and inflammation, but its role in AD remains incompletely defined. To characterize expression of ECS-related receptors in lesional, perilesional, and healthy skin using integrated bulk RNA sequencing datasets. RNA-sequencing datasets were analyzed, including 510 skin biopsies (healthy n=261, lesional AD n=113, perilesional AD n=136). Differential expression analysis was performed using DESeq2 following standardized quality control and transcript quantification. Lesional AD skin demonstrated significant upregulation of CBR2, TRPM8, ADORA2A, GPR55, PPARD, GPR3, HTR3A, and HTR3B compared with healthy skin. CBR2, GPR55, PPARD, ADORA2A, GPR3, HTR3A, and HTR3B also remained elevated versus perilesional skin, indicating association with active lesions. Only HTR3A was significantly increased in perilesional skin compared with healthy controls. These findings implicate ECS, serotonergic, and related signalling pathways in inflammation, barrier dysfunction, and pruritus. ECS-related receptors are differentially expressed in AD, with the greatest alterations occurring in lesional skin. CBR2, GPR55, PPARD, ADORA2A, GPR3, HTR3A, and HTR3B represent potential therapeutic targets and warrant further investigation using single-cell and functional studies.

### *OL6.1#2157*
### REAL-WORLD COMPARISON OF EFFICACY BETWEEN DUPILUMAB AND JAK INHIBITORS IN ATOPIC DERMATITIS

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The IL-4 receptor alpha antagonist dupilumab and Janus kinase inhibitors (JAKis) have demonstrated excellent efficacy in managing moderate-to-severe AD. However, real-world comparative data on their effectiveness profiles remain scarce. To compare the real-world effectiveness of dupilumab versus standard-dose oral JAKis in patients with moderate-to-severe AD, and to evaluate whether dose reduction compromises the efficacy of JAKis. This retrospective cohort study utilized multicenter data from the CORNERSTONE database. Patients with AD who initiated dupilumab, abrocitinib, or upadacitinib were included. Propensity score matching (PSM) was performed to balance baseline covariates. Outcomes included EASI-75, EASI-90, and PP-NRS4 responses through week2 to week 12. After PSM, 772 patients were analyzed in each matched group (dupilumab or JAKis). At week 12, EASI-75 response rates were comparable between dupilumab and standard-dose JAKis (73.2% v.s. 71.8%; NS). Dupilumab demonstrated more potent early effectiveness, with significantly higher EASI-75 at week 2 (51.4% vs. 29.0%; $P < 0.001$). Notably, in patients who underwent JAKi dose reduction, EASI-75, EASI-90, and PP-NRS4 response rates were significantly lower than those on standard-dose JAKis at multiple timepoints. Among patients without dose reduction, JAKis showed higher PP-NRS4 responses than dupilumab from week 2 through week 10. In this real-world cohort, dupilumab demonstrated comparable efficacy in improving skin lesions but lower response in pruritus relief compared with oral JAKis. Dose reduction led to significant compromised treatment effectiveness in oral JAKis. Careful consideration is warranted regarding JAKi dose reduction strategies to prevent suboptimal disease control.

### *OL6.2#2129*
### MORE ABOUT STAPOKIBART — ROBUST RESPONSE OF EXTENDED DOSING IN FAST RESPONDERS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS, REGARDLESS OF COMORBIDITY, AGE, OR PRIOR SYSTEMIC THERAPY

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In a phase 2 trial (NCT06116565), responseguided extension of the dosing interval was shown to be feasible with stapokibart in patients with moderatetosevere atopic dermatitis (AD). To evaluate the efficacy of stapokibart after switching from Q2W to Q4W extended dosing across different subgroups of fast responders, stratified by nonatopic comorbidities, atopic comorbidities, age (elderly ≥60 years vs. nonelderly 18–<60 years), and prior systemic therapy. This post-hoc analysis included 183 fast responders, defined as patients who achieved EASI-75 or IGA 0/1 at Week 12 following standard Q2W therapy. These responders were subsequently switched to extended Q4W dosing through Week 36. Post-hoc assessments included EASI-75, EASI-90, IGA 0/1, and ≥4-point improvement from baseline in weekly average of daily PP-NRS and DLQI. Across all subgroups, response rates at Week 12 (on Q2W) were generally comparable. After switching to Q4W dosing, EASI75 response rates were sustained at a high level, other outcomes continued to improve through Week 36, with response rates remaining generally comparable across subgroups. In the non-atopic comorbidities subgroup (with n=123 vs. without n=60), EASI-90 improved from 44.7% vs. 46.7% at Week 12 to 71.8% vs. 76.8% at Week 36; in the atopic comorbidities subgroup (with n=68 vs. without n=115), from 44.1% vs. 46.1% to 70.3% vs. 75.2%; in the age subgroups (elderly n=30 vs. nonelderly n=153), from 40.0% vs. 46.4% to 77.8% vs. 72.6%; and in the prior systemic therapy subgroups (with n=71 vs. without n=112), from 45.1% vs. 45.5% to 71.2% vs. 74.8% (All $P > 0.05$). These findings support the feasibility of Q4W extendedinterval regimens as a convenient and effective

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maintenance strategy, regardless of comorbidities, age, or prior systemic therapy.

### *OL7.1#2267*
### INTEGRATED MACHINE LEARNING OF SKIN MICROBIOME AND TRANSCRIPTOME IDENTIFIES ATOPIC DERMATITIS IN A LATIN AMERICAN COHORT

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Atopic dermatitis (AD) involves skin microbiome and transcriptome alterations beyond visible lesions, but integrated studies in Latin America are limited. To develop a multi-omic machine-learning classifier integrating skin microbiome and immune transcriptome data for AD. A retrospective observational study included patients with AD and healthy controls (HC) recruited at Hospital Clínico UC-Christus (Chile). Disease severity was assessed using EASI and SCORAD. Skin microbiota were profiled by 16S rRNA sequencing and expression of 18 genes by qPCR. A supervised machine-learning classifier integrating clinical, microbiome, and transcriptomic features was trained and evaluated using cross-validation. 68 patients with AD (age 13.1 ± 12.8 [range 0.3-57.4] years, 54.4% female; EASI 10.8 ± 10.6; SCORAD 44.7 ± 18.2) and 37 HC (age 22.2 ± 15.5 [range 0.9-60.1] years, 45.9% female) were included. Microbial α-diversity was significantly reduced in non-lesional skin (NLS) versus HC, with altered community structure (Shannon/Simpson) in lesional skin (LS). LS overexpressed S100A8, S100A9, and DEFB4A relative to NLS, whereas NLS showed reduced expression of LCE3A and IL-37 compared with HC at the transcriptomic level. An integrated machine-learning model accurately discriminated AD from HC (AUC=0.98 ± 0.02). Integrated microbiome-transcriptome signatures enable highly accurate disease discrimination and represent promising candidates for patient stratification and disease monitoring. Further validation is required to determine whether these signatures can reliably discriminate AD from HC and other inflammatory skin diseases.

### *OL7.2#2005*
### DISSOCIATION BETWEEN SUBJECTIVE ITCH PERCEPTION AND OBJECTIVE SCRATCHING BEHAVIOUR IN ATOPIC DERMATITIS

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Chronic itch is a hallmark of atopic dermatitis (AD) and can significantly impact quality of life. In clinical trials, itch is typically quantified by self-reported questionnaires such as the Peak Pruritus Numerical Rating Scale (PP-NRS). However, recent developments in wearables now enable objective quantification of scratching behaviour. This study aimed to develop a scratch detection model to objectively measure nocturnal scratching and thus quantify itch during sleep. 28 adolescents with AD and 15 healthy controls were recruited. Participants wore the GENEActiv 1.2 actigraphy watch on their non-dominant wrist for 2-12 consecutive nights. Video recordings were used to manually label scratch events. 11 recordings from 4 atopic dermatitis patients and 5 healthy controls were used to train a fully connected neural network model for scratch detection. Total scratch duration and average movement frequency per scratch episode (scratch intensity) were calculated for each subject and compared between AD and control groups. Within the AD group, scratch metrics were also correlated with EASI and PP-NRS. Our model achieved an averaged F1-score of 0.74 and successfully identified 1115 out of 1399 scratch events, demonstrating moderate-to-high accuracy. AD patients exhibited higher total scratch duration ($p = 6.7e-9$) and scratch intensity ($p = 0.0021$) compared to controls. Scratch metrics correlated with EASI (duration: $R = 0.64$, $p = 2.7e-4$; intensity: $R = 0.48$, $p = 0.0097$) but not the self-reported PP-NRS. We demonstrate the feasibility of developing a scratch detection model with good performance, even with limited training dataset. Our results highlight the dissociation between objective scratching behaviour and subjective itch perception, and thus the importance of incorporating wearables in clinical settings to measure itch in patients.

### *OL7.3#2163*
### GLYCOPROTEOMICS ANALYSES OF ATOPIC DERMATITIS REVEAL IMMUNE-ASSOCIATED GLYCOPEPTIDES

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Aberrant protein N-glycosylation regulates immune responses, but its role in atopic dermatitis (AD) remains poorly understood. To characterize systemic N-glycosylation remodeling in AD and identify disease-associated N-glycopeptide signatures using integrated transcriptomic and intact serum N-glycoproteomic analyses. PBMC transcriptomic data from healthy controls, untreated AD patients, and dupilumab-treated patients were reanalyzed to evaluate N-glycosylation-related genes. Serum

samples from 5 AD patients and 5 healthy controls were analyzed by LC-MS/MS-based intact N-glycoproteomics. Functional enrichment, antigenicity prediction, and correlation with EASI were performed. N-glycosylation-related genes were coordinately upregulated in active AD and partially normalized after dupilumab treatment. Serum profiling identified 1,602 intact N-glycopeptides, 251 N-glycosylation sites, and 166 glycoproteins. 165 N-glycopeptides were differentially abundant, including nine AD-specific N-glycopeptides. Differential glycoproteins were enriched in humoral immune response and complement activation. Disease-associated glycosylation altered the predicted antigenicity of multiple peptides. Representative N-glycopeptides derived from A2MG, IGHA2, CFAB, ZA2G, and FIBG were significantly associated with EASI, indicating close links between site-specific N-glycosylation and disease activity. AD is characterized by coordinated activation of the N-glycosylation machinery and extensive serum N-glycoproteome remodeling. Site-specific N-glycopeptides may serve as biomarkers of disease activity and provide new insights into glycosylation-mediated immune dysregulation in AD.

### *OL8.1#2111*
### TISSUE-RESIDENT MEMORY T CELLS ARE ASSOCIATED WITH PATHOLOGY AND ITCH IN A CHRONIC ATOPIC DERMATITIS MOUSE MODEL

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by persistent itch and immune dysregulation. Tissue-resident memory T cells (TRM) remain in the skin long-term and contribute to disease chronicity and relapse; however, the mechanisms by which TRM promote skin pathology and itch are not fully understood. To investigate the role of TRM-derived mediators in skin inflammation and itch using a chronic AD mouse model. A chronic AD model was established by repeated ovalbumin (OVA) application, while control mice received vehicle treatment. Skin pathology and TRM distribution were evaluated by H&E staining, immunofluorescence, and flow cytometry. Scratching behavior was quantified to assess itch. Primary dorsal root ganglion (DRG) neurons were cultured and treated with TRM-derived mediators to evaluate neurite outgrowth. Single-cell RNA sequencing of skin and DRG tissues from AD patients and mouse models was performed to identify transcriptional changes. OVA-treated mice developed typical chronic AD features, including epidermal hyperplasia, inflammatory cell infiltration, and increased scratching behavior. TRM accumulation and expression of TRM-derived mediators were significantly increased in lesional skin. scRNA-seq confirmed upregulation of these mediators in TRM cells. Treatment of cultured DRG neurons with TRM-derived mediators significantly promoted neurite outgrowth, suggesting enhanced sensory nerve remodeling. TRM-derived mediators are associated with skin inflammation and contribute to sensory neuronal remodeling, potentially promoting itch in chronic atopic dermatitis by facilitating the formation and expansion of intraepidermal nerve fibers. These findings suggest that TRM-derived signaling may represent a novel therapeutic target for chronic atopic dermatitis-associated itch.

### *OL8.2#2264*
### SKIN-ASSOCIATED E-CADHERIN-EXPRESSING CD4+ MEMORY T CELLS EXACERBATE COLITIS IN ATOPIC DERMATITIS

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Atopic dermatitis (AD) is associated with inflammatory bowel disease, but whether skin-associated immune cells migrate to the gut and amplify intestinal inflammation is unclear. To define the cellular and migratory mechanisms linking AD to aggravated colitis and evaluate therapeutic targeting of E-cadherin. AD-prone Flgft/ft Tmem79ma/ma (FT) mice and wild-type controls were subjected to dextran sulfate sodium (DSS)-induced colitis. Adoptive transfer, RNA sequencing, flow cytometry, congenic tracking, and in vivo imaging identified and traced cells. CCR9 and E-cadherin were inhibited. Tissue-resident memory T-cell (TRM) differentiation and secreted proteins were assessed in vitro. Findings were validated in an MC903/house dust mite-induced AD model. AD-prone mice had no overt baseline colitis but developed greater mortality, weight loss, colon shortening, histologic injury, fibrosis, and colonic CD4 T-cell infiltration. Adoptive transfer identified E-cadherin+ CD4+ memory T cells from mesenteric lymph nodes as the colitis-aggravating subset. This population was increased in both AD models. These cells originated predominantly from skin-draining lymphoid tissue, co-expressed CCR9 and E-cadherin, accumulated in the gut in a CCR9-dependent manner, and showed enhanced TRM differentiation and a pro-inflammatory secretome. E-cadherin blockade improved colitis and reduced intestinal TRM accumulation in FT mice without significantly affecting wild-type mice. These findings identify a skin-gut T-cell axis in AD: skin-associated E-cadherin+ CD4+ memory T cells migrate to the gut in a CCR9-dependent manner and exacerbate DSS-induced colitis. Targeting this population may limit AD-associated intestinal inflammation.

### *OL9.1#2206*
### APOE DRIVES IMMUNOMETABOLIC REPROGRAMMING IN DERMAL FIBROBLASTS TO AGGRAVATE ATOPIC DERMATITIS

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Dermal fibroblasts are emerging as key regulators of skin inflammation, yet their metabolic-immune functions in atopic dermatitis (AD) remain poorly defined. This study aims to define how apolipoprotein E (APOE) drives immunometabolic reprogramming in fibroblasts and contributes to AD pathogenesis. We analyzed scRNA-seq data from AD patients, performed functional assays in human dermal fibroblasts, and used fibroblast-specific APOE overexpression and knockout mice in an MC903-induced AD model. Lipidomics, flow cytometry, and immunofluorescence were used to assess metabolic and inflammatory changes. Single-cell analysis identified fibroblasts exhibiting a senescent phenotype and high APOE expression in AD skin lesions. Functionally, APOE drove lipid metabolic reprogramming in human fibroblasts, characterized by triglyceride accumulation and enhanced fatty acid turnover, concomitantly promoting cellular senescence and inflammatory mediator production. In murine models, fibroblast-specific APOE overexpression exacerbated MC903-induced AD through enhanced macrophage recruitment,



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whereas fibroblast-specific APOE knockout attenuated disease severity. Mechanistically, APOE triggered JAK1-STAT6-CXCL12 axis activation through lipid-mediated redox stress that impairs protein tyrosine phosphatases under type 2 inflammatory conditions. JAK inhibition therapeutically reversed APOE-induced exacerbation in the AD model. Collectively, our findings reveal APOE as a key immunometabolic regulator of fibroblast-macrophage crosstalk in AD, highlighting therapeutic targeting of this metabolic-immune interface.

### *OL9.2#2268*
### ROSEBURIA HOMINIS DERIVED NICOTINIC ACID AMELIORATES ATOPIC DERMATITIS -LIKE DERMATITIS

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Increasing evidence implicates gut microbiota dysbiosis in the pathogenesis of atopic dermatitis (AD). Reduced gut abundance of the genus Roseburia has been reported in AD patients. However, the functional role of R. hominis and the underlying mechanisms remain unclear. To investigate whether R. hominis attenuates AD-like dermatitis and explore the potential mechanisms underlying its protective effects. MC903-challenged mice were gavaged with live or heat-inactivated R. hominis, culture medium and metabolites. Antibiotic pretreatment was used to assess microbiota dependence. We performed untargeted and targeted LC-MS based metabolomic profiling, fecal metagenomic and transcriptomic analyses, histopathology, and immunoassays. R. hominis attenuated AD-like dermatitis, as evidenced by reduced ear thickening, epidermal hyperplasia, cutaneous mast cell infiltration, IgE levels, and Il4/Il13 expression, together with increased Flg expression. R. hominis remained protective in antibiotic-pretreated mice. Its culture medium recapitulated the effects of live R. hominis, whereas heat-inactivated bacteria were less effective. Metabolomic profiling of the culture supernatant identified nicotinic acid as a metabolite of interest enriched in the R. hominis group. Among the candidate metabolites tested in vivo, nicotinic acid produced the strongest overall improvement. Transcriptomic revealed enrichment of mast cell activation and degranulation as prominent pathways in control lesions relative to R. hominis. These findings suggest that R. hominis alleviates AD-like inflammation, with nicotinic acid potentially linking gut microbial activity to attenuated mast cell responses. Our study highlights R. hominis as potential preclinical candidates for AD intervention.

### *OL10.1#2004*
### GLOBAL CORE SET OF ITEMS FOR STANDARDISED ATOPIC DERMATITIS PREVALENCE RESEARCH

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Heterogeneous case definitions, severity measures, sociodemographic variables and comorbidity reporting contribute to wide variation in defining Atopic Dermatitis (AD) prevalence. This inconsistency hinders evidence synthesis and limits the formulation of coherent publichealth policies worldwide. In order to develop a globally endorsed core set of items that all future studies on AD prevalence should capture, a 17member Steering Group representing 14 countries across all continents launched a multistage consensus process. Candidate items were identified through a search of the available literature. Two rounds of e-Delphi were then completed by 297 stakeholders from 66 countries, including people with lived AD experience, dermatologists, epidemiologists and healthservices researchers, who rated each item on a fivepoint Likert scale. Items lacking consensus after round one were represented with anonymised group feedback in round two. Subsequently, an online consensus conference, attended by 81 participants from 44 countries, examined undecided items and the final list was submitted to a formal endorsement vote. The literature synthesis identified 40 provisional items. E-Delphi voting converged on four core domains for populationbased AD prevalence research: (1) case ascertainment, (2) severity assessment, (3) key sociodemographic characteristics and (4) associated comorbidities. After deliberation, 26 items were ratified as the internationally endorsed core set. The rigorously derived, globally endorsed core set of items provides a standardised framework for future AD prevalence studies. Adoption will improve crossstudy comparability, strengthening the evidence base, and supporting more reliable estimates for healthpolicy planning and resource allocation.

### *OL10.2#2175*
### STAPHYLOCOCCUS AUREUS EXACERBATES ATOPIC DERMATITIS VIA THE PPARΓ/ ELOVL7 AXIS IN INFLAMMATORY DENDRITIC EPIDERMAL CELLS

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Atopic dermatitis (AD) is a chronic relapsing inflammatory skin disease. Excessive colonization by Staphylococcus aureus (S.aureus) is closely associated with disease severity, poor therapeutic response, and recurrence. Inflammatory dendritic epidermal cells (IDECs) serve as crucial sentinels in cutaneous immunity. This study aimed to elucidate how S.aureus aggravates AD by regulating the metabolic and inflammatory phenotype of IDECs, and to identify potential therapeutic targets and intervention strategies. Clinical skin samples from patients with AD,

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single-cell RNA sequencing datasets, human monocyte-derived IDECs, and AD-like mouse model were used to investigate the association between S. aureus and IDEC. Multimodal validation were performed to define the role of the PPARγ/ELOVL7 axis in IDEC metabolic reprogramming. The multimodal AI drug screening platform DrugCLIP was used to screen FDA-approved drugs targeting ELOVL7. S.aureus treatment markedly enhanced the expression of costimulatory molecules and inflammatory cytokines in IDECs while downregulating PPARγ. Both PPARγ overexpression and rosiglitazone treatment suppressed S.aureus-induced IDEC inflammatory activation and alleviated skin inflammation. Mechanistically, ELOVL7 was identified as a direct downstream target of PPARγ. DrugCLIP-based screening further identified clotrimazole as a potential ELOVL7-binding compound. This study identifies a mechanism by which S.aureus aggravates AD through suppression of PPARγ and upregulation of ELOVL7, resulting in aberrant VLCFA accumulation, mitochondrial injury, glycolytic reprogramming, and inflammatory activation of IDECs. ELOVL7 represents a promising metabolic therapeutic target for AD.

***OL10.3#2098***

## IL-37 PROMOTES EPIDERMAL HOMEOSTASIS THROUGH AUTOPHAGY-DEPENDENT MECHANISMS IN ATOPIC DERMATITIS

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Atopic dermatitis (AD) is characterized by type 2 inflammation and epidermal barrier dysfunction. Although biologic therapies effectively suppress inflammation, restoration of epidermal homeostasis remains an unmet clinical need. IL-37 is an anti-inflammatory cytokine implicated in allergic diseases, but its role in epidermal barrier regulation is unknown. To investigate the role and underlying mechanisms of IL-37 in epidermal barrier regulation during AD. GEO transcriptomic datasets, human skin samples, primary human keratinocytes, skin equivalents, and MC903-induced AD-like mouse models were used to investigate IL-37 function. Correlation analysis and Hallmark gene set enrichment analysis identified IL37-associated pathways. Keratinocyte-specific autophagy-deficient mice were used to evaluate the requirement of autophagy in vivo. IL-37 expression was reduced in lesional AD skin, negatively correlated with disease severity and inflammatory signatures, and positively associated with epidermal barrier programs. Administration of IL-37 enhanced barrier protein expression, improved epithelial integrity, and rescued Th2 cytokine-induced barrier dysfunction in keratinocytes and skin equivalents. In vivo, IL-37 alleviated MC903-induced AD-like skin inflammation and restored barrier function. Transcriptomic analyses identified autophagy as a major IL37-associated pathway. IL-37 induced autophagy in keratinocytes, and its protective effects were abolished in keratinocyte-specific autophagy-deficient mice. IL-37 is an endogenous regulator of epidermal homeostasis that integrates barrier restoration with inflammation resolution through autophagy. These findings identify a previously unrecognized IL-37–autophagy–barrier axis as a potential therapeutic target for AD.

## WHAT'S NEW FROM THE INDUSTRY SPONSORED LECTURE ABSTRACTS (SL)

### *SL.1*
### ATOPIC DERMATITIS IN TRANSITION: EMERGING SCIENCE AND FUTURE DIRECTIONS

*For Pfizer: Nadir MAMMAR*
*International R&D Medical Lead, Pfizer, France*

Abstract summary not available at the time of printing

### *SL.2*
### LILLY'S COMMITMENT TO DERMATOLOGY

*For Lilly: Jens Gammeltoft GERWIEN*
*Executive Director Research, International Medical Affairs, Denmark*

Abstract summary not available at the time of printing

### *SL.3*
### EMOLLIENT DESIGN FOR ATOPIC DERMATITIS: EFFICACY AND SAFETY FOR SKIN BARRIER REPAIR

*For Unifarco Biomedica: Anna BELLONI-FORTINA*
*Department of Women's and Children's Health - SDB, University of Padua, Padua, Italy*

Abstract summary not available at the time of printing



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# BOOTH PRESENTATIONS (BP)

## BP1. Innate and Adaptive Immunity

***BP#2083***

### MESENCHYMAL STEM CELLS DIFFERENTIALLY REPROGRAMS KERATINOCYTE RESPONSES IN THERAPEUTIC AND PREVENTIVE MODELS OF ATOPIC DERMATITIS

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Atopic dermatitis (AD) is characterized by type 2 inflammation and epidermal barrier dysfunction. Although mesenchymal stem cells (MSCs) have emerged as promising regenerative and immunomodulatory therapeutics, whether keratinocyte responses differ according to the timing of administration remains unclear. To compare the therapeutic and preventive effects of MSCs in an IL-4/IL-13-induced AD model. Human HaCaT keratinocytes were assigned to control, IL-4/IL-13, therapeutic (IL-4/IL-13 followed by MSC/Rux), preventive (MSC/Rux followed by IL-4/IL-13), MSC alone, and Rux alone groups. IL-4/IL-13 successfully induced an AD-like inflammatory state with JAK/STAT activation and epithelial dysfunction. Both MSCs and ruxolitinib attenuated IL-4/IL-13-induced inflammatory signaling, including JAK/STAT activation and inflammatory cytokine expression. However, MSCs exhibited context-dependent epithelial responses. Therapeutic MSC administration preferentially restored barrier-associated genes (CERS3 and ELOVL1), and induced epithelial defense-associated mediators (β-defensin, IL33 and CCL22), whereas preventive administration more effectively attenuated inflammatory keratinocyte activation, as reflected by reduced S100A7/8/9 expression. MSC treatment was also associated with increased IL-10 expression together with reduced TNF-α, IFN-γ, IL6 and CXCL8 expressions. MSCs exert stage-specific immunomodulatory effects by suppressing IL-4/IL-13-driven inflammatory signaling while selectively enhancing epithelial defense-associated responses after established inflammatory condition. These findings support MSCs may complement conventional JAK inhibition through epithelial immune reprogramming rather than broad cytokine suppression.

***BP#2228***

### AG-30/5C ENHANCES TIGHT JUNCTION BARRIER FUNCTION AND AMELIORATES ATOPIC DERMATITIS-LIKE SKIN INFLAMMATION

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Atopic dermatitis (AD) is a chronic inflammatory skin disease involving type 2 immune activation, epidermal barrier dysfunction, and microbial dysbiosis. Tight junction disruption compromises barrier integrity and increases paracellular permeability. The role of AG-30/5C, a synthetic antimicrobial peptide, in barrier regulation and AD remains unclear. To determine whether AG-30/5C enhances tight junction barrier function and alleviates AD-like inflammation. Normal human epidermal keratinocytes were treated with AG-30/5C. Tight junction mRNA and protein expression were assessed by qPCR, Western blotting, and immunofluorescence, while barrier function was evaluated by transepithelial electrical resistance (TER). Signaling activation and autophagic flux were examined by Western blotting and a HaloTag-LC3 reporter assay. Therapeutic effects were evaluated in MC903-induced AD-like wild-type, compound C-treated, and keratinocyte-specific Atg7-deficient mice. AG-30/5C increased gene and protein expression of tight junction proteins, including claudin-1, claudin-4, zonula occludens, and occludin, and enhanced TER. Mouse ear skin transcriptomics linked AG-30/5C treatment to tight junction, AMPK, and autophagy-related pathways. AG-30/5C activated AMPK signaling and autophagic flux, whereas compound C blocked tight junction protein upregulation. In MC903-induced mice, AG-30/5C reduced serum IgE, scratching, ear thickness, transepidermal water loss, epidermal hyperplasia, mast cell infiltration, and type 2 cytokine expression. These effects were markedly attenuated in compound C-treated and keratinocyte-specific Atg7-deficient mice. AG-30/5C enhances tight junction barrier function and ameliorates AD-like inflammation, likely through AMPK-dependent autophagy activation.

***BP#2248***

### HEK293T CELL-DERIVED EXTRACELLULAR VESICLES WITH HIGH PD-L1 AND E-CADHERIN EXPRESSION FOR ATOPIC DERMATITIS TREATMENT BY REGULATING CD4+TISSUE-RESIDENT MEMORY T CELLS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease that imposes significant physical discomfort, psychological stress, and financial strain on patients due to its recurrent nature. Current therapies often fail to provide durable relief, and persistent $CD4^+$ tissue-resident memory T (TRM) cells in lesional skin contribute to AD chronicity and recurrence. Targeting $CD4^+$ TRM cells represents a promising strategy to attenuate inflammation and reduce flare-ups. This study evaluates the therapeutic potential of extracellular vesicles with high expression of PD-L1 and E-cadherin (sEVs-PD-L1), engineered to target $CD4^+$ TRM cells, in an OVA-induced AD relapse model, aiming to develop a novel approach for preventing AD recurrence. This study aims to evaluate the effect and mechanism of extracellular vesicles expressing PD-L1 and E-cadherin targeting CD4+ tissue-resident memory T cells in relapsing atopic dermatitis. An OVA-induced AD relapse model was established in C57BL/6 mice. sEVs-PD-L1, overexpressing PD-L1 and E-cadherin, was used to target $CD4^+$ TRM cells. Efficacy was assessed by lesion severity, SCORAD, histopathology, cytokines and TRM cell proportions; safety by tissue morphology, immune cell infiltration, and major organ function. sEVs-PD-L1 significantly reduced skin lesion severity, SCORAD, pathological changes and peripheral IgE. It outperformed blank sEVs and PD-L1 protein alone in reducing CD4+ TRM cell infiltration and modulating local inflammation. These effects were abrogated upon administration of anti-PD-L1 antibody. Safety assessments revealed no significant change, indicating good biocompatibility. sEVs-PD-L1 up-regulates the PD-1/PD-L1 axis, curbing $CD4^+$ TRM expansion and lesional inflammation in relapsing AD; the approach is safe and merits clinical-mechanistic exploration.

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***BP#2315***

### THE OX40 AXIS LINKS CHRONIC INFLAMMATION TO ADULT-ONSET ATOPIC DERMATITIS: A REAL-WORLD MULTI-OMICS STUDY

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Adult-onset atopic dermatitis (AOAD) is a distinct subtype associated with systemic comorbidity and chronic inflammation. However, whether systemic inflammation contributes to AOAD development and its molecular remain unclear. To investigate the association between systemic inflammation and AOAD development and identify underlying pathways. Using UK Biobank with validation in a Chinese independent AOAD cohort, we assessed associations between baseline inflammatory indices and incident AOAD in 434,332 participants using Cox models. Inflammation-associated proteins from plasma proteomics were assessed for associations with incident AOAD risk, followed by protein–protein interaction analysis to prioritize hub proteins. Hub proteins were validated in the independent cohort, and lesional skin expression was assessed by single-cell RNA sequencing and immunofluorescence across inflammatory levels. Higher baseline systemic inflammation was consistently associated with increased risk of incident AOAD across all established inflammatory indices ($P<0.05$). Among circulating proteins, 35 proteins were associated with both systemic inflammatory burden and future AOAD risk, with TNFRSF4 (OX40) emerging as a key hub protein. Independent validation confirmed plasma OX40 levels were elevated in AOAD patients and positively associated with Charlson Comorbidity Index and disease severity (EASI). OX40 correlated with Th1, Th2, Th17/22, and innate immune signatures, indicating broad immune activation. In lesional skin, TNFRSF4 was predominantly expressed in Tregs, and $OX40^+$ Treg proportions increased with systemic inflammatory burden, as confirmed by immunofluorescence. These findings identify the OX40 axis as a link between systemic inflammation and AOAD, supporting its potential for patient stratification and therapy.

***BP#2360***

### CUTANEOUS IMMUNE MARKERS AND CLINICAL SEVERITY IN ATOPIC DERMATITIS

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Atopic dermatitis is a chronic inflammatory disease involving complex cellular and humoral immune responses. Cutaneous immune markers may reflect disease activity and immunological heterogeneity. To evaluate cutaneous CD4, CD23 and CD1a expression and determine their associations with clinical severity and serum immunoglobulin E levels in patients with atopic dermatitis. Fifty patients aged 7–50 years with atopic dermatitis were included. Disease severity was assessed using SCORAD. Skin biopsies were immunohistochemically evaluated for CD4, CD23 and CD1a. Serum immunoglobulin E was measured. Group differences were assessed using analysis of variance, and associations with SCORAD by correlation analysis. CD23 expression increased significantly from 13.21±1.46% in mild to 20.53±1.31% in severe atopic dermatitis ($p=0.0025$). CD4-positive cell density increased from 180.57±10.52 to 202.95±6.55 cells/mm², although differences between severity groups were not significant ($p=0.073$). CD4 and CD23 correlated positively with SCORAD ($r=0.523$ and $r=0.480$; both $p<0.001$). Serum immunoglobulin E showed the strongest correlation with SCORAD ($r=0.813$; $p<0.001$), while CD1a showed no significant correlation ($r=-0.080$; $p=0.582$). Increased CD23 expression and CD4-positive T-cell infiltration were associated with greater clinical severity of atopic dermatitis, while CD1a remained relatively stable. These findings highlight distinct cellular and humoral immune patterns associated with disease severity.

## BP2. Exposome, Microbiome, and Environment

***BP#2120***

### TRIGGERING FACTORS AND SEVERITY OF ATOPIC DERMATITIS IN MALAGASY ADULTS

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Adult atopic dermatitis is a chronic inflammatory skin disease characterized by recurrent pruritus and influenced by various triggering factors. Identifying these factors is important to better understand the disease and improve its management, particularly in the Malagasy context. To describe the triggering factors of atopic dermatitis flares in adult patients, analyze their frequency in our series, and assess their association with disease severity. We conducted a descriptive study of adults with atopic dermatitis. Data collected included sociodemographic characteristics, triggering factors reported by patients, and the severity of atopic dermatitis assessed using the SCORAD score. The study included 52 patients, comprising 28 women and 24 men. Triggering factors for pruritus were present in 42 patients (80.8%). The most frequently identified factors were food in 27 patients (51.9%), stress in 21 patients (40.4%), winter in 18 patients (34.6%), heat in 14 patients (26.9%), and dust in 14 patients (26.9%). Other factors identified included animals in 8 patients (15.4%), medications in 2 patients (3.8%), clothing in 2 patients (3.8%), and plants in 1 patient (1.9%). The mean SCORAD score was higher in patients reporting heat as a triggering factor (60.7 vs 50.1), suggesting a trend toward more severe disease in these patients ($p = 0.06$). Triggering factors for pruritus were common among patients with atopic dermatitis, dominated by food, stress, and environmental factors. Heat appears to be associated with greater clinical severity, a finding that warrants confirmation in larger studies. Systematic identification of these factors could contribute to better patient education and more tailored management.

***BP#2244***

### THE SPECTRUM OF INFECTIOUS CONTRIBUTIONS TO ATOPIC DERMATITIS: A PROSPECTIVE COHORT AND EXPERIMENTAL STUDY

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The contribution of diverse infections to AD onset remains unclear. To determine whether infection is associated with incident AD, whether genetic predisposition modifies this risk, and to explore immune mechanisms. We conducted a prospective UK Biobank cohort study evaluating > 900 infectious diseases by pathogen type and infection site, and assessing dose-response relationships between infection burden and incident AD. Gene-infection interactions were assessed using immune-related variants, and an Infection-Atopic Dermatitis Score (IAS) was developed for risk stratification. Cutaneous Staphylococcus aureus and Candida albicans infection models were used for transcriptomic profiling and comparison with human AD lesional skin. Over a median follow-up of 13.4 years, 5,239 incident AD cases were identified. Infection was associated with elevated AD risk (OR 3.36, 95% CI 3.16–3.56), with bacterial and skin/soft tissue infections showing the highest type- and site-specific risk. Higher infection burden showed a dose-response relationship with AD risk (P-trend<0.001). Variants in TNFSF4, FLG, IL2RA, and S100A9 modified infection-related AD risk, and higher IAS identified high-risk individuals (P-interaction = 0.007). In mice, both infections induced mixed Type 1/2/3 inflammatory transcriptional signatures, with infection-induced differentially expressed genes overlapping human AD lesional transcriptomes (P <0.001). Infections may be an important risk factors for AD onset, with genetic modifiers shaping susceptibility. The IAS may enable future risk stratification after external validation. Infection models reveal mixed Type 1/2/3 inflammatory programs converging with human AD signatures, providing mechanistic insight into infection-related AD pathogenesis.

### *BP#2327*
### UNMASKING HIDDEN SENSITIZERS: TWO PEDIATRIC CASES OF SYSTEMIC CONTACT DERMATITIS MASQUERADING AS ATOPIC DERMATITIS

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Systemic contact dermatitis (SCD) occurs when sensitized individuals are exposed to haptens via non-cutaneous routes, causing distant cutaneous inflammation. In pediatrics, SCD is often misdiagnosed as atopic dermatitis (AD) due to overlapping morphology, especially in atopic children. Common culprits include metals, medications, and additives. To highlight SCD as a diagnostic pitfall in pediatric dermatology and delineate key clues distinguishing it from AD, particularly during biologic therapy and with occult allergen sources. We report two pediatric cases initially managed as AD. Clinical data, exposure histories, patch test results, and outcomes were reviewed. Case 1: a 6-year-old boy with flexural "parchment-like" dermatitis and recent household washing machine change. Case 2: a 7-year-old boy on dupilumab with explosive vesiculobullous eruption following stainless steel dental crown placement. Both underwent patch testing. We report two pediatric cases initially managed as AD that were ultimately diagnosed as SCD upon identification of unexpected sources of systemic allergen exposure. Case 1 involved a 6-year-old boy with flexural "parchmentlike" dermatitis and a history of household washing machine change; Case 2 involved a 7-year-old boy on dupilumab who developed an explosive vesiculobullous eruption following placement of a stainless steel dental crown. Both underwent patch testing to identify causative allergens. SCD should be suspected in pediatric dermatitis with: (1) flexural "parchment-like" scaling (BAK clue); (2) explosive flares on dupilumab (may unmask Th1-mediated contact hypersensitivity); (3) dermatitis with dental hardware. Systematic exposure history – household, personal care, and dental – is essential for accurate diagnosis and management.

## BP3. Mechanisms of Disease and Animal Models

### *BP#2066*
### THE POTENTIAL MECHANISTIC LINK AND THERAPEUTIC IMPLICATIONS BETWEEN OBESITY AND ATOPIC DERMATITIS IN MOUSE MODELS

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Obesity is increasingly recognized as a modifier of atopic dermatitis (AD) severity, through metaflammation and immune dysregulation. Obesity-associated AD may exhibit mixed inflammatory profiles, potentially reducing the efficacy of therapies targeting individual cytokines. Therefore, broader immunomodulatory strategies, including JAK inhibition, may offer therapeutic advantages. To investigate the mechanistic link between obesity and AD and to evaluate the therapeutic implications of a topical JAK1/TYK2 inhibitor in obese and non-obese murine models. AD was induced in normal diet (ND) and high-fat diet (HFD) mice using MC903. After disease induction, mice received topical vehicle or a JAK1/TYK2 inhibitor (0.03%, 0.3%, or 3%). Skin inflammation and treatment responses were evaluated by skin thickness, clinical scores, histopathology, and inflammatory cytokine expression by quantitative PCR. Compared with ND-fed mice, HFD-fed mice exhibited a more severe inflammatory phenotype with a mixed Th2/Th17 immunologic profile, accompanied by more pronounced epidermal hyperplasia and inflammatory cell infiltration. A topical JAK1/TYK2 inhibitor ameliorated skin inflammation in both ND- and HFD-fed mice, as demonstrated by reduced skin thickness, improved histopathological findings, and decreased inflammatory cytokine expression compared with vehicle-treated controls. These findings suggest that obesity exacerbates AD through metaflammation-associated alterations, including enhanced cutaneous inflammation and altered immune responses, resulting in a more severe obesity-associated AD phenotype. Collectively, these findings provide insight into the mechanistic link between obesity and AD and suggest that topical JAK1/TYK2 inhibition may represent a promising therapeutic strategy for obesity-associated AD.

### *BP#2137*
### NECROPTOTIC SIGNALLING IN EPIDERMAL DIFFERENTIATION AND REPAIR: IMPLICATIONS FOR ATOPIC DERMATITIS PATHOGENESIS AND THERAPEUTIC TARGETING

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Atopic dermatitis (AD) is driven by epidermal barrier dysfunction and immune dysregulation. Necroptosis, a RIPK3- and MLKL-mediated lytic cell-death pathway, is being explored as a therapeutic target. We identified an unexpected role for necroptotic signalling in skin repair: at sublethal levels, it promotes keratinocyte differentiation rather than cell death. To determine how necroptotic signalling regulates epidermal repair and barrier restoration. Epidermal repair was assessed in RIPK3- and MLKL-deficient mice using excisional wound and toxic epidermal necrolysis models. Epidermis-specific MLKL knockout mice were used to define keratinocyte-intrinsic effects. In vitro, keratinocytes were exposed to sublethal necroptotic stimuli to measure MLKL-dependent $Ca^{2+}$ flux and differentiation markers. MLKL-deficient 3D human skin equivalents were used to assess epidermal stratification. RIPK3- and MLKL-deficient mice showed accelerated skin recovery. Histological analyses suggested that altered epidermal dynamics contributed to improved healing. Sublethal necroptotic signalling induced MLKL-dependent $Ca^{2+}$ flux and promoted keratinocyte differentiation. In 3D skin equivalents, MLKL supported keratinocyte differentiation and epidermal stratification. Keratinocytes can redirect necroptotic signalling from lytic cell death towards terminal differentiation. In chronic barrier-disrupted conditions such as AD, persistent MLKL activation may dysregulate differentiation and impair repair. Modulating MLKL signalling may therefore enhance epidermal regeneration while preserving barrier integrity.

***BP#2153***

## YKL-40 PROMOTES M2 MACROPHAGE POLARIZATION THROUGH PI3K/AKT/STAT3 SIGNALING AND EXACERBATES ATOPIC DERMATITIS-LIKE INFLAMMATION

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YKL-40 is associated with atopic dermatitis, but its role in macrophage polarization remains unclear. This study investigated whether YKL-40 promotes M2 polarization through PI3K/AKT/STAT3 signaling. To investigate whether YKL-40 regulates macrophage polarization through the PI3K/AKT/STAT3 pathway in atopic dermatitis (AD). A DNCB-induced AD mouse model was established in C57BL/6 mice, followed by lentivirus-mediated YKL-40 silencing. Skin lesions were assessed using a modified dermatitis severity score and HE staining. Peripheral Th1/Th2 balance was evaluated by flow cytometry, and serum IgE, IL-4, IL-5, IL-13, IFN-γ, IL-1β, CCL17 and CCL22 were measured by ELISA. Macrophage infiltration, polarization markers, and PI3K/AKT/STAT3 pathway proteins were examined by immunofluorescence, RT-qPCR and western blotting. In vitro, LPS/IFN-γ-stimulated RAW264.7 cells were treated with recombinant YKL-40, with or without the PI3K inhibitor LY294002. YKL-40 was upregulated in lesional skin from AD mice. YKL-40 silencing reduced the modified dermatitis severity score, alleviated epidermal pathological injury, improved peripheral Th1/Th2 imbalance, decreased inflammatory cytokine levels, and suppressed macrophage infiltration and PI3K/AKT/STAT3 phosphorylation in skin lesions. In vitro, recombinant YKL-40 attenuated LPS/IFN-γ-induced M1 polarization and promoted M2 polarization, accompanied by increased PI3K/AKT/STAT3 activation and CCL17/CCL22 secretion. LY294002 reversed recombinant YKL-40-induced M2 polarization and pathway activation. YKL-40 may exacerbate AD by promoting M2 macrophage polarization and CCL17/CCL22 secretion through the PI3K/AKT/STAT3 pathway.

***BP#2158***

## WHOLE-GENOME SEQUENCING GWASS OF SKIN BARRIER PHYSIOLOGY IN A MULTI-ETHNIC ASIAN COHORT REVEAL EVIDENCE FOR COMMON VARIANT GENETIC ARCHITECTURE

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Skin barrier dysfunction underlies atopic dermatitis (AD) and related inflammatory skin disease; AD genetic risk represents a combination of common and rare variants, but the genetic architecture of quantitative skin barrier physiology remains poorly characterised. We performed genome-wide association studies (GWAS) in REGENIE using 30x whole-genome sequencing data for skin barrier traits (transepidermal water loss (TEWL), stratum corneum (SC) water content, skin pH) in a multi-ethnic Asian cohort (n~48,483), with AD (n=4,871; self-reported) as a clinical comparator. We estimated SNP heritability, and applied expression quantitative trait loci annotation, summary-data-based Mendelian randomisation, co-localisation and fine mapping. We identified a total of 1260 SNPs across 25 independent loci at genome-wide significance ($p<5E-8$), with 10 and 15 loci for TEWL and SC water content respectively; no genome-wide-significant loci were identified for skin pH. TEWL and SC water content showed little genetic overlap (3 shared loci), although pathway analyses implicated shared keratinocyte differentiation and epithelial barrier pathways. None of the lead SNPs reached genome-wide significance in AD, with only 4 at $P<0.05$. Approximately half of the associations in skin physiology phenotypes were represented by common variants (MAF ≥5%) and significant SNP-based heritability. In contrast, AD independently identified 4 loci at $P<5E-8$, all common variants (MAF 9.0-30.9%). with candidate genes implicating antigen presentation and innate immune signaling. In this largest skin physiology GWAS to date, quantitative barrier traits yielded potential associations with candidate genes implicating keratinocyte differentiation and barrier structure although there was a surprising lack of overlap with AD genetic risk in this analysis. Together, these findings suggest that skin barrier physiology and AD, while clinically linked, are underpinned by largely distinct genetic architectures in this multi-ethnic Asian cohort.

***BP#2160***

## DERMCIDIN AS A POTENTIAL REGULATOR OF EPIDERMAL BARRIER HOMEOSTASIS AND A POSSIBLE THERAPEUTIC TARGET IN ATOPIC DERMATITIS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by epidermal barrier dysfunction, microbial dysbiosis, and type 2 inflammation. Dermcidin (DCD)-derived peptide DCD-1L is an antimicrobial peptide secreted by eccrine sweat glands that exhibits broad-spectrum antimicrobial activity, including against Staphylococcus aureus. Although DCD expression is reduced in AD, its role in maintaining epidermal barrier homeostasis remains poorly understood. We hypothesized that loss of DCD contributes to epidermal barrier dysfunction in AD. To define the role of DCD in epidermal homeostasis and its contribution to AD pathogenesis, human skin transcriptomic datasets were analyzed using gene correlation and pathway enrichment analyses, and human keratinocytes were treated with DCD-1L to evaluate its effects on tight junction organization. Reduced DCD expression in AD lesions was associated with diminished epidermal structural and tight junction gene signatures and enrichment of inflammatory and tissue-remodeling pathways. Consistent with these transcriptomic findings, DCD-1L enhanced the localization of the tight junction-associated proteins claudin-1 and zonula occludens-1 in human keratinocytes, supporting improved barrier organization. These findings identify DCD as a potential regulator of epidermal barrier homeostasis and suggest that reduced DCD expression may contribute to barrier dysfunction in AD. Accordingly, restoration of DCD activity may therefore represent a promising therapeutic strategy for AD and other inflammatory skin diseases characterized by impaired epidermal barrier function.

***BP#2217***

## RNA SEQUENCING REVEALS SITE-SPECIFIC LIPID METABOLIC VULNERABILITY UNDERLYING DUPILUMAB-ASSOCIATED HEAD AND NECK DERMATITIS

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Dupilumab, an interleukin-4 receptor alpha antagonist, is highly effective for moderate-to-severe atopic dermatitis (AD), yet 10-15% of treated patients develop paradoxical head and neck dermatitis (DAHND). Its restriction to facial skin remains unexplained, and prior work has focused on microbial dysbiosis rather than host determinants. To identify host transcriptomic factors underlying the facial predilection of DAHND. Matched cheek and antecubital fossa biopsies were obtained from DAHND (n=16), dupilumab-treated patients without HND (n=8), treatment-naive AD with HND (n=13), and healthy controls (n=10). Bulk RNA sequencing with KEGG pathway enrichment was performed, alongside full-length 16S rRNA, ITS2, and shotgun metagenomic sequencing. Facial DAHND lesions showed broad and coordinated suppression of cutaneous lipid metabolism, spanning fatty acid catabolism and elongation, membrane phospholipid turnover, and sphingolipid synthesis, pathways collectively required for barrier lipid production. Arm lesions from the same patients displayed only subtle or inconsistent changes, indicating strong site dependency. Cheek samples formed a distinct transcriptomic cluster and showed Th17/Th22-skewed activation with IL-17 signalling enrichment, attenuated at the arm. This gradient paralleled facial enrichment of Staphylococcus epidermidis and Malassezia globosa, whereas arm skin retained a Staphylococcus hominis-associated community. DAHND is a site-restricted disorder arising where lipid barrier vulnerability converges with immune deviation and altered microbial competition. Impaired facial lipid metabolism explains its anatomical distribution and identifies lipid restoration as a therapeutic target.

***BP#2235***

## ACTIVATION OF LIGHT/HVEM SIGNALING IN CD4+ T CELLS REDOUNDS TO AGGREGATION OF ATOPIC DERMATITIS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease with CD4+ T cells. LIGHT-HVEM pathway signaling has been identified as a costimulatory signal for T cells, yet if the LIGHT signaling of CD4+ T cells contributes to AD are still unknown. To investigate whether LIGHT/HVEM signaling plays a regulatory role in the pathogenesis of AD. The spatial and single-cell transcriptomics data and immunofluorescence microscopy were analyzed to identify the expression of LIGHT and HVEM in AD lesions. The severity of lesions and subtypes of CD4+ T cells were analyzed to explore the effects of activating and inhibiting LIGHT/HVEM signaling on AD using exogenous LIGHT, HVEM antibody and CD4+ T cells-specific HVEM-deficient C57BL/6J mice. The levels of T cells to proliferate, differentiate, and secrete cytokines in vitro were measured by flow cytometry to explore the regulatory effects of LIGHT/HVEM on CD4+ T cells. We showed that LIGHT/HVEM was markedly expressed in CD4+ T cells in AD patients than healthy control. LIGHT/HVEM activation aggravated MC903-induced AD-like dermatitis and enhanced Th2-mediated immune response. CD4+ T cells-specific HVEM-deficient didn't alleviate the overall severity of AD but hinder the Th2 expansion in AD. LIGHT/HVEM promoted the proliferation, differentiation and cytokine production of CD4+ T cells but has no effects on directing the polarization of CD4+ T cells in vitro. Our study revealed that LIGHT/HVEM signaling in CD4+ T cells could exacerbate AD by promoting the proliferation, differentiation and cytokine production of Th2 cells and thus enhancing type 2 immune response. It may a potential target for the therapy of AD.

***BP#2257***

## LONGITUDINAL SPATIAL TRANSCRIPTOMIC PROFILING BEFORE AND AFTER DUPILUMAB IN A PATIENT DIAGNOSED WITH CUTANEOUS T-CELL LYMPHOMA

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Dupilumab is effective for moderate-to-severe atopic dermatitis(AD). However, cutaneous T-cell lymphoma(CTCL) has been increasingly reported during or after treatment, and the mechanisms underlying this association remain unclear. To construct a longitudinal high-definition spatial transcriptomic profiling of CTCL diagnosed during dupilumab therapy across pre-dupilumab, post-dupilumab, and post-methotrexate(MTX) stages. We profiled formalin-fixed, paraffin-embedded skin biopsies collected at the three stages from one patient using high-definition spatial transcriptomics. We identified treatment-associated changes in immune and stromal gene programs. Before dupilumab, gene programs related to immune-cell recruitment, antigen processing and presentation, and extracellular matrix organization were prominent. After dupilumab, programs related to antigen presentation, T-cell activation, leukocyte cell-cell adhesion, and extracellular matrix organization were reduced;

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cell–cell communication analysis identified a lower number and aggregate strength of inferred interactions involving immune cells. After MTX, multiple cell types exhibited type II interferon response programs, while the number and aggregate strength of inferred cell–cell interactions increased relative to post-dupilumab but remained below pre-dupilumab levels. Fibroblast-derived collagen–CD44 signaling targeted dendritic cells before dupilumab, was not detected after dupilumab, and targeted monocytes/macrophages after MTX. These longitudinal profiling suggest dupilumab-associated changes in immune and stromal transcriptional programs and intercellular communication in this patient. These findings may help clarify how immune–stromal changes are linked to the emergence or progression of CTCL during dupilumab treatment.

***BP#2258***

## ROLE AND MOLECULAR MECHANISMS OF DCIR-MEDIATED INNATE IMMUNE ACTIVATION OF ILC2S IN ATOPIC DERMATITIS

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Type 2 innate lymphoid cells (ILC2s) drive early atopic dermatitis (AD) pathogenesis, classically relying on epithelial "alarmins." However, their capacity to directly sense allergens via surface pattern recognition receptors remains unclear. We discovered significant upregulation of DCIR – a C-type lectin receptor sensing highly glycosylated AD allergens like OVA – on ILC2s in AD lesions, suggesting a direct ILC2-allergen interaction. This study investigates whether ILC2s directly sense glycosylated allergens via DCIR to independently trigger innate activation and mediate AD progression. We evaluated ILC2 and DCIR expression in AD patients and OVA-induced AD mice. In vivo DCIR functions were assessed using global DCIR KO mice, pharmacological ILC2 depletion, and adoptive transfer of WT or DCIR KO ILC2s into ILC2-deficient mice. In vitro ELISA, sorted ILC2 uptake assays, and ongoing RNA-seq were designed to verify receptor-antigen binding, endocytosis, and downstream signaling. DCIR was significantly upregulated on ILC2s in clinical and murine AD samples. In vivo, global DCIR KO, ILC2 depletion, or genetic ILC2 deficiency ameliorated OVA-induced skin inflammation. Crucially, transferring DCIR KO ILC2s into ILC2-deficient mice attenuated inflammation compared to WT ILC2s, confirming DCIR's ILC2-specific pathogenic role. In vitro, recombinant DCIR directly bound OVA, and DCIR-deficient ILC2s showed markedly reduced antigen uptake and endocytosis. Downstream mechanistic validations are ongoing. ILC2s directly recognize glycosylated allergens via DCIR. As a natural sensor, DCIR critically mediates ILC2 antigen uptake and innate activation, driving AD type 2 inflammation. Targeting the DCIR-ILC2 axis emerges as a potential therapeutic strategy for AD.

***BP#2270***

## TGM3 REGULATES IL-33 EXPRESSION VIA THE PI3K-AKT SIGNALING PATHWAY TO MEDIATE INFLAMMATORY RESPONSES IN KERATINOCYTES

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Transglutaminase 3 (TGM3), an epidermis-specific enzyme, increases sIgE-TGM3 in sera of AD patients, and sIgE-TGM3 levels positively correlate with lesion severity. Whether TGM3 regulates keratinocyte function to drive AD pathogenesis remains unclear. Using HaCaT cells as a keratinocyte model, this study investigates TGM3's influences on cell proliferation, apoptosis, transcription and inflammatory responses. TGM3KD and TGM3OE HaCaT cell models were established using siRNA and lentiviral transduction respectively. Transmission electron microscopy (TEM) was applied to detect ultrastructural alterations in keratinocytes. CCK-8 assay and flow cytometry were used to assess cell proliferation and apoptosis. qPCR was performed to detect mRNA levels of barrier proteins and cytokines. RNA-seq screened critical inflammatory pathways, and western blot verified alterations in key protein expression. TEM revealed varying degrees of cellular damage in all groups except the blank control group. Compared with the blank control, cell proliferation was significantly reduced in the other four groups, whereas obvious apoptosis was not detected in the five groups.Compared with the negative control group, there was no significant difference in mRNA expression of FLG, LOR and IVL in the TGM3KD group and TGM3OE group,but the mRNA expressions of IL-33,IL-25 and IL-17, were decreased and increased significantly. Compared with Empty vector group, TGM3OE group had significant difference in PI3K-Akt signaling pathway. Abnormal TGM3 expression damages HaCaT structure and suppresses proliferation with no effect on apoptosis. TGM3 overexpression elevates IL-33 through the PI3K-Akt pathway, facilitating keratinocyte inflammatory responses.

***BP#2280***

## BAX DISRUPTED MITOCHONDRIAL-DERIVED VESICLE–MEDIATED MITOPHAGY IN ATOPIC DERMATITIS

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Atopic dermatitis (AD) is characterized by oxidative stress and mitochondrial dysfunction, with mitochondrial DNA (mtDNA) release triggering cGAS-STING-driven inflammation. Mitochondrial-derived vesicles (MDVs) serve as a selective qualitycontrol mechanism that delivers oxidized mitochondrial components to lysosomes for degradation. However, whether BAX, a proapoptotic BCL2 family member, interferes with MDVmediated mitophagy in AD remains unexplored. To determine whether BAX contributes to AD pathogenesis by disrupting MDV formation and mitophagy. BAX expression was assessed in AD lesional skin, HaCaT cells, and MC903induced mouse models via immunohistochemistry and western blot. Transcriptomic data were analyzed for pathway enrichment. IP-MS were used to identify BAXinteracting proteins, and molecular docking predicted binding interfaces. BAXknockout HaCaT cells, BIP V5 and BafA1 were used to evaluate mitophagic flux. BAX was markedly upregulated in AD lesions and mouse models. Transcriptomic analysis revealed significant enrichment in early endosomerelated pathways. AD cell models showed accumulation of damaged mitochondrial components and impaired mitophagy, without activation of canonical macroautophagy or the PINK1-PARKIN pathway. IPMS identified the BAX interactor, which was validated by CoIP in both cellular models and patient lesions. Notably, treatment with BIPV5, enhanced the clearance of damaged outer membrane and promoted LC3BItoLC3BII conversion. BAX overexpression in AD blocked MDVmediated mitophagy. This results in the accumulation of damaged mitochondria, mtDNA release, and proinflammatory signaling, ultimately promoting keratinocyte dysfunction and epidermal barrier impairment. Targeting the BAX may represent a novel therapeutic strategy for AD.

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## BP4. Atopic Dermatitis in Diverse Skin Types (Skin of Color)

***BP#2018***

### ATOPIC DERMATITIS IN SUB-SAHARAN AFRICA: SOCIO-ECONOMIC FACTORS AND BARRIERS TO CARE IN A RESOURCE-LIMITED REGION OF THE DEMOCRATIC REPUBLIC OF CONGO DRC.

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Atopic dermatitis (AD) is increasing in resource-limited settings, including sub-Saharan Africa, and represents a major public health concern due to its impact on quality of life and treatment costs. Limited access to dermatologists, inadequate infrastructure, and poor availability of essential treatments contribute to delayed diagnosis and widespread self-medication. In the Democratic Republic of Congo, particularly in Mbuji-Mayi, data on AD are scarce. This study aimed to identify key socioeconomic factors and barriers affecting AD management in this region. This descriptive study was conducted in 2025 at the dermatology unit of the pediatric clinic in Mbuji-Mayi. All patients diagnosed with AD were included. Data were collected via questionnaire, covering sociodemographic characteristics, disease severity (SCORAD), treatment costs, availability of topical corticosteroids and emollients, and adherence to treatment recommendations (diagnosis acceptance, treatment completion, and follow-up visits). A total of 36 patients were included, mostly female (61.1%) and aged 1–9 years (77.8%), with a mean age of 7.5 years. Half of caregivers were unemployed. Moderate AD was observed in 83.3% of cases. Treatment adherence was low: 33.3% rejected the diagnosis, 83.3% did not follow prescribed treatment, and only 22.2% attended more than one consultation. Major barriers included high costs (86.1%), limited access to medications (91.7%), and distance to care (19.4%). Traditional treatments were used by 58.3% of patients. In this low-resource setting, adherence to AD treatment is strongly influenced by socioeconomic and healthcare system constraints. Improving access to dermatological care, ensuring availability of basic treatments, and strengthening patient education could enhance disease management in Mbuji-Mayi.

***BP#2019***

### IMPACT OF ATOPIC DERMATITIS ON QUALITY OF LIFE IN ADULTS SEEN IN THE DEPARTMENT OF DERMATOLOGY AT THE UNIVERSITY HOSPITAL ANTANANARIVO MADAGASCAR.

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Several studies from developed countries have revealed that atopic dermatitis (AD) affect patient's quality of life (QoL). However, studies related to QoL in patients with AD are uncommon in Africa, notably in Madagascar. To assess the impact of AD on QoL in Malagasy adult patients. A cross-sectional study, during 22 months, was conducted in the department of Dermatology at the university hospital of Antananarivo, Madagascar. Adults aged 18 and older, who presented confirmed diagnosis of AD based on the criteria of United Kingdom Working Party modified, were included. The severity of AD was assessed by the dermatologist using the scoring atopic dermatitis (SCORAD). Patient's quality of life was assessed using Dermatology Life Quality (DLQI) questionnaire. Among 93 AD patients included in this study, 46 were male (sex ratio M/F 0.97). The mean age of patients was 39.6± 18 years (min : 18 ; max : 80 years). The mean atopic dermatitis lasted 12.66±12.78 years. Eight patients presented mild AD, 36 patients had moderate AD, and 49 patients with severe ; the mean±SD SCORAD was 51.7±18.3. The mean DLQI score was 9.7±5.7. Patients with severe AD had the highest mean DLQI score (11.5±5.7), with the mean scores of the patients with moderate (7.7±4.6), and mild (5.2±3.1) AD being lower. The questions with the top three highest mean scores among all the patients were regarding symptoms (Q1 : 1.6), feelings (Q2 : 1.5), and clothing choices (Q4 : 1.2). No correlation between demographic and QoL was found apart the poorest QoL for patients aged 40-50 years. Furthermore, having AD more than 5 years was associated to impaired QoL Our study shows moderate impact of AD on adults patients'QoL. Long duration and AD severity were associated with poorer QoL.

***BP#2037***

### EFFICACY AND SAFETY OF METHOTREXATE IN MODERATE-TO-SEVERE ATOPIC DERMATITIS IN MALAGASY ADULTS

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Atopic dermatitis (AD) is a chronic, relapsing inflammatory disease associated with significant cutaneous morbidity and impaired quality of life. Moderate-to-severe forms require systemic therapy, Methotrexate (MTX), represents an attractive therapeutic alternative in low-resource settings. To evaluate its efficacy and safety in Malagasy adults with moderate-to-severe AD. A 2-year prospective cohort study was conducted in 40 Malagasy adult patients (20 men and 20 women)with moderate-to-severe AD. The mean age were 40 ± 19 years. Cases are followed for 6 months in both public and private dermatology settings in Antananarivo. MTX was initiated at a dose of 7.5 to 10 mg/week and adjusted according to therapeutic response. Efficacy was assessed using SCORAD, EASI, BSA, and IGA scores, as well as pruritus (PNRS) and quality of life (DLQI). MTX demonstrated progressive efficacy, with a moderate initial response at week 8, including achievement of SCORAD-50 in 37% of patients (n=10/27) and EASI-50 in 59% (n=16/27), followed by increased improvement at weeks 16 and 24. The proportion of patients achieving an IGA score of 0/1 increased from 40.7% (n=11/27) at week 8 to 55.6% (n=10/18) at week 16 and 53.8% (n=7/13) at week 24. A reduction in flare frequency was observed over time, from 51.9% (n=14/27) at week 8 to 50% (n=9/18) at week 16 and 46.7% (n=6/13) at week 24. Pruritus and quality of life improved in parallel. The mean initial MTX dose was 9.88 ± 1.38 mg/week, with a maintenance dose of 9.76 ± 0.32 mg/week (range 7.5–15 mg/week). The treatment was generally well tolerated. Adverse events are Asthenia (n=4) and reversible hematological abnormalities (n=4). However, a high loss to follow-up rate (57.5%, n=23/40)are noted. MTX appears to be well-tolerated, and accessible treatment option for moderate-to-severe AD in Malagasy low-resource settings.

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***BP#2071***

## IMPACT OF ATOPIC DERMATITIS ON THE QUALITY OF LIFE OF CHILDREN IN ETHIOPIA: A MULTICENTRE PROSPECTIVE COHORT STUDY

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Atopic dermatitis (AD) is a chronic, relapsing inflammatory skin disorder affecting children's quality of life (QoL). Despite rising global prevalence, data on its impact on QoL in low-resource settings remain limited. To assess the impact of AD and associated factors on the QoL of children and assess the effect of educational intervention in Ethiopia. A prospective cohort study was conducted among 461 AD children and their caregivers from four dermatology clinics in central and Southern regions from October 2022 to March 2024. Assessments included AD Severity using Scoring AD, Infants' Dermatitis Quality of Life Index for children aged 0–4, Children's Dermatology Life Quality Index for children aged 5 to 16. Trained nurses collected clinical and sociodemographic data and provided educational guidance during follow-up beyond routine AD treatment. AD severity and QoL were reassessed after 6 months. Descriptive, univariate, and linear regression analyses identified factors influencing QoL, with significance set at $p < 0.05$. Of 461 children, 424 (92%) completed follow-up. Most were under five (67%) with a median age of 3 years; 72.2% had AD onset before age two. After six months, clinical signs of AD improved notably. Mild AD increased by 33.5%, while moderate and severe cases declined by 17.5% and 16%, respectively. QoL significantly improved across all domains ($p=0.001$). Baseline disease severity ($\beta=0.11$), change in severity ($\beta=0.043$), number of dependents ($\beta=-0.71$), and age at disease onset ($\beta=0.005$) as significant predictors of QoL AD significantly impairs QoL in Ethiopian children, with greater severity causing more disruption. Routine treatments with educational interventions significantly improve disease severity and QoL. Integrated clinical and psychosocial care approaches for pediatric AD are crucial in resource-limited settings.

***BP#2074***

## THERAPEUTIC EDUCATION AND ATOPIC DERMATITIS : RESULTS OF AN EXPERIMENTAL PROGRAM IN BURKINA FASO

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Atopic dermatitis (AD) is a chronic inflammatory disease that significantly impairs the quality of life of patients and their families. Patient therapeutic education (PTE) is a cornerstone of its management, but data from Africa remain limited. To evaluate the impact of a structured patient education program on the clinical severity and quality of life of patients with AD in Burkina Faso. A prospective interventional study was conducted from June to October 2025. Of 110 patients recruited, 20 completed the program. Participants were grouped by age. The intervention combined group and individual sessions using a participatory approach: educational games, discussion groups, sharing of experiences, and practical demonstrations. Five workshops focused on understanding the disease, triggering factors, skin care, flare-up prevention, and treatment adherence. Severity was assessed using the SCORAD scale, quality of life using the IDQOL/CDLQI/DLQI scale, and pruritus and sleep disturbances were assessed before and after the intervention. At baseline, 85% of patients did not know the name of their condition, and 65% presented with moderate atopic dermatitis. After four months, 90% had a mild form, with no severe cases. The mean SCORAD score decreased from 27.8 to 9.1. Quality of life scores decreased from 6.8 to 2.0. Pruritus decreased from 5.44 to 3.5, and sleep disturbances from 3.9 to 1.2. Patient education significantly improves clinical severity, treatment adherence, and quality of life for patients with atopic dermatitis. It represents a major lever for integrated care in Burkina Faso.

***BP#2126***

## RECOGNISING ATOPIC DERMATITIS IN SKIN OF COLOUR: AN AUSTRALIAN CLINICAL PERSPECTIVE

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Atopic dermatitis(AD) is a common chronic inflammatory skin disease with a substantial impact on quality of life. Although its prevalence is increasing within Australia's culturally diverse population, recognition of AD in skin of colour remains challenging. Clinical features and morphologies may differ in SOC which may contribute to delayed diagnosis, underestimation of disease severity and disparities in care. To review the current evidence on the epidemiology, clinical presentation, diagnosis and management of AD in SOC and discuss its implications for Australian clinical practice A literature review was undertaken using PubMed, MEDLINE and Embase. Search terms included AD,eczema, skin of colour, pigmented skin, ethnic skin, Fitzpatrick skin types. Original studies, systematic reviews, narrative reviews and clinical practice guidelines published in English were reviewed The literature demonstrates important differences in the clinical presentation of AD in skin of colour. Erythema may be less apparent, while papular, follicular and lichenified variants occur more frequently. Post-inflammatory dyspigmentation is common and may persist after disease activity resolves. Existing disease severity assessment tools may underestimate inflammation in darker skin due to reliance on erythema. Although treatment recommendations are generally similar across skin types, recognition of morphological differences, pigmentary sequelae and culturally appropriate patient education are important considerations. This review highlights important knowledge gaps within the Australian literature and underscores the need for greater representation of diverse skin types in atopic dermatitis. Increased awareness of these differences may contribute to more equitable dermatological care across Australia's multicultural population

***BP#2151***

## DIFFERENCES IN CLINICAL PHENOTYPE OF CHILDHOOD-ONSET AND ADULT-ONSET ATOPIC DERMATITIS IN MALAGASY ADULT PATIENTS

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Atopic dermatitis (AD) is a chronic relapsing inflammatory skin disease that affects both children and adults. Although it usually begins in early childhood, adult-onset may also occur, highlighting a clinical heterogeneity. We aimed to describe the differences in clinical phenotype between childhood-onset and adult-onset AD in Malagasy adults. We performed a retrospective chart review of Malagasy patients (aged ≥18 years) diagnosed with AD regardless of disease severity, and followed in referral dermatology services in Antananarivo. Sociodemographic characteristics, atopic comorbidities, disease history, and clinical features including lesions appearance, distribution, AD stigmata as well as disease severity were compared according to the age at disease onset. Overall, 85 patients were included, with a mean age of 39.4 ± 18.3 years and a sex-ratio of 0.93. Adult-onset AD was observed in 55.3% of the cases (n = 47), whereas pediatric-onset disease accounted for 44.7% (n = 38). A family history of atopy (p = 0.015), disease triggers such as winter (p = 0.004), food (p = 0.030), and dust (p = 0.032), as well as environmental exposure to humidity (p=0.038), were significantly associated with childhood-onset AD. Truncal distribution was significantly associated with adult-onset disease (p = 0.038). Dennie–Morgan folds (p=0.041) and periorbital hyperpigmentation (p=0.022) were associated with childhood-onset. No significant differences were observed between the two groups regarding disease severity. Adult-onset disease predominates among adults with AD and exhibits distinct clinical characteristics regarding lesion distribution. Childhood-onset disease appears to more fulfill established diagnostic criteria of AD. A better understanding of the different phenotypes of AD within a population may help optimize disease management.

***BP#2249***

## FILAGGRIN (FLG) GENE MUTATIONS IN ASIAN POPULATIONS WITH ATOPIC DERMATITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Filaggrin (FLG) loss-of-function (LOF) variants are established risk factors for atopic dermatitis (AD), with most evidence derived from European populations. Asian studies have a distinct and diverse FLG variant spectrum, but the geographic distribution across Asia remains incompletely characterized. To assess the association between FLG LOF variants and AD in Asian patients and describe their geographic distribution. MEDLINE and Embase were searched from inception to December 2, 2025. Observational studies of clinically diagnosed AD with FLG genotyping in Asian participants were included. Geographic regions were categorized using the United Nations subregional classification. Two reviewers independently extracted data. Random-effects meta-analysis generated pooled odds ratios (ORs) with 95% CIs. Risk of bias was assessed using the Joanna Briggs Institute tool. Forty-one studies including 51,557 participants were included; 75.6% of studies were from East Asia. FLG LOF carriage was associated with higher odds of AD (OR 4.11, 95% CI 2.72-6.22). c.3321delA was the most frequently reported variant (26 studies; 427/7248 [5.9%]), while p.K4671X had the highest prevalence (114/1124 [10.1%]). Regional analysis demonstrated a three-way pattern: c.3321delA predominated in East Asia, p.R501X and c.2282del4 in South Asia, and Southeast Asia showed a mixed spectrum of c.3321delA and rarer region-specific variants. Variant-specific risk was increased for c.3321delA (OR 3.20, 95% CI 2.18-4.69) and p.R501X (OR 6.40, 95% CI 1.67-24.51). Palmar hyperlinearity was the most consistent FLG-associated clinical marker (OR 4.07, 95% CI 1.34-12.38). FLG LOF variants are associated with AD in Asian populations, but their distribution varies geographically, supporting the development of ancestry-informed genetic testing panels.

***BP#2347***

## LISTENING TO AFRICAN PATIENTS' VOICES ON ATOPIC DERMATITIS THROUGH DERMATOLOGIST-LED SOCIAL MEDIA: UNDERSTANDING INFORMATION NEEDS, MISCONCEPTIONS AND LIVED EXPERIENCES

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Atopic dermatitis (AD) is a chronic inflammatory skin disease that significantly impairs quality of life. In Africa, limited access to dermatologists has increased reliance on social media for health information and support. Social media platforms provide an opportunity to understand patients' perspectives, concerns, and lived experiences. This study explored viewer interactions with AD educational content from African-based dermatologists to identify information gaps, misconceptions and lived experiences of AD among African social media users. A retrospective thematic content analysis of publicly available viewer interactions with AD educational posts published by African dermatologists on Instagram and TikTok between July 2024 and July 2026 was conducted. Comments and questions were analysed using an inductive thematic approach. Seventy-three AD–related posts from 22 dermatologists across 9 African countries were analysed. Themes relating to information needs, misconceptions, treatment concerns, psychosocial experiences and barriers to care were identified. Key themes included questions about causes and curability, treatment safety in children, long-term topical corticosteroid use, dyspigmentation, effects of itch on sleep and quality of life and AD-associated stigma. Other themes included local remedies, affordability of therapies, appreciation for education, and unsupported treatment advice. Patient and viewer interactions with dermatologist-led social media content highlight substantial unmet information needs, misconceptions, treatment concerns and lived experiences related to AD in Africa. These findings support the growing role of dermatologist-led digital engagement in understanding patient perspectives, countering misinformation and advancing better-informed, patient-centred AD care.

***BP#2348***

## SKINCARE PRACTICES AND HEALTH-SEEKING BEHAVIOUR OF PATIENTS WITH ATOPIC DERMATITIS IN LAGOS, NIGERIA

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Atopic dermatitis (AD) is increasingly prevalent in Nigeria, possibly due to urbanisation. Optimal AD management requires favourable skincare and healthcare practices, but knowledge of the care-seeking behaviour of people with AD in Nigeria is limited. This study aimed to explore skincare practices, health-seeking behaviour and AD information sources among patients with AD in Lagos, Nigeria. This cross-sectional study was conducted among patients with AD seen at two tertiary hospital dermatology clinics in Lagos. A structured, interviewer-administered questionnaire was used to assess skincare practices, AD treatment, and information sources and data were analysed descriptively. A total of 140 patients were included (88 females and 52 males), with a mean age of 24.5±19.8 years, and 49.4% were under 18 years. Twice-daily bathing was common (65%), sometimes without subsequent moisturisation. Antiseptic soaps were used by 63.6% of participants, antiseptic bath liquids by 36.4%, and fixed-dose combination creams by 59.3%. Both topical and oral herbal remedies were commonly used (42.1% and 51.4%, respectively). Oral antibiotics or antifungals had been used by 36.4%. Many participants had been treated by general medical practitioners (66.4%), traditional herbal practitioners (55.5%), or community pharmacists (30%) before seeing a dermatologist. Dermatologists were the major source of AD health information(92.1%). In people with AD in Lagos, Nigeria, twice-daily bathing - often with medicated soaps and antiseptic liquids, infrequent moisturisation, fixed-dose combination cream and herbal remedy use were common practices, all of which could aggravate AD. Strengthening capacity for patient education on AD-appropriate skin care and health-care practices at the primary care level is integral to improving AD management in Nigeria.

***BP#2381***

### IMMUNOLOGIC SIGNATURES IN AN ATOPIC DERMATITIS COHORT FROM NIGERIA: SERUM MCP-4/CCL13 AS A POSSIBLY USEFUL SURROGATE INDICATOR FOR SEVERITY AND SKIN-BARRIER DYSFUNCTION

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Biomarkers of atopic dermatitis (AD) severity remain underexplored in African populations. We assessed serum inflammation proteins to identify candidate biomarkers of AD severity and barrier dysfunction in a Nigerian cohort. Methods In this cross-sectional study, 119 patients with AD were compared with 41 healthy controls. AD patients were characterized by SCORAD, TEWL and various other clinical characteristics. The serum of the whole cohort was profiled using the Olink Target 96 Inflammation panel. Differential abundance, severity trends, correlations with SCORAD and lesional transepidermal water loss (TEWL), and false-discovery-rate correction were assessed Results MCP-4/CCL13 was elevated in AD and showed the strongest monotonic increase across control, mild, moderate and severe disease (0.47 NPX per tier; q=0.001). It was the only protein associated with total SCORAD after correction (ρ=0.39; q=0.001) and was among 16 proteins associated with lesional TEWL. No protein remained associated with pruritus. Data of some other markers such as CCL17, CCL22, IL-13, IL-22 and innate markers still need to be analyzed. Serum MCP-4/CCL13 is a possible promising candidate biomarker of AD severity and epidermal barrier impairment in this Nigerian cohort -these findings are highly plausible and concordant with international studies, particularly for MCP-4/CCL13. This cohort-specific discovery requires independent longitudinal validation and larger analyses before clinical application and might present only part of a multi-biomarker profile. However, this is the first study in a relatively large Nigerian AD cohort in comparison with healthy controls analyzing a broad proteomic inflammation panel with a graded analysis across control, mild, moderate and severe disease and using both SCORAD and TEWL.

## BP5. Pediatric and Adolescent AD

***BP#2022***

### SOCIAL MEDIA DRIVEN MISUSE OF TOPICAL TREATMENTS AND THE RISING BURDEN OF PEDIATRIC AND ADOLESCENT ATOPIC DERMATITIS IN UNDERSERVED COMMUNITIES: IMPLICATIONS FOR AWARENESS, STIGMA REDUCTION, AND DIGITAL HEALTH CAMPAIGNS

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Social media platforms have increasingly influenced health behaviors in Kenya, contributing to misinformation on atopic dermatitis (AD) management. In underserved rural and peri-urban communities, this has driven inappropriate use of topical treatments and a rising burden of pediatric and adolescent AD, compounded by stigma and cultural misconceptions. To assess the impact of social media-driven misuse of topical treatments on the burden of atopic dermatitis among children and adolescents in Kenya and to evaluate associated stigma, awareness gaps and implications for digital health interventions. Data were collected from 420 participants, including caregivers, adolescents and frontline health workers, using structured questionnaires and focus group discussions. Quantitative data were analyzed using descriptive statistics and chi-square tests. Approximately 68% of respondents reported reliance on social media for skin care advice. Self-medication with topical corticosteroids was reported in 54% of households, while 41% observed worsening symptoms after unsupervised use. Misconceptions that AD is contagious were reported in 62% of communities, contributing to social exclusion and delayed health-seeking behavior. Significant associations were observed between social media exposure and inappropriate treatment practices. Social media is a key driver of inappropriate topical treatment use and worsened AD outcomes in Southwestern Kenya. Targeted digital health education, strengthened regulation of topical steroid access, and multispecialty interventions involving nursing, psychology and nutrition are essential to reduce stigma and improve disease outcomes.

***BP#2136***

### EFFICACY AND SAFETY OF MOISTURIZING CREAM CONTAINING EOP(1), NP(3), & AP(6-II) AS ADJUVANT THERAPY IN PEDIATRIC PATIENTS WITH MILD ATOPIC DERMATITIS: A MULTICENTER, RANDOMIZED, PARALLEL-CONTROLLED TRIAL

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Atopic dermatitis (AD) is one of the most common chronic inflammatory skin diseases in children, characterized by skin barrier dysfunction and significant impact on quality of life. This study evaluated the efficacy and safety of a ceramide-containing moisturizer (CCM) containing ceramdes EOP(1),NP(3),&AP(6-II) as adjunctive therapy to topical crisaborole in pediatric patients with mild AD. This study presents data from a single-center sub-cohort of a larger multicenter, randomized, parallel-controlled trial.76 pediatric patients (3-14 years) with mild AD (SCORAD 0-24) were enrolled. Randomized to Crisaborole ointment plus moisturizing cream (EOP(1), NP(3), &AP(6-II)(; n=38) or Crisaborole alone ((n=38) for 4 weeks. Assessments at baseline, Day 7, 14, and 28. Primary endpoint: SCORAD score change. Secondary endpoints: TEWL, stratum corneum hydration (Corneometer), CDLQI, and pruritus numerical rating score. Baseline was comparable ((SCORAD: 14.44±3.31 vs 14.04±3.31, P=0.719). Test Group had greater SCORAD reduction (interaction P<0.001) with lower scores at Day 28 (0.21±4.47 vs 5.09±4.47, P=0.006). TEWL reduction was greater in Test Group ((interaction P=0.012, Day 28 P=0.004). Stratum corneum hydration improved (more (interaction P<0.001, Day 28 P<0.001). CDLQI showed numerical improvement in Test Group (mean difference -1.45; 95% CI: -2.77, -0.13). Pruritus score was significantly reduced in Test Group (P=0.039). Patient satisfaction was high (scores excellent, >90% willing to continue). Moisturizing Cream containing EOP(1), NP(3), & AP(6-II) as adjunctive therapy improved skin barrier function, increased cure rates, reduced pruritus, enhanced quality of life, and demonstrated excellent tolerability and satisfaction in pediatric patients with mild atopic dermatitis.

***BP#2150***

## THE IMPORTANCE OF FILAGGRIN GENE VARIANTS IN ATOPIC DERMATITIS, CLINICAL PRESENTATION AND SEVERITY, FROM CHILDHOOD TO ADULTHOOD

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Atopic dermatitis (AD) is caused by an interplay between genetic and environmental factors. Among the genetic factors, loss-of-function variants in the filaggrin gene (FLG) are known to have a strong association with AD. However, associations with AD phenotype, atopic comorbidity, disease course, and severity remain unclear. To examine the role of FLG loss-of-function variants in AD from infancy to adulthood, and their associations with disease phenotype and characteristics. A total of 2756 participants from a population-based birth cohort, genotyped for FLG loss-of-function variants (R501X, R2447X, 2282del4), were included. AD cases were identified through parental and/or self-reported questionnaires at 1, 2, 4, 8, 12, 16, and 24 years. Severe AD was defined by reported sleep-disturbance due to itch. Associations between FLG variants and AD characteristics were assessed descriptively using chi-square test and longitudinally using generalized estimating equations. The prevalence of the FLG variants was 6.9 % (n=191). The variants were associated with a higher prevalence of AD up to 24 years (aOR 1.9; 95% CI 1.5-2.3). Among individuals with AD at one or more follow-ups (n=1320), participants with FLG variants had a higher prevalence of flexural eczema (72.4% vs 61.8%, p=0.024). Dry skin was also more common among those with FLG variants (95.8% vs 86.5%, p<0.01). Individuals with FLG variants more often had early-onset (48.2% vs 31.8% p<0.01) and persistent disease (54.8% vs 31.6%, p<0.01). No difference was seen in AD severity. FLG loss-of-function variants are associated with increased risk of AD and dry skin up to age 24 years. Early AD onset and persistence during childhood and adulthood are more common among individuals with FLG variants. The findings suggest that FLG genotyping may be used as biomarker to predict disease course of AD.

***BP#2192***

## TREATMENT DECISION-MAKING INVOLVEMENT AND MEDICATION ADHERENCE AMONG ADOLESCENTS WITH ATOPIC DERMATITIS AND THEIR CAREGIVERS: A PAIRED CROSS-SECTIONAL STUDY

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The management of AD during adolescence requires a transition from caregiver-led care to patient self-management. Differences between adolescents' and caregivers' perceptions may undermine treatment decision-making and medication adherence, but paired evidence remains limited. To compare treatment decision-making involvement, treatment goals, and medication adherence from the paired perspectives of adolescents with AD and their caregivers, and to identify potentially modifiable targets for clinical care. This paired cross-sectional questionnaire study included 248 adolescents with AD and their primary caregivers. AD affected appearance, sleep, and daily activities; 48.5% of adolescents reported reduced self-confidence and 60.0% reported negative emotions. Caregivers perceived a greater psychological burden than adolescents did. Patient-reported decision-making involvement increased with age (odds ratio [OR], 1.195; P = 0.001) and years of education (OR, 1.151; P = 0.008), whereas caregiver ratings did not show corresponding associations (P > 0.05), indicating a mismatch between perceived autonomy and caregiver-granted authority. Adolescents prioritized relief of current symptoms (60.6%), whereas caregivers more often prioritized long-term management (32.5% vs 25.6%) and medication adverse effects (11.1% vs 3.7%). Self-monitoring by adolescents was associated with a higher likelihood of reducing medication after improvement (OR, 2.635; P = 0.013), and greater disease severity was associated with difficulty sustaining treatment (OR, 1.823; P = 0.015). Developmentally tailored shared decision-making, early control of itch and visible lesions, and a planned transfer of treatment responsibility may help translate early clinical benefit into sustained adherence and disease control.

***BP#2214***

## ANALYSIS OF DISEASE IMPROVEMENT IN PEDIATRIC PATIENTS WITH ATOPIC DERMATITIS AFTER DISCONTINUATION OF DUPILUMAB

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Dupilumab is safe and effective for pediatric moderate-to-severe AD (≥6 months), yet post-discontinuation data are limited. This study analyzed discontinuation profiles, age-related treatment

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duration, and relapse in Chinese children to inform optimal stop timing. This single-center, retrospective, real-world study enrolled pediatric AD patients treated with dupilumab at the Dermatology Outpatient Department of Hunan Children's Hospital from March 2021 to December 2023. Telephone follow-up and medical record review were extended to December 31, 2025, to assess injection counts at discontinuation, disease improvement, relapse, and subsequent treatments. Among 258 total patients, 183 had discontinued >3 months and were stratified by age at initiation: ≤6 years (n=63) vs. >6 years (n=120). Age correlated positively with cumulative injections at stop (Spearman r=0.30, P<0.001). Mean doses: >6y 10.5±6.8 vs ≤6y 8.1±5.1 (P<0.05); among improved patients: 10.59±5.6 vs 7.7±4.6 (P<0.05). At follow-up, relapse-free rates were 22.22% (≤6y) and 20.0% (>6y); cutaneous relapse rates were 53.97% and 50.0%, respectively. Primary discontinuation reason was remission (60.32% vs 50.00%), but inadequate efficacy caused more stops in older children (36.67% vs 25.39%). Among 96 patients with active rash, 52.08% used topical immunosuppressants/corticosteroids, 25.00% emollients only, and others received Chinese medicines/JAK inhibitors. Collectively, these results demonstrated that age directly influences treatment duration, remission remains the principal cessation impetus, post-withdrawal relapse is common yet mild, and subsequent disease control is largely achievable through topical or moisturizing regimens.

***BP#2232***

## REAL-WORLD EFFECTIVENESS AND SAFETY OF DUPILUMAB IN VERY YOUNG INFANTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: A SINGLE-CENTER COHORT STUDY

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Atopic dermatitis (AD) is one of the most common inflammatory skin diseases in infancy. Moderate-to-severe AD in young infants may cause persistent pruritus, sleep disturbance, and impaired quality of life. Treatment options for this population remain limited, particularly for patients with inadequate response to topical therapies. Dupilumab has shown efficacy and safety in pediatric AD, but real-world data in infants younger than 1 year are still limited. To evaluate the effectiveness and safety of dupilumab in infants aged 6–12 months with moderate-to-severe AD in a real-world clinical setting. This retrospective single-center cohort study included 32 infants aged 6–12 months with moderate-to-severe AD who received dupilumab between June 2023 and April 2026. All patients received an initial dose of 200 mg subcutaneously, followed by 200 mg every 4 weeks. Clinical outcomes were assessed at baseline and weeks 4, 8, 12, and 16 using EASI, IGA, SCORAD, NRS, IDQoL, and ADCT. Safety events were recorded during follow-up. The mean age at dupilumab initiation was 8.85 ± 2.27 months. Progressive improvements in disease severity, pruritus, and quality-of-life-related outcomes were observed during the 16-week follow-up. At week 16, 23 patients (71.9%) achieved EASI75, 17 patients (53.1%) achieved EASI90, and 17 patients (53.1%) achieved IGA 0/1 response. Median EASI score decreased from 19.80 at baseline to 2.15 at week 16. Four patients (12.5%) experienced mild adverse events, including conjunctivitis (n=3) and fever (n=1). No serious adverse events or treatment discontinuations were observed. Dupilumab showed clinical improvement and an acceptable safety profile in very young infants with moderate-to-severe AD. These findings provide real-world evidence supporting dupilumab as a treatment option for infants with uncontrolled AD.

***BP#2277***

## FACTORS ASSOCIATED WITH SYSTEMIC THERAPY IN CHINESE PEDIATRIC ATOPIC DERMATITIS OUTPATIENTS: A SINGLE-CENTER CROSS-SECTIONAL STUDY

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Real-world data on factors driving systemic therapy decisions in Chinese pediatric atopic dermatitis (AD) outpatients remain limited. To identify factors associated with systemic therapy choice in this population. This single center cross sectional study enrolled pediatric AD outpatients who consented to detailed a paperbased registry, and used binary logistic regression (with SCORAD and EASI in separate models) to identify factors associated with systemic therapy choice. Of 300 patients, 215 (71.7%) received topical therapy and 85 (28.3%) systemic. Topical group: males 119 (55.3%), females 96 (44.7%), median age 41.7 (15.4-83.4) months, EASI 7.4 (3.9-13.2), SCORAD 36.6 (27.7-47.1), allergic comorbidity 80 (37.2%), concurrent skin infection 63 (29.3%). Systemic group: males 45 (53.0%), females 40 (47.0%), median age 90.2 (52.6-130.8) months, EASI 11.2 (7.2-18.1), SCORAD 46.9 (39.5-55.0), allergic comorbidity 44 (51.8%), concurrent skin infection 41 (48.2%). Systemic agents: dupilumab 71 (83.5%), upadacitinib 12 (14.1%), abrocitinib 2 (2.4%). In SCORAD-adjusted regression, sex, allergy, and infection were nonsignificant; age (per year) OR=1.23 (1.13-1.31), P<0.001; SCORAD (per 10) OR=1.48 (1.21-1.83), P<0.001. In EASI-adjusted model, sex and allergy were nonsignificant; age OR=1.22 (1.14–1.33), P<0.001; EASI (per 5) OR=1.26 (1.07-1.51), P=0.007; infection borderline OR=1.71 (0.96–3.06), P=0.071. In Chinese pediatric AD outpatients, each 1year age increment increased the systemic therapy odds by approximately 22%; a 10-point increase in SCORAD or a 5-point increase in EASI increased the odds by 48% and 26%, respectively. Sex and atopic comorbidity were not influential. Infection showed a borderline trend in EASI model, possibly through aggravating objective lesions, warranting further investigation.

***BP#2351***

## EFFECTS OF EARLY APPLICATION OF AN OAT-CONTAINING BALM ON SKIN BARRIER DEVELOPMENT AND ATOPIC DERMATITIS-RELATED RESPONSES IN A NEONATAL-LIKE 3D SKIN MODEL

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Neonatal skin has an immature epidermal barrier with low natural moisturizing factor (NMF) levels, making it prone to dryness, sensitization, and atopic dermatitis (AD). To evaluate the AD-preventive efficacy and mechanism of an oat-containing balm using a neonatal-like 3D skin model, with a view to understanding its potential role in AD prevention. A neonatal-like 3D skin model was used. Early intervention study: The oat-containing balm was applied on days 1–4 after model construction. On day 5, TEWL, tissue morphology, and barrier proteins (FLG, LOR) were assessed. AD-risk assessment: Poly I:C/LPS stimulation was used to induce AD-like inflammation. Barrier proteins, NMFs, lipids, and inflammatory cytokines were evaluated. Repair comparison: The oat-containing balm was compared with 6 commercial baby products using TEWL, tissue morphology, and barrier protein expression. Day-1 application produced the

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greatest benefit, significantly reducing TEWL and improving barrier proteins and epidermal morphology versus later intervention. Under AD-like conditions, early treatment enhanced barrier integrity, increased NMF and lipid levels, and reduced sensitization and inflammatory markers. Furthermore, the oat-containing balm significantly reduced TEWL and improved epidermal morphology and barrier protein expression compared with 6 commercially available non-oat infant skincare products. Early intervention with oat-containing balm provided the greatest prevention against sensitization and AD-like changes via improving skin barrier function, enhancing barrier proteins, NMFs, lipids and suppressing inflammatory responses. The oat-based formulation also outperformed commercially available non-oat infant skincare products in barrier repair efficacy.

## BP6. Complications, Comorbidities, and Comparative Dermatology

***BP#2002***

### NUTRITIONAL STATUS AND SEVERITY OF ATOPIC DERMATITIS IN MALAGASY PATIENTS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease with a significant impact on the quality of life of patients and their families. An unbalanced diet, nutritional deficiencies, or poor nutritional status may worsen skin inflammation, promote flare-ups, and impair treatment response. However, the relationship between nutrition and AD remains insufficiently studied in the Malagasy context, despite the important role that socio-economic and dietary conditions may play. This study aimed to evaluate the association between nutritional status and the severity of AD. A monocentric, cross-sectional, descriptive and analytical study was conducted for a period of five years at Joseph Raseta Befelatanana Hospital Antananarivo. All patients over 6 months of age, suspected atopic dermatitis were included. The variables studied included sociodemographic, clinical, severity of AD(SCORAD score), and nutritional status (BMI, dietary habits, inadequate intake). Ninety-nine patients were included; the mean age was 11.18 years ± 13.05 years (6 months to 68 years), with a predominance of children under 15 years (71.71%). Regarding nutritional status, 27.27% of patients were undernourished and 11.11% were overweight or obese. Dietary assessment revealed that 45.45% of patients had an unbalanced diet. Moderate to severe AD was observed in 54.54% of patients. An association was found between nutritional status and severity of AD ($p = 0.03$). Undernourished patients were more likely to present moderate to severe forms compared to those with normal nutritional status. Our study highlights an association between nutritional status and severity of AD. The prevention of nutritional deficiencies, along with appropriate nutritional management, should be an integral part of caring for patients with AD.

***BP#2026***

### THERAPEUTIC STRATEGIES IN OVERLAP ATOPIC DERMATITIS AND PSORIASIS: A NARRATIVE REVIEW OF BIOLOGIC AND JAK INHIBITOR OUTCOMES

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Atopic dermatitis (AD) and psoriasis (PSO) coexist in approximately 2% of affected individuals, constituting a hybrid Th2/Th1-Th17 phenotype. This overlap poses a unique therapeutic challenge: agents targeting one cytokine axis may destabilize the other, and no evidence-based treatment algorithm currently exists. To review published evidence on therapeutic outcomes in true concomitant AD/PSO overlap, with emphasis on biologic and JAK inhibitor strategies and to report a case of our practice. Narrative review of case reports, case series, and cohort studies reporting treatment outcomes in biopsy-confirmed or clinically diagnosed overlap AD/PSO, including one unpublished adolescent case of our practice. Studies of biologic-induced phenotypic switching without underlying overlap were excluded. Nine studies comprising 77 patients were identified (2017–2026). Conventional systemics provided partial or short-lived responses. JAK inhibitors (upadacitinib, abrocitinib, baricitinib) achieved EASI-75 (atopic component) in up to 81% at week 16 and 95% at week 24, with remission exceeding 85% across case series. In our case, an adolescent with biopsy-proven overlap AD/PSO and axial psoriatic arthritis (sacroiliitis), ixekizumab exacerbated the atopic component despite resolving arthritis, and upadacitinib achieved near-complete skin clearance within 8 weeks with sustained joint control. Dual biologic therapy (dupilumab plus risankizumab) showed efficacy in refractory adults. JAK inhibitors emerge as the most versatile option in overlap AD/PSO, simultaneously targeting both axes. Anti-IL-17 monotherapy risks worsening pre-existing AD even when joint disease responds. Prospective registries and consensus diagnostic criteria are urgently needed.

***BP#2062***

### SEVERE ADULT-ONSET ATOPIC DERMATITIS REVEALING HIV INFECTION IN A 33-YEAR-OLD MALAGASY MAN

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Atopic dermatitis is a chronic inflammatory skin disease that typically begins in childhood. New-onset severe eczema in adulthood should prompt consideration of comorbidities or underlying systemic conditions, including Human Immunodeficiency Virus (HIV) infection. Case presentation : A 33-year-old man with no personal or family history of atopy presented with a six-month history of intensely pruritic, eczematous lesions affecting the face, neck, trunk, and flexural areas. The skin lesions progressively worsened despite the use of topical corticosteroids. Physical examination revealed diffuse xerosis, lichenified plaques, excoriations, and post-inflammatory hyperpigmentation. Laboratory investigations showed elevated serum IgE levels. Given the atypical adult onset and severity of the disease, further investigations were performed, including HIV serology, which was positive. A diagnosis of HIV-associated atopic dermatitis was established. The patient was started on antiretroviral therapy along with dermatological management including topical corticosteroids. Significant improvement in skin lesions and pruritus was observed. Discussion : Cutaneous manifestations are common in patients living with HIV and may represent the first sign of underlying infection. Atopic-like dermatitis or atopic dermatitis may occur de novo or worsen in the setting of HIV-related immune dysregulation. Severe, treatment-resistant, or late-onset eczema should raise suspicion for HIV infection. Conclusion : This case highlights the importance

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of considering HIV testing in adults presenting with severe or atypical atopic dermatitis. Early recognition of HIV-associated skin manifestations can facilitate timely diagnosis and initiation of antiretroviral therapy.

***BP#2084***

## DISEASE SEVERITY AND HEALTHCARE COSTS IN MODERATE-TO-SEVERE ATOPIC DERMATITIS: A SWEDISH REGISTER-BASED STUDY

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Targeted immunomodulators have transformed outcomes for patients with moderate-to-severe atopic dermatitis (AD) but carry substantially higher costs than conventional systemic therapies. Information on health care costs in relation to disease severity is limited. To estimate the associations between disease severity, symptoms, and quality of life with non-systemic AD healthcare costs. We set up a cohort study of SwedAD participants in Stockholm from January 2017 to May 2025. SwedAD is a national quality registry for patients on systemics for AD and collects data on signs (EASI), symptoms (POEM), itch (NRS), and quality of life (DLQI) longitudinally. Data-linkage to a 1) regional population-based database of Stockholm Region that contains detailed data on all health care contacts (inpatient and outpatient care), and 2) the Prescribed Drug Registry that covers all drugs dispensed from pharmacies in Sweden, provided data on health care costs. In the study population (N=354; 1,062 visits), categorised disease severity was associated with non-systemic AD costs. In fixed effects regression models, compared with periods with minimal disease severity (EASI $\leq$2), mild disease (2 < EASI $\leq$7), moderate disease (7 < EASI $\leq$21), and severe disease (EASI > 21) were associated with 36% (95% CI: 2–80%), 78% (95% CI: 23–158%), and 278% (95% CI: 137–602%) higher non-systemic AD costs. When continuous, mean-standardised outcome measures were used as exposures, each standard deviation increase in EASI, Itch-NRS, DLQI, and POEM was associated with 40%, 41%, 36%, and 34% higher non-systemic AD costs. Clinical AD severity is strongly and dose-dependently associated with non-systemic AD healthcare costs: severe disease was associated with nearly four-fold higher costs than periods with minimal disease severity.

***BP#2198***

## STAPOKIBART IMPROVES ATOPIC DERMATITIS WORSENING DURING MEPOLIZUMAB THERAPY IN EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS

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Eosinophilic granulomatosis with polyangiitis and atopic dermatitis may coexist but can be driven by different type 2 inflammatory pathways. To describe worsening atopic dermatitis during anti–interleukin-5 therapy and its response to additional interleukin-4 receptor alpha blockade. We retrospectively reviewed clinical features, laboratory data, imaging, pulmonary function, endoscopy, histopathology, and treatment response in a 51-year-old man with eosinophilic granulomatosis with polyangiitis and atopic dermatitis. The patient had severe asthma, chronic rhinosinusitis with nasal polyps, marked eosinophilia up to $10.06 \times 10^9$/L, suspected cardiac involvement, and recurrent generalized pruritic erythematous papules. Mepolizumab improved nasal symptoms and normalized eosinophil counts, but the eczematous eruption worsened. Skin biopsy supported atopic dermatitis rather than isolated cutaneous vasculitis. After stapokibart was added, the skin lesions and pruritus markedly improved. Persistent or worsening eczematous lesions during mepolizumab therapy should prompt reassessment for coexisting atopic dermatitis. This case suggests that interleukin-5- and interleukin-4/interleukin-13-mediated inflammation may remain independently active, and phenotype-guided sequential or combination biologic therapy may achieve dual control.

***BP#2203***

## RISK FACTORS FOR ANXIETY/DEPRESSION IN CHILDREN WITH ATOPIC DERMATITIS

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Atopic dermatitis (AD) is associated with significant psychiatric comorbidities in children, but data on Chinese children remain scarce and the temporal relationship between AD onset and psychiatric diagnosis is poorly characterized. To identify independent risk factors for anxiety/depression in Chinese children with AD, and explore the temporal relationship between AD onset and psychiatric diagnosis. This 1:1 matched case-control study included 405 children with AD and psychiatrist-confirmed anxiety/depression and 405 matched AD controls. Conditional logistic regression was used for multivariable analysis. Allergic rhinitis was the only independent risk factor for anxiety/depression (OR = 2.08, $p < 0.001$), whereas AD severity showed no independent association (OR = 1.12, $p = 0.483$). A dose-response relationship was observed: one comorbidity OR = 2.33, two or more OR = 2.53 (p for trend < 0.001). The median interval from AD onset to psychiatric diagnosis was 3 years, with AD onset age positively correlated with psychiatric diagnosis age ($\rho = 0.260$, $p < 0.001$). Allergic rhinitis is an independent risk factor for anxiety and depression in children with AD. The 3-year interval between AD onset and psychiatric diagnosis provides a window for early psychological screening, supporting multidisciplinary management involving dermatologists, allergists, and mental health professionals.

***BP#2210***

## DELAYED DIAGNOSIS OF ATOPIC DERMATITIS AND ITS COMPLICATIONS IN PATIENTS WITH SKIN OF COLOR: A CASE SERIES FROM TANZANIA

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Patients with atopic dermatitis are at increased risk of developing infectious complications which substantially contribute to morbidity and life-threatening illness if not recognized promptly. These cases illustrate common but underrecognized infectious complications encountered in routine practice in Tanzania. 1. An 8-year-old boy with longstanding, poorly controlled atopic dermatitis who defaulted treatment and presented with fever and painful vesiculopustular lesions. He was initially managed with antibiotics before being diagnosed with eczema herpeticum at our center and successfully treated with intravenous followed by oral acyclovir. 2. A 6-year-old with eczema since infancy who had remained undiagnosed for years and received repeated courses of antibiotics and topical combination creams. He presented with generalized atopic dermatitis complicated by tinea incognito and improved following oral terbinafine, appropriate topical

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corticosteroids, and regular emollient therapy. 3. A farmer with adult-onset atopic dermatitis who developed occupational contact dermatitis complicated by secondary bacterial impetiginization after prolonged inappropriate treatment and use of traditional herbal remedies. He responded to potassium permanganate soaks, oral antibiotics, and optimized eczema management. 4. Female child with longstanding atopic dermatitis and a previous episode of erythroderma who was lost to follow-up. She presented with extensive xerosis, lichenification, erosions, and honey-colored crusting consistent with bacterial superinfection and improved with oral antibiotics, topical corticosteroids, antihistamines, and skin-care education. These cases underscore the importance of early diagnosis, appropriate treatment, patient education and follow-up to reduce morbidity.

***BP#2212***

## THREE-YEAR FOLLOW-UP OF SEVERE INFANTILE ATOPIC DERMATITIS WITH KAPOSI'S VARICELLIFORM ERUPTION AND GROWTH DELAY: A MULTIDISCIPLINARY CASE REPORT

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Infantile AD often coexists with food allergies, infections, and poor growth. In this case, cow's milk protein allergy and Kaposi's varicelliform eruption compounded the disease. We highlight that early targeted therapy can control severe AD and comorbidities, enabling catch-up growth. To report the diagnosis, treatment, and 3-year follow-up of a 6-month-old with severe AD, KVE, sepsis, CMPA, and growth failure, emphasizing early systemic intervention for disease control and growth restoration. A 6-month-16-day-old girl with eczema since 2 months presented with a 7-day rash flare and fever. Work-up included labs and clinical assessment; CMPA was diagnosed clinically. Management: Phase 1 – acute care: multidisciplinary team gave IV methylprednisolone, cefotaxime, acyclovir, and nutritional support with dietary exclusion. Dupilumab started after infection control. Phase 2 – evaluation at 16 weeks. Phase 3 – maintenance: emollient-based care with 3-monthly follow-ups and growth monitoring over 3 years. Birth weight 3.5 kg ; declined to 5.8 kg by 6 months (<3rd). On admission: fever (40.4°C), tachycardia, facial/neck vesiculopustules. Complications: sepsis, S. aureus, myocardial and hepatic injury. After infection control, dupilumab was started. At 16 weeks, SCORAD fell from 86.5 to 11.5. At 3 years, SCORAD near zero; height 97 cm (25th–50th percentile), weight 12.5 kg (10th–25th percentile) – catch-up from 5.8 kg. No herpetic recurrence. Early systemic therapy after infection control rapidly suppressed severe AD and comorbidities, enabling catch-up growth in an infant with developmental arrest. The 16-week skin improvement predicted sustained control and growth gains. A multidisciplinary strategy from acute to long-term care achieved both skin clearance and growth restoration – the dual measures of success in severe infantile AD.

***BP#2220***

## WHEN DUPILUMAB FACIAL REDNESS HIDES DEMODEX: VIGILANCE ON LONG-TERM IL-4R ANTAGONIST THERAPY

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Atopic dermatitis (AD) on dupilumab often clears body lesions, yet facial erythema can persist – a recalcitrant puzzle, commonly termed Dupilumab Facial Redness (DFR), whose cause is often elusive. Preclinical evidence indicates that innate type-2 immunity restrains Demodex mite commensalism; its attenuation is therefore an emerging key susceptibility factor for mite-associated disease, warranting clinical vigilance. To raise awareness of Demodex-associated disease in AD patients receiving long-term IL-4 receptor antagonist therapy. We report a 54-year-old Asian man with moderate-to-severe AD. After 10 months of dupilumab, his trunk and limb lesions had substantially cleared, yet facial erythema with pruritus and ocular symptoms persisted. While probing this discordant response, Wood's lamp (365-nm UVA) revealed a follicular "green pore sign". Dermoscopy showed follicular dilatation, keratotic plugs, and sebum but no classic "Demodex tails". Reflectance confocal microscopy and follicular scraping ultimately confirmed Demodex folliculorum. Demodex-associated facial redness was confirmed microscopically. Topical zinc oxide-sulfur with emollients cleared the facial erythema within 6 weeks, while dupilumab was continued and systemic AD remained controlled. When facial erythema outlasts dupilumab-induced clearance of body lesions, type-2 immune deviation and Demodex overgrowth should be suspected. As dermoscopy may miss mite disease when "Demodex tails" are absent, Wood's lamp is a useful bedside clue. Clinicians should institute acaricidal therapy without stopping the biologic – an increasingly relevant point as IL-4 receptor antagonist use expands.

***BP#2223***

## WHEN ATOPIC DERMATITIS BECOMES COMPLICATED BY CRUSTED SCABIES : TWO CHALLENGING CASES

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Scabies and atopic dermatitis(AD) are two common itchy skin conditions whose clinical manifestations can be similar, but which require fundamentally different treatments. Misdiagnosis can lead to progression towards crusted scabies. Here, we present two cases of AD complicated by crusted scabies. Case 1 A nine-month-old boy was referred for a severe, widespread rash. He had a history of recurrent eczematous lesions on the convex areas of his body that had only been treated with coconut oil. A worsening of pruritus and the appearance of crusts for the last 2 months led to the prescription of a topical corticosteroid by a physician, but this did not improve the condition. A systematic examination of the mother revealed vesicles and typical scabetic nodules, confirming the diagnosis of crusted scabies. The diagnosis was associated with AD, which was supported by the child's clinical history and the presence of eczematous lesions that spared the nappy area. Case 2: A seven-year-old boy who had been treated for AD since early childhood with topical corticosteroids during flare-ups presented with worsening lesions, including erythroderma, crusted papules, and pustules, as well as moderate pruritus one month earlier. Despite treatment with topical corticosteroids, antibiotics, and emollients, his condition did not improve. A diagnosis of scabies was made based on the presence of typical lesions in his caregivers and was confirmed by improvement following treatment with ivermectin and benzyl benzoate emulsion. Conclusion: Crusted scabies has been reported in patients AD receiving dupilumab. However, it may also occur without dupilumab therapy. In scabies-endemic settings, worsening atopic dermatitis should prompt scabies investigation to avoid misdiagnosis as an AD flare, inappropriate treatment, and progression to crusted scabies.

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***BP#2247***

### THE BURDEN OF ALLERGIC COMORBIDITIES IN ATOPIC DERMATITIS: FINDINGS FROM A NIGERIAN TERTIARY DERMATOLOGY CENTRE

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Atopic dermatitis (AD) is associated with several allergic disorders that contribute substantially to disease burden, yet data from sub-Saharan Africa remain limited. The aim of this study is to determine the prevalence and predictors of allergic comorbidities among patients with AD attending a tertiary dermatology clinic. We conducted a retrospective cross-sectional review of medical records of patients (both children and adults) with AD diagnosed using the Hanifin and Rajka criteria seen at the dermatology clinic between January 2024 and January 2026. Disease severity was assessed using the Scoring Atopic Dermatitis (SCORAD) criteria. Allergic rhinitis and asthma were diagnosed according to ARIA and GINA criteria, respectively, while allergic conjunctivitis was diagnosed clinically. Multivariable logistic regression of comorbidities were analyzed against independent factors of age, sex, duration and severity. Complete data were available for 150 participants and were included in the analysis. Sixty-three percent were females and the median age was 14 years (range 6 months to 67 years). Overall, 38.0% had at least one allergic comorbidity; allergic rhinitis occurred in 22.7%, allergic conjunctivitis in 25.3%, and asthma in 5 participants (3.3%). Eleven percent had two or more allergic comorbidities. Forty-seven percent had moderate-to-severe AD. Patients with mild AD had 70% and 59% lower odds of having allergic rhinitis and allergic conjunctivitis compared with those with moderate-to-severe AD (AOR 0.30, 95% CI 0.13–0.69; p = 0.005 and AOR 0.41, 95% CI 0.19–0.89; p = 0.02, respectively). Allergic comorbidities affect more than one-third of patients with AD and are independently associated with increasing disease severity. Routine screening for respiratory and ocular allergies should be incorporated into comprehensive AD care.

***BP#2288***

### ATOPIC DERMATITIS AND HYPERTENSION RISK: A SYSTEMATIC REVIEW AND META-ANALYSIS OF GLOBAL EPIDEMIOLOGICAL EVIDENCE

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Emerging evidence suggests that dermatological disorders, notably psoriasis, may elevate hypertension risk. However, the relationship between atopic dermatitis (AD) and hypertension remains inconclusive. This study aims to evaluate the epidemiological association between AD and hypertension through a systematic review and meta-analysis. A comprehensive search of Web of Science, PubMed, Embase, and Ovid Medline databases was conducted from inception to June 30, 2024. Observational studies investigating AD (exposure) and hypertension (outcome) with ≥100 participants were included. Screening, data extraction, and quality assessment using the Newcastle-Ottawa Scale were performed independently by two reviewers. Our search identified 25 studies met the inclusion criteria and were included in the meta-analysis. Univariate analysis revealed that patients with AD have a significantly increased risk of hypertension (OR 1.19, 95% CI: 1.08-1.32). This association remained significant after adjusting for confounders (OR 1.14, 95% CI: 1.05-1.25). In the case-control study subgroup, the risk of hypertension was higher among patients with AD (OR 1.23, 95% CI: 1.04-1.45); similarly, in the cross-sectional study subgroup, the risk was also elevated (OR 1.16, 95% CI: 1.04-1.30). This meta-analysis substantiates a significant association between AD and hypertension in adults, independent of confounders. Mechanistically, chronic inflammation, endothelial dysfunction, and AD-related therapies may contribute to cardiovascular pathophysiology. Clinicians should prioritize hypertension screening in AD patients to mitigate cardiovascular morbidity. Further longitudinal studies with standardized AD severity assessments and rigorous confounder control are warranted to elucidate causal pathways.

***BP#2332***

### COMPARISON OF CLINICAL CHARACTERISTICS BETWEEN PEDIATRIC/ADOLESCENT AND ADULT PATIENTS WITH ALOPECIA AREATA COMPLICATED BY ATOPIC DERMATITIS

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Atopic diseases frequently coexist with alopecia areata (AA). The clinical differences between pediatric/adolescent and adult AA patients with AD remain poorly clarified. To compare pediatric/adolescent and adult AA patients complicated by AD, and analyze intergroup differences in the onset sequence of the two diseases and various clinical phenotypes. This single-center retrospective study recruited 65 pediatric/adolescent and 58 adult AA patients complicated by AD. Collected data covered gender, age, disease duration, AA severity grading, extracranial hair/nail involvement, and personal/familial allergic history excluding AD. Pediatric/adolescent AA patients had AA onset at 9.66±4.38 years with a 20.32±26.00-month course, versus adults' 32.93±10.69 years and 41.80±76.04 months, with similar gender distribution. AD appeared prior to AA in 83.08% (54/65) of young patients and 58.62% (34/58) of adults (P=0.003). AD-first patients had short intervals to AA (6.79±9.18 vs 8.30±14.01 months), while AA-first patients waited far longer for AD (23.41±24.76 vs 47.93±37.87 months). Severe refractory AA reached 21.54% (14/65) in youth vs 6.90% (4/58) in adults (P=0.022). Youth showed higher nail involvement (12.31% vs 1.72%, P=0.035), yet extracranial hair involvement rates (15.38% vs 6.90%) showed no difference (P=0.139). More young patients had extra-AD allergic history (90.77% vs 79.31%), though the gap lacked statistical significance (P=0.073). AD usually develops before AA with a short disease interval, while AA-first patients are fewer and have much longer interval between two diseases. Compared with adult AA patients with AD, pediatric/adolescent counterparts are more prone to severe refractory AA, nail involvement and positive personal/familial allergic history.

## BP7. Epidemiology and Global Health Outcome Research

***BP#2003***

### ATOPIC DERMATITIS, DEPRESSIVE AND ANXIETY SYMPTOMS, AND COGNITION IN 49,972 MULTI-ETHNIC ASIAN ADULTS: CROSS-SECTIONAL FINDINGS FROM THE HELIOS COHORT

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Atopic dermatitis (AD) is linked to depression and anxiety, but evidence is overwhelmingly European-ancestry; Asian data are sparse and cognitive links unclear. To quantify and test the specificity of AD associations with depressive symptoms, anxiety and cognition in multi-ethnic Asian adults. Cross-sectional analysis of 49,972 Chinese, Malay and Indian adults (HELIOS/SG100K, Singapore). A self-report-based "probable AD" definition (16.2%) was the pre-specified exposure; outcomes were PHQ-9, GAD-7 and a cognitive composite. Models adjusted for demographic, socioeconomic, lifestyle, asthma and chronic-disease factors, with pre-specified comparators (chronic disease only; asthma only) and an examination-confirmed phenotype. AD was associated with higher PHQ-9 (beta 0.63, 95% CI 0.54-0.71) and GAD-7 (0.61, 0.52-0.71), and odds ratios of 1.61 (1.41-1.83) and 1.54 (1.37-1.72) for clinically significant symptoms (5.5% vs 3.5%; adjusted 1.7 points). The AD contrast exceeded both comparators. The examination-confirmed phenotype remained associated with continuous scores (0.35, 0.11-0.60), though binary contrasts were underpowered. Cognition showed no impairment (0.02 SD; equivalent to no effect). AD was associated with higher depressive and anxiety symptoms but not cognitive impairment, not explained by chronic illness or atopy. Self-reported exposure, no prior depression or anxiety diagnoses and cross-sectional design preclude causal inference; findings support asking about depressive and anxiety symptoms at AD review.

### *BP#2025*
### EVALUATING PATIENT-REPORTED IMPACT OF DERMATOLOGICAL DISEASES (PRIDD) MEASURE AMONG PATIENTS WITH ATOPIC DERMATITIS/ECZEMA IN A GLOBAL STUDY

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Patient perspectives highlight the vast impact of skin disease on their lives. Based on Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) criteria, the Patient-Reported Impact of Dermatological Diseases (PRIDD) is considered valid and reliable for all skin conditions but has yet to be tested in a disease-specific sample. This study psychometrically evaluated PRIDD among patients with atopic dermatitis/eczema (AD). A longitudinal global survey (6-week interval) was administered online in 17 different languages. Participants with self-reported AD (N = 445, 74.6% female, 41.2±14.4 years, from 36 different countries) completed the following measures: PRIDD (16 items assessing physical, life responsibilities, psychological and social impact domains), quality of life, health status, depressive and anxiety symptoms, and provided sociodemographic and clinical information. In survey 2, participants (n = 81) provided a Global Perceived Effect (GPE), assessing changes in the impact of their AD since survey 1 as "worse," "stable," and "improved." Criterion validity ($\rho = 0.74$), construct validity (80% hypotheses met), internal consistency ($\alpha = 0.94$), test-retest reliability (ICC = 0.77), and measurement error were sufficient (LoA = -.07 < distribution-based MIC = 3.16). Responsiveness was partially confirmed, with significant differences in PRIDD change scores between "worse v. improved" and "stable v. improved" GPE groups but not between "worse v. stable." Floor and ceiling effects were absent. Psychometric performance of PRIDD among those with AD was sufficient for assessing the multidimensional impact of disease on patients' lives, including those with atopic dermatitis/eczema. As such, the PRIDD is ready to use in patient care and clinical trials.

### *BP#2055*
### ASSOCIATION BETWEEN MODE OF DELIVERY AND ATOPIC DERMATITIS RISK IN OFFSPRING:AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS

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Cesarean section (CS) may alter early-life microbiome colonization, potentially influencing the pathogenesis of atopic dermatitis (AD). However, epidemiological evidence remains inconsistent, and recent datasets require comprehensive synthesis. To re-evaluate the association between CS and offspring AD risk while identifying potential sources of heterogeneity. We conducted a systematic review and random-effects meta-analysis of 49 study populations from 46 studies reporting categorical data on delivery modes and AD outcomes. Study quality was appraised using a modified Newcastle-Ottawa Scale (NOS). Stratified analyses by region and study size, and leave-one-out sensitivity analyses were performed. Across over two million participants, CS was significantly associated with a 10% higher risk of AD (pooled OR 1.10, 95% CI 1.06–1.14). Korean cohorts showed a stronger risk (OR 1.38) than European and North American cohorts (OR 1.05–1.09). Large-scale cohorts (>10,000 births) yielded a higher OR (1.13) than small-to-medium cohorts (OR 1.04–1.07). Sensitivity analyses confirmed outcome stability (pooled ORs: 1.08–1.11). The included studies showed acceptable quality (mean NOS score: 5.0/8; 93.3% low-to-moderate risk of bias). This updated meta-analysis confirms a modest but robust increase in offspring AD risk following CS. These findings offer clinically meaningful insights for perinatal counseling. Further research should differentiate elective from emergency CS and explore other perinatal modifiers

### *BP#2061*
### ESTIMATING THE PREVALENCE OF ATOPIC DERMATITIS 1992-2026: A SYSTEMATIC REVIEW AND META-ANALYSIS

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The adoption of the World Health Assembly (WHA) resolution recognising skin diseases as a public health priority is a significant moment for skin health. This increased attention underscores the need for robust estimates of disease prevalence, which are key to understanding the overall burden, interpretating other burden metrics, and guiding evidence-based policy. To estimate the national, regional and global prevalence of atopic dermatitis (AD). Three databases were systematically searched from January 1, 1992, to February 28, 2026. We included population-based studies from all countries and ages reporting prevalence or incidence. We fitted a Bayesian hierarchical binomial model with nested region-country random effects enabling spatial borrowing of information as well as adjusting for study and country covariates. Prevalence estimates are reported with 95% credible intervals (CI) for all countries in children (<18 years) and adults by diagnosis method (physician or other). We screened 44,996 titles and abstracts, and 3,727 were included in full-text screening. Of 1,196 included studies, 774 (64.7%) reported prevalence covering 113 countries, and were included in this analysis. Global estimated 1-year period prevalence in children diagnosed by a physician was 6.7% (95% CI: 3.7-11.6%) and in adults 1.3% (95% CI: 0.7-2.3%). Regional estimates (child, 1-year period, physician diagnosed) were highest in high-income countries (12.4%, 95% CI: 7.4-19.5%) and Sub-Saharan Africa (12.4%, 95% CI: 6.0-23.4%) and lowest in Europe and Central Asia (4.4%, 95% CI: 1.1-10.3%). This is the largest and most comprehensive review of AD prevalence to date. In the context of the WHA resolution, these estimates are timely, supporting policy development, and enable monitoring of progress in reducing disease burden.

***BP#2072***

## DIAGNOSTIC ACCURACY, SPATIAL DISTRIBUTION AND MISCLASSIFICATION OF ATOPIC DERMATITIS IN A NATIONAL TELEDERMATOLOGY PROGRAMME IN MALI

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A teledermatology programme in Mali demonstrated improved management of skin diseases following training of primary healthcare workers (HCWs). However, diagnostic accuracy for specific conditions like atopic dermatitis (AD) has not been evaluated. To assess the diagnostic accuracy of HCWs for AD and to characterise the geographic distribution and patterns of diagnostic misclassification. We performed a secondary analysis of a national teledermatology dataset across Mali, 2018 to 2024. AD cases were identified using a structured multi-stage approach, incorporating expert diagnoses reviewed via teledermatology, expanded screening of eczema-related conditions, and independent dual clinician review of available clinical notes and patient images. HCW diagnoses were compared to expert-confirmed diagnoses as the gold standard. Sensitivity, specificity, and agreement were calculated. A total of 397 expert-confirmed AD cases were identified from 7,191 consultations (5.5%). Cases were identified across all regions of Mali and were predominantly children (< 16 years, n=291, 73.3%). HCW demonstrated a low sensitivity for detecting AD, identifying only 1.8% of confirmed cases. Among missed cases, the most common alternatives were no recorded diagnosis (n=208, 52.4%), non-specific eczema (n=68, 17.1%), and pyoderma (n=30, 7.6%). HCWs showed 99.7% specificity, with only 23 cases identified as AD not confirmed by expert review. These patients were diagnosed with a range of conditions including acne, psoriasis, vitiligo, and non-specific eczema. Teledermatology has expanded access to dermatology care across Mali. Overall, HCWs demonstrated low sensitivity but high specificity for AD diagnosis. These findings provide insights into the challenges of diagnosing AD and for improving diagnostic support in teledermatology programmes.

***BP#2073***

## GLOBAL VARIATION IN ATOPIC DERMATITIS SEVERITY DISTRIBUTIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF ATOPIC DERMATITIS BURDEN IN THE GENERAL POPULATION

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Atopic dermatitis (AD) is one of the most prevalent skin diseases globally. The burden of AD is closely linked to disease severity. While extensive research has measured AD severity within hospital-based settings, its distribution within the general population remains unclear. This lack of population-level data hinders accurate evaluation of the global burden of AD. To systematically review and estimate the global variation in the distribution of AD



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severity among the general population. Bibliographic databases were searched from 1992 to 2026. We included population-based studies reporting AD prevalence and severity distributions. From each study, we derived a single estimate of moderate-to-severe (MtS) disease, combining reported severity categories (e.g. moderate, severe, very severe) where needed. The pooled proportion of MtS AD was estimated using random-effect models with 95% confidence intervals (CIs) and prediction intervals (PIs). A total of 111 studies from 50 countries were included, representing 152,231 individuals with MtS AD among 729,077 individuals with AD (median [IQR]; 41% [26-58]). The pooled global proportion of MtS AD was 40% (95CI; 36-44, PI; 9-82). The African Region showed the highest pooled proportion at 64% (95CI; 44-80, PI; 10-97), followed by the Eastern Mediterranean Region at 55% (95CI; 46-64, PI; 25-82). Conversely, the Western Pacific Region showed the lowest MtS proportion at 32% (95CI; 26-39, PI; 7-76). Global variation in population-level AD severity distributions is substantial. This study addresses a key gap in quantifying the true public health burden. Furthermore, the high proportion of MtS AD identified in resource-limited settings highlights an urgent need for accessible therapeutics and strategic allocation of resources.

***BP#2090***

## BURDEN, TRENDS AND SEASONAL PATTERNS OF ATOPIC DERMATITIS AT TANZANIA'S NATIONAL DERMATOLOGY REFERRAL CENTRE: A SIX-YEAR RETROSPECTIVE STUDY.

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Epidemiological data on atopic dermatitis (AD) from sub-Saharan Africa remain scarce despite its increasing global burden. We described the burden and epidemiology of AD at Tanzania's national dermatology referral center. We retrospectively analyzed electronic Health Information System records of patients diagnosed with AD at the Regional Dermatology Training Centre, Tanzania, between 2020 and 2025. Patients with ICD-10 codes, L20, L30,L26 and 9 other allergy related codes were reviewed to ascertain cases of AD. Demographic, geographic and temporal characteristics were summarized descriptively. Among 41,320 dermatology outpatient consultations, 9,877 (23.8%) had AD. Median age was 20 years (IQR 7–45); 53.6% were adults and 59.1% were female. Most diagnoses (93.9%) were coded as ICD-10 L20/L20. Patients were referred from all regions of mainland Tanzania and Zanzibar, with most from Kilimanjaro (78.1%) and Arusha (9.9%). Within Kilimanjaro, cases arose from both urban and rural wards, suggesting widespread disease distribution. AD consistently accounted for approximately one quarter of dermatology consultations annually. Consultation peaks occurred in December–January and June, around 20% above the monthly average, coinciding with the short rainy and cool dry seasons, respectively. This study provides one of the largest hospital-based AD cohorts reported from sub-Saharan Africa. AD represents a substantial clinical burden in Tanzania and shows consistent seasonal variation, suggesting climatic influences on disease presentation or healthcare utilization. These findings provide much needed epidemiological data on AD in Africa and support future community-based studies of disease distribution and determinants.

***BP#2093***

## FACTORS INDEPENDENTLY ASSOCIATED WITH SEVERITY IN ADULT ATOPIC DERMATITIS ON PIGMENTED SKIN AND THE LIMITATIONS OF ERYTHEMA-BASED SEVERITY SCORES

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Standard tools (SCORAD, EASI, DLQI) were developed mainly on lightly pigmented skin and weight erythema heavily; erythema is hard to grade on dark skin, and post-inflammatory hyperpigmentation (frequent and detrimental) is not captured. To identify factors independently associated with severity and assess the applicability of standard severity tools in adult AD on pigmented skin. Prospective analytical study (January 2024-June 2025) of adults (≥18 years) meeting Hanifin and Rajka criteria in Cotonou, Benin. Severity was assessed by SCORAD and by body surface area (BSA). Independent factors were identified by multivariable logistic regression; agreement between the two severity classifications was measured by quadratic weighted kappa. Among 212 patients, mean SCORAD was 28±12.3 and 54.7% had moderate-to-severe disease; quality of life was impaired in 95.6%. Severity was independently associated with crusts (adjusted odds ratio 3.30; 95%CI 1.79-6.21), anterior-trunk (2.44; 1.13-5.39), posterior-trunk (2.68; 1.20-6.18) and popliteal involvement (5.22; 1.78-19.29). Truncal involvement was confirmed in a BSA-defined model (4.49 and 4.20). Agreement between the SCORAD- and BSA-based classifications was only moderate (weighted kappa 0.46; 95%CI 0.36-0.57), with 57.5% observed agreement: 42.5% of patients were graded differently by the two tools. In adult AD on pigmented skin, truncal involvement is a robust independent severity marker across two definitions. Notably, both models retained only extent-and-topography variables and no inflammatory sign, and the two instruments agreed on barely half the patients. Because SCORAD and EASI weight erythema (underestimated on dark skin), and neither these nor DLQI captures hyperpigmentation, current tools likely misclassify severity. An instrument adapted to pigmented skin is needed.

***BP#2115***

## DEVELOPING A RAPID SCREENING TOOL FOR ATOPIC DERMATITIS IN THE GENERAL POPULATION: A SYSTEMATIC REVIEW AND DIAGNOSTIC TEST ACCURACY META-ANALYSIS

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Atopic dermatitis (AD) is a prevalent global health burden. A reliance on clinical diagnosis is impractical for large population surveys. Concise patient/parent-reported screening questionnaires provide a scalable alternative. However, fully validated diagnostic criteria are often operationally complex, while existing abbreviated tools frequently lack robust diagnostic evaluation, leaving the optimal components unclear. To identify and rank the highest-performing individual symptom-based questions for a rapid population-level AD screening tool. MEDLINE, Embase, Cochrane, and Web of Science were searched up to February 2026. Population-based studies comparing patient/parent-reported symptoms with clinical diagnosis were included. Two reviewers independently screened records and extracted 2 x 2 contingency tables. Hierarchical Bayesian diagnostic test accuracy meta-analysis estimated and ranked the sensitivity and specificity of individual symptom-based questions while accounting for cross-study heterogeneity and regional/skin-type variation. Of the 23 included studies, the highest-performing individual questions, with pooled sensitivity/specificity [median (95% credible interval)], were: (1) itchy rash in the past 12 months [73.0% (43.7–90.7)/67.4% (38.3–87.5)], (2) rash coming and going [70.6% (29.7–93.8)/76.6% (38.4–94.7)], (3) flexural involvement [64.5% (34.9–87.6)/71.5% (36.6–92.2)], and (4) dry skin in the past 12 months [59.6% (36.8–80.8)/79.2% (59.4–90.0)]. This review identifies the highest-performing symptom components for a standardised, data-driven AD screening tool. The next phase is to combine these into a composite model, followed by field validation with targeted clinical assessments by trained workers to reduce healthcare access bias and address gaps in global prevalence estimates.

***BP#2176***

## CLINICAL CHARACTERISTICS AND RISK FACTORS OF RECURRENCE DURING DUPILUMAB MAINTENANCE THERAPY IN PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: A SINGLE-CENTER REAL-WORLD STUDY

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Dupilumab has demonstrated significant efficacy in moderate-to-severe atopic dermatitis, yet some patients experience recurrence during maintenance therapy. Real-world data on the clinical characteristics and risk factors of treatment-period recurrence remain limited. To describe the clinical features of recurrence during dupilumab maintenance therapy and identify independent risk factors. This single-center, retrospective, real-world observational study enrolled 110 patients with moderate-to-severe AD who continuously received dupilumab from December 2023 to March 2025. Patients were classified into recurrence group (n=76) and non-recurrence group (n=34) based on self-reported recurrence. Demographics, disease background, treatment parameters, lifestyle, and 23 Hanifin & Rajka diagnostic criteria were collected. Univariate analysis used Chi-square, Fisher's exact, or Mann-Whitney U tests; multivariate analysis employed binary logistic regression. Of the 76 patients with recurrence,recurrence was predominantly mild: 71.1% had area <3% BSA, 53.9% reported mild pruritus. Top triggers were climate (64.5%), food (40.8%), and sweating (34.2%). Common sites included upper limbs (56.6%), lower limbs (53.9%), and trunk (44.7%). Multivariate logistic regression identified injection interval (OR=1.744, P=0.029) and ichthyosis/palmar hyperlinearity/keratosis pilaris (OR=2.545, P=0.007) as independent risk factors for recurrence. Recurrence during dupilumab maintenance therapy is predominantly mild. Prolonged injection intervals and presence of skin barrier impairment signs are independently associated with increased recurrence risk. Clinicians should maintain standard dosing intervals and prioritize barrier repair in patients with these risk factors.

***BP#2187***

## ULTRA-PROCESSED FOOD INTAKE IS ASSOCIATED WITH AN INCREASED RISK OF INCIDENT ATOPIC DERMATITIS: A MULTI-COHORT STUDY WITH METABOLOMIC INSIGHTS

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Ultra-processed food (UPF) consumption has been linked to chronic inflammatory diseases; however, its association with atopic dermatitis (AD) and underlying mechanisms remain unclear. To investigate the association between UPF consumption and incident AD risk and characterize metabolic signatures and dietary modifiers. We conducted the study in two independent populations. In UK Biobank, multivariable Cox proportional hazards regression was used to assess association between UPF intake and incident AD. Findings were validated in a Chinese population-based nested case-control cohort. Elastic net regression was applied to identify UPF-associated metabolites and construct a metabolic signature, followed by mediation analysis. In UK Biobank, higher UPF intake was associated with increased AD risk after full adjustment (HR per serving/day increase =1.08 (1.03–1.12), P<0.001). Consistently, in the Chinese cohort, participants in the highest UPF tertile had higher AD risk compared with the lowest tertile (OR=2.61 (1.18–5.79), P=0.018). The association was stronger among individuals with higher IgE polygenic risk scores (HR = 1.13 (1.05–1.21), P = 0.001). An UPF-related metabolic signature comprising 87 metabolites explained 27.57% of the UPF–AD association, with Docosahexaenoic acid showing the largest individual contribution. Furthermore, higher oil-rich fish intake attenuated the association between high UPF consumption and AD risk. Higher UPF consumption was associated with increased incident AD risk across two populations. UPF-related metabolic alterations, especially involving DHA pathways, may partially explain this association. Oil-rich fish intake may represent a potential dietary strategy to reduce the adverse association between UPF consumption and AD development.

***BP#2201***

## PERSONALIZED RISK-STRATIFIED FOLLOW-UP IMPROVES CHILDHOOD ATOPIC DERMATITIS OUTCOMES IN UNDERSERVED COMMUNITIES: A COMMUNITY-BASED IMPLEMENTATION STUDY

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Childhood atopic dermatitis (AD) remains poorly controlled in resource-limited settings because of fragmented follow-up and inconsistent caregiver support. We evaluated a structured community-based risk-stratified care pathway integrating community health workers and specialist-supported care. To assess the effect of a personalized follow-up pathway on disease control, adherence and caregiver outcomes. A prospective interventional

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study included 150 children aged 6 months–12 years with physician-confirmed AD from underserved urban communities in Multan, Pakistan. Following standardized assessment, children were stratified by disease severity and clinical risk. Management included individualized treatment plans, community health worker support, scheduled WhatsApp follow-up and expedited physician review according to risk category. Outcomes at baseline and 8 weeks included POEM, treatment adherence, caregiver confidence, sleep disturbance and eczema flares. POEM severity improved across all baseline categories, with a shift toward milder disease after 8 weeks. Treatment adherence increased from 28% to 64%, caregiver confidence from 32% to 71%, and caregiver-reported sleep improved in 42% of participants. Eczema flares were reduced by nearly half during follow-up. A community-based risk-stratified care pathway integrating community health workers, digital follow-up and specialist support improved clinical and caregiver outcomes. This model offers a scalable approach to strengthening childhood AD care in underserved communities.

***BP#2243***

## THE DIAGNOSTIC TRANSITION FROM ECZEMA TO ATOPIC DERMATITIS IN REAL-WORLD PRACTICE: A 14-YEAR STUDY OF OVER ONE MILLION PATIENTS

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In China, "eczema" has long been applied loosely, often interchangeably with atopic dermatitis (AD). Although AD diagnostic criteria, guidelines, specialty clinics and quality control have advanced rapidly over the past decade, their impact on real-world diagnostic behaviour remains unclear. To characterise the evolution of AD diagnostic practice and its drivers over 14 years in a large real-world cohort. Retrospective study of electronic medical records from a tertiary dermatology centre in Shanghai (January 2011-March 2024). All patients diagnosed with AD, eczema/infantile eczema, prurigo/prurigo nodularis or neurodermatitis were included. We analysed annual diagnostic composition, trajectories across repeat visits, and the influence of physician specialty and seniority using trend tests and logistic regression. The cohort comprised 1,002,635 patients (1,706,802 visits). AD diagnoses rose from 5.24% to 47.84% while eczema fell from 90.68% to 49.71% (both P<0.001), coinciding with Chinese infant and childhood AD criteria (2019-2020) and wider biologic use. Infant (0-1 years) AD rates rose from 21.5% to 38.2% and childhood (1-12 years) rates from 32.1% to 49.5% (P<0.001). Among patients with ≥6 visits, 45% initially labelled eczema were later reclassified as AD. Among inpatients, AD-specialists diagnosed AD in 96.6% of cases versus 40.7% for non-specialists, and seniors in 91.7% versus 22.0% for juniors (P<0.001). Over 14 years, AD has substantially replaced the non-specific label "eczema", driven by updated criteria and biologic therapies, with long-term follow-up enabling diagnostic correction. Persistent variation by physician specialty and experience indicates that AD diagnostic standardisation and quality control remain incomplete.

***BP#2285***

## REVISITING QUALITY OF LIFE IN THE HOME CORE OUTCOME SET FOR ECZEMA – FINDINGS FROM THE HOME XII CONSENSUS MEETING

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The Harmonising Outcome Measures for Eczema (HOME) initiative recommends the Dermatology Life Quality Index (DLQI) instruments to capture quality of life (QoL) in the core outcome set (COS). This 2019 recommendation was provisional, pending further evidence, and the field of QoL measurement has moved forward since. Revisiting an established COS is novel and challenging. To revisit the HOME QoL domain and its recommended instruments. Twoday consensus meeting (London, 3-4 June 2026) - 52 delegates (23% patients, 37% clinicians, 21% researchers, 15% industry, 4% students). Presentations: use and acceptability of current instruments, systematic review of QoL validation studies in people with eczema, QoL conceptual models, and submitted abstracts. Smallgroups work, plenary discussions and anonymous electronic voting were used. Delegates with a conflict of interest were excluded from the final vote on instruments. No instruments could be recommended for inclusion in the COS based on the latest evidence, so no immediate changes to the HOME COS were made. 'Skin specific QOL' will remain as a core domain (45/47 agreed), and work to explore alternative instruments continue (39/40 agreed). Immediate research priorities: development of a globally applicable, eczemaspecific QoL conceptual model, validation of candidate instruments in people with eczema and headtohead comparison of existing and emerging instruments. These activities will inform future revisions of the HOME COS. HOME XII reaffirms QoL as core outcome for eczema trials but highlights gaps in measurement validity and the need to align instruments with an eczema-specific conceptual model. This work demonstrates the value of periodically reassessing provisional recommendations to ensure they remain fit for purpose.

***BP#2339***

## ASSOCIATIONS OF SERUM ANDROGEN WITH LATE-ONSET MALE ATOPIC DERMATITIS: PROSPECTIVE COHORTS STUDY AND CLINICAL VALIDATION

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Atopic dermatitis (AD) exhibits sex-and-age dimorphism, characterized by remission during puberty and increased incidence in older men, which may suggest that androgens may be involved in the pathogenesis of AD. To elucidate the associations of androgens with AD incidence and clinical severity. First, we utilized a nested case-control design within the Hunan Civil Servant (HCS) cohort to evaluate the impact of androgen metabolites (dehydroepiandrosterone [DHEA], androstenedione, and testosterone) on incident AD through logistic regression model. Second, we used adjusted cox regression model to evaluate the link between three testosterone-related metrics (total testosterone, FAI, and calculated free testosterone) and the risk of AD onset in UKB. Finally, we performed a case-control study using AD patients from Xiangya Hospital and controls from the HCS cohort to compare testosterone-related metrics, and evaluated their link with AD severity. In the HCS cohort, higher levels of DHEA, androstenedione, and testosterone were associated with a reduced risk of AD (per SD increase: OR = 0.41, 95% CI: 0.23–0.69, P = 0.001; OR = 0.24, 95% CI: 0.11–0.46, P <0.001; and OR = 0.24, 95% CI: 0.10–0.49, P <0.001, respectively). Consistently, in the

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UKB cohort, higher FAI and calculated free testosterone were associated with a lower incidence of AD (OR = 0.95, 95% CI: 0.90–0.99, P = 0.020; and OR = 0.96, 95% CI: 0.92–0.99, P = 0.026, respectively). Further, AD patients exhibited lower levels of FAI and testosterone than healthy controls, both of which were inversely correlated with EASI scores (r = -0.51, P = 0.002 and r = -0.481, P < 0.001, respectively). Androgen decline may explain the rising incidence of late-onset AD in men, suggesting that sex hormone-targeted therapies as a potential strategy for AD management.

***BP#2344***

### ATOPIC DERMATITIS IN AMAZONAS- BRAZIL: PREVALENCE AND REGIONAL CHALLENGES

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Atopic dermatitis is the most common chronic inflammatory skin disease worldwide, with high clinical and socioeconomic burden, particularly in moderate to severe forms. In Brazil, prevalence is high in children and adolescents, with persistence into adulthood, and local data from Amazonas are scarce. To describe the prevalence and clinical epidemiological profile of atopic dermatitis in a referral center in the state of Amazonas. Observational study of records of atopic dermatitis diagnosed at Fundação Alfredo da Matta and during Dermato Saúde outreach activities between 2019 and 2025, including pediatric and adult cases, distribution by sex and age group, associated conditions and use of systemic and highcost therapies. Annual case numbers at FUHAM ranged from 407 to 629, with prevalence between 4.5% and 8.8% of dermatology consultations, and between 7.2% and 8.1% in Dermato Saúde actions in interior municipalities. Atopic dermatitis predominated in children, with prevalence of 24% in the pediatric group,and female predominance in both children and adults. Adult cases increased over time, reaching up to 37% of diagnoses. Pruritus was universal,hypochromic macules and typical eczematous lesions were frequent; allergic rhinitis was the main comorbidity. About 20% of cases required systemic therapy, including oral immunosuppressants, biologics and JAK inhibitors, methotrexate being the most used drug. Atopic dermatitis in Amazonas is an important public health problem, with expressive prevalence in a referral center and outreach activities in the interior. Climatic factors, long distances, social inequality, cultural habits and barriers to access contribute to delayed diagnosis, low adherence and greater severity, reinforcing the need for multidisciplinary care and regional policies to improve diagnosis and management.

## BP8. Systemic and New Biologic/JAK Therapies

***BP#2001***

### TREATING-TO-TARGET IN CHRONIC HAND ECZEMA: DEVELOPMENT OF A PATIENT-CENTRIC FRAMEWORK

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Treat-to-target (T2T) recommendations offer a pragmatic framework to optimize therapeutic goals and personalize decisions. T2T recommendations have been made in several dermatologic conditions, but none exist for chronic hand eczema (CHE). Propose T2T criteria for the management of CHE. A committee of seven Canadian dermatologists proposed a set of T2T criteria based on a targeted literature review. Committee members voted on the proposed T2T criteria using a 5-point scale, with a threshold for consensus defined at a level of ≥75% agreement. Several clinician-rated and patient-reported outcome measures that have been utilized in CHE clinical trials were identified and their strengths and limitations in the context of T2T were examined. Two T2T criteria were proposed, each of which include a clinician-rated (Investigator's Global Assessment for Chronic Hand Eczema [IGA-CHE]) and a patient-reported outcome measure (pruritus Numeric Rating Scale [NRS]). Initial T2T criteria (IGA-CHE ≥1 point improvement and pruritus NRS improvement ≥3 points) should be assessed after 8–16 weeks of treatment. Failure to meet initial T2T criteria indicates that a treatment change should be considered after an informed patient discussion within a shared decision-making framework. Maintenance T2T criteria (IGA-CHE 0 or 1 and pruritus NRS 0 or 1) are measured 16–32 weeks after achieving initial criteria and they reflect absolute targets. If maintenance T2T criteria are not met, a shared decision should be made whether treatment should be escalated or switched. Once maintenance T2T criteria are met, the benefits and drawbacks of continuing, spacing or stopping treatment should be discussed. The proposed T2T criteria offer a flexible, pragmatic and patient-centric approach to optimizing management of CHE.

***BP#2008***

### RESPONSE OF BIOLOGICS AND JAK INHIBITORS IN SEVERE ATOPIC DERMATITIS IN REAL WORLD: PATIENT AND BODY REGION-SPECIFIC ECZEMA AREA AND SEVERITY INDEX OUTCOMES FROM A KOREAN MULTICENTER COHORT

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Atopic dermatitis (AD) is a chronic inflammatory skin disease that severely impairs quality of life and is clinically heterogeneous. Despite expanding therapeutic options, including biologics and Janus kinase (JAK) inhibitors, real-world evidence on their

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effectiveness across anatomical regions remains limited. This study assessed treatment response at the initial evaluation by examining overall and region-specific eczema area and severity index (EASI) in adults with severe AD receiving biologics or JAK inhibitors under Korean National Health Insurance reimbursement criteria. This retrospective study used electronic medical records from three tertiary hospitals in South Korea. Adults (≥19 years) with severe AD (baseline EASI ≥23) initiating biologics or JAK inhibitors between May 2022 and February 2024 were identified. Analysis included 258 patients achieving EASI-75 at initial evaluation time point (week 12 or 16, by medication; biologics n=213; JAK inhibitors n=45). Overall and regional EASI changes from baseline were descriptively assessed. Baseline overall EASI was comparable between groups. Percentage improvement was similar between drug classes (86.10% for biologics vs. 84.74% for JAK inhibitors, p=0.20). The trunk showed the greatest skin clearance improvement across regions (46.28% for biologics and 57.50% for JAK inhibitors). Although the head and neck region showed the least improvement, nearly half of patients still displayed skin clearance improvements in this region (45.21% for biologics and 50.00% for JAK inhibitors). In a reimbursement-constrained setting, regional clearance patterns highlights clinically meaningful regional heterogeneity beyond overall EASI and supports incorporating region-specific assessment into routine practice.

### *BP#2010*
### DUAL TARGETED THERAPY USING JANUS KINASE INHIBITORS AND BIOLOGICS FOR ATOPIC DERMATITIS: A SYSTEMATIC REVIEW

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Dual targeted therapy combining Janus kinase inhibitors (JAKi) and biologics has increasingly emerged as a potential therapeutic strategy for patients with refractory atopic dermatitis (AD). To systematically evaluate the efficacy and safety of dual targeted therapy using JAKi and biologics in patients with treatment-refractory AD. Following PRISMA guidelines, MEDLINE, Embase, and CENTRAL were searched. Articles were independently screened by two reviewers. Studies with AD patients on dual targeted therapy using JAKi and biologics were included. Among 75 patients (mean age 31.9), the most reported dual targeted therapies were upadacitinib-dupilumab (28/75), baricitinib-dupilumab (25/75), and abrocitinib-dupilumab (12/75). The greatest reductions in Peak Pruritus Numeric Rating Scale (PP-NRS) were achieved with abrocitinib-dupilumab (-87.5%; n=5; 16.0 weeks) and upadacitinib-dupilumab (-78.3%; n=10; 20.8 weeks). The largest reductions in Patient-Oriented Eczema Measure (POEM) were observed with upadacitinib-dupilumab (-87.5%; n=4; 16.0 weeks) and abrocitinib-dupilumab (-73.3%; n=5; 16.0 weeks). The greatest reductions in Eczema Area and Severity Index (EASI) were achieved with upadacitinib-dupilumab (-75.9%; n=7; 22.3 weeks) and abrocitinib-dupilumab (-67.5%; n=3; 30.0 weeks). EASI75 responses were highest with upadacitinib-dupilumab (100%; n=4) and baricitinib-dupilumab (85.0%; n=7). Adverse events occurred in 6.7% of patients and included nausea, acne with weight gain, mild allergic reaction, and neutropenia. Dual targeted therapy combining JAKi and biologics may be a safe and effective add-on strategy for patients with AD refractory to monotherapy with substantial improvements in pruritus and disease severity with a low incidence of adverse events.

### *BP#2012*
### REAL-WORLD SAFETY AND EFFECTIVENESS OF UP TO 12 MONTHS OF TRALOKINUMAB TREATMENT IN 124 PATIENTS WITH ATOPIC DERMATITIS (AD) AGED ≥65 YEARS

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Treatment of atopic dermatitis in older adults can be challenging due to higher comorbidity rates and additional safety concerns; however, real-world evidence for the older population is limited. Tralokinumab, a high-affinity monoclonal antibody that specifically neutralizes IL-13, was effective and well tolerated in phase 3 trials of patients with moderate-to-severe AD. To evaluate safety and effectiveness of up to 12 months of tralokinumab treatment among adults aged ≥65 years with AD. TRACE was an international, non-interventional, real-world study of adults with AD treated with tralokinumab for up to 12 months. Assessments conducted per local practice and adverse events (AEs) reported throughout the study. A composite response was defined as achieving at least one of: Eczema Area and Severity Index (EASI) ≤7, Investigator Global Assessment (IGA) 0/1 or SCORing Atopic Dermatitis (SCORAD) <10. Patient-reported outcomes included Dermatology Life Quality Index (DLQI). Data analyzed as observed. Of 124 patients aged ≥65 years, 58.9% had at least one comorbidity registered at baseline. AEs were reported in 28 (22.6%) patients and were primarily mild (41.2%) or moderate (39.2%) in severity. AEs possibly related to tralokinumab were reported in 9 (7.3 %) patients; none were considered serious. Conjunctivitis was the most common AE (4 patients, 3.2%). Few patients (4.8%, 6/124) discontinued tralokinumab treatment due to AEs. At Month 3, 65% (62/95) of patients had achieved a composite response, increasing to 86% (54/63) at Month 12. Mean (SD) DLQI improved from 8.5 (6.3) at baseline to 2.6 (3.4) at Month 12. In patients aged ≥65 years with AD, who typically have a higher comorbidity burden, up to 12 months of tralokinumab treatment was well tolerated and effective, with no new safety concerns and robust improvements in measures of disease severity and QoL.

### *BP#2013*
### SAFETY, TOLERABILITY, AND PHARMACOKINETICS OF LEBRIKIZUMAB IN CHINESE HEALTHY PARTICIPANTS

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Lebrikizumab (LEB), a high-affinity immunoglobulin G4 monoclonal antibody, targets interleukin-13, a central mediator in atopic dermatitis (AD), has shown clinically meaningful efficacy and a favorable safety profile in patients with moderate-to-severe AD. To evaluate safety, tolerability, pharmacokinetics (PK), and immunogenicity of LEB in healthy Chinese population. This Phase 1, double-blinded, randomized, single-dose study (NCT06243198) enrolled 24 participants in 2 cohorts. Cohorts 1 and 2 evaluated single subcutaneous (SC) doses of LEB (250 mg and 500 mg, respectively) or placebo (PBO) (10:2 per cohort), with a follow-up of 120 days. Safety and tolerability were assessed by treatment-emergent adverse events (TEAEs). PK and

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immunogenicity were assessed. All 24 participants receiving study drug (71% male, age 19-42 years; BMI 19.0-25.8 kg/m2) completed study. Among 23 of 24 participants, 69 TEAEs were reported, with 43 related to study intervention (250 mg LEB=19; 500 mg LEB=21; PBO=3). Most TEAEs were mild in severity, with 2 moderate TEAEs in 500 mg LEB group. No SAEs, deaths, study discontinuations, injection site reactions, or conjunctivitis occurred. Upper respiratory tract infection (7 events), increased blood creatine phosphokinase (6 events), and mouth ulceration (6 events) were most common AEs, all mild. Most TEAEs resolved at the end of study. No clinically significant findings were observed in labs, vital signs, or physical exam. Median tmax was 7.00 days for LEB doses. Geometric mean t1/2 was 24.7 and 26.2 days for 250 mg LEB and 500 mg LEB, respectively. Geometric mean Cmax, AUC(0-∞), and AUC(0-tlast) showed generally dose-proportional increases. All participants were ADA-negative. Single SC doses of 250 mg and 500 mg LEB were well tolerated in Chinese participants, with PK profiles consistent with those in other populations.

***BP#2032***

## COMPARATIVE EFFICACY OF SYSTEMIC TREATMENTS ON ANXIETY AND DEPRESSION OUTCOMES IN ATOPIC DERMATITIS CLINICAL TRIALS: A NETWORK META-ANALYSIS

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Systemic treatments for atopic dermatitis (AD) primarily target cutaneous efficacy endpoints. However, AD's psychological burden is less studied. To compare anxiety and depression outcomes of systemic treatments for moderate-to-severe AD. A random-effects Bayesian network meta-analysis (NMA) was performed using data from our living systematic review, with the latest search updated in November 2025. Randomised controlled trials (RCT) evaluating systemic immunomodulatory medications for moderate-to-severe AD in adults and adolescents treated ≥8 weeks were screened in duplicate. Outcomes: Hospital Anxiety and Depression Scale (HADS-A and D) scores up to 16 weeks. Mean differences (MD) and 95% credible intervals (CI) were calculated between the assessed systemic therapies and placebo. Node-splitting assessed network consistency. Data from six RCTs (n= 3,177 patients) were included. Dupilumab 300 mg every week (q1w) showed the greatest reduction vs placebo in HADS-A (-1.6, 95% CI: -2.8 to -0.32) and HADS-D (–2.2, –4.0 to -0.69). HADS-A: abrocitinib 200 mg (–1.4, –2.2 to –0.64) and 100 mg OD (–1.1, –1.9 to –0.38), dupilumab 300 mg q2w (–1.3, –2.1 to –0.57), and baricitinib 4 mg OD (-0.99, -2.0 to -0.03) also significantly reduced anxiety vs placebo. HADS-D: abrocitinib 200 mg (–1.6, 95% CI: –2.7 to –0.59) and 100 mg OD (–1.2, –2.4 to –0.24), baricitinib 4 mg (–1.4, –2.8 to –0.20) and 2 mg OD (–1.2, –2.7 to –0.001), and dupilumab 300 mg q2w (–1.4, –2.7 to –0.49) significantly reduced depression vs placebo. Node-splitting confirmed no significant network inconsistency (all p>0.36). Dupilumab, abrocitinib, and baricitinib showed similar, statistically significant improvements in reducing anxiety and depression symptoms compared to placebo in patients with moderate-to-severe AD, with dupilumab 300 mg q1w showing numerically the largest improvements.

***BP#2039***

## CONTINUOUS NEMOLIZUMAB TREATMENT ACHIEVED SUSTAINED, CLINICALLY MEANINGFUL IMPROVEMENTS THROUGH WEEK 48 ACROSS MULTIPLE DOMAINS, INCLUDING SKIN CLEARANCE, ITCH, SLEEP, AND QUALITY OF LIFE

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Nemolizumab, a humanized IgG2 mAb targeting IL-31RA, demonstrated significant efficacy and favorable safety in the ARCADIA 1&2 Phase 3 studies in adolescents and adults with moderate-to-severe atopic dermatitis. At week (W)16, clinical responders (EASI-75 and/or IGA 0/1) entered the maintenance phase and were re-randomized to nemolizumab (30 mg) every 4/8 weeks, or placebo. Patients who did not meet the responder criteria at W16 (partial responders) entered the long-term extension (LTE) study. Longer term efficacy outcomes with continuous nemolizumab treatment beyond W16, particularly among patients with less robust early responses, remains clinically relevant. To evaluate efficacy of continuous nemolizumab treatment through W48 regardless of response status at W16. Data were pooled from the intent-to-treat populations of the ARCADIA 1&2 studies and the open-label LTE study. Outcomes evaluated through W48 included IGA 0/1, EASI-75, EASI-90, SCORAD VAS Pruritus and Sleep Loss, and DLQI (patients aged ≥17 years). Of 1032 patients, 45% achieved IGA 0/1, 70% EASI-75, and 44% EASI-90 at W48. Rapid and durable itch relief was observed: 57% achieved SCORAD VAS Pruritus <2 (itch-free/nearly itch-free), and 79% had a ≥4-point improvement at W48. Improvements in sleep mirrored those in itch, with 63% achieving SCORAD VAS Sleep Loss score <2 (minimal/no sleep disturbance). By W48, 88% had a ≥4-point improvement in DLQI, a clinically meaningful improvement in quality of life (QoL). Continuous nemolizumab treatment through W48 was associated with durable, clinically meaningful improvements across skin clearance, itch, sleep, and QoL. Most patients achieved itch-free/nearly itch-free status with minimal/no sleep disturbance by W48, confirming benefits maintained or further improved beyond W16 regardless of initial response.

***BP#2049***

## LONG-TERM EFFICACY, SAFETY, AND PREDICTIVE FACTORS FOR RESPONSE TO UPADACITINIB IN MODERATE-TO-SEVERE ATOPIC DERMATITIS: A REAL-WORLD RETROSPECTIVE STUDY

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Upadacitinib is an oral selective Janus Kinase (JAK1) inhibitor that affects JAK/STAT pathway implicated in the pathogenesis of atopic dermatitis (AD). However, real-world evidence on long-term efficacy, safety and predictors of treatment outcomes

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remains limited. We investigated the 104-week efficacy, safety and predictive factors for long-term response to upadacitinib 30mg in adult patients with AD. We retrospectively analyzed a total of 27 moderate-to-severe adult AD patients who were treated with upadacitinib 30 mg once daily from July 2022 to September 2025. Efficacy outcomes included EASI75, EASI90, ≥4-point improvement in ppNRS from baseline, IGA 0/1 with ≥2-grade improvement from baseline, and DLQI reduction, assessed at weeks 4,24,52 and 104. Safety outcomes included laboratory abnormalities, treatment-emergent adverse events, and serious adverse events. The mean age of patients was 26.9 years, and 9(33.3%) patients were female, 18(66.7%) patients were male. Baseline assessments showed a mean EASI score of 22.9, ppNRS score of 6.0, and DLQI score of 14.4. At week 104, EASI75 and EASI90 were achieved by 92.6% and 70.4%, respectively; ≥4-point improvement in ppNRS from baseline was achieved by 75.0%; IGA 0/1 with ≥2-grade improvement from baseline was achieved by 66.7%; and mean reduction of DLQI from baseline was 13.1.The most common treatment-emergent adverse events were acne,and no serious adverse events resulting in discontinuation were observed. In univariate logistic models, lower baseline EASI score, lower baseline IgE, shorter disease duration, early response at week 4, and greater IgE reduction were associated with sustained EASI75 at week 104. Our study indicates that achieving early immunologic suppression with lower baseline severity may be crucial for sustaining long-term disease control.

***BP#2064***

## EFFECTIVENESS AND ACHIEVEMENT OF MINIMAL DISEASE ACTIVITY WITH UPADACITINIB IN ADULTS AND ADOLESCENTS WITH ATOPIC DERMATITIS: 18-MONTH INTERIM ANALYSIS OF THE REAL-WORLD MULTICOUNTRY AD-VISE STUDY

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Long-term real-world effectiveness evidence of advanced therapies for moderate-to-severe atopic dermatitis (AD) remains scarce. AD-VISE is an ongoing, observational, prospective, muti-country, real-world study of the safety and effectiveness of upadacitinib (UPA), a selective Janus kinase inhibitor, in the treatment of AD. Here we report the effectiveness of UPA in adolescents and adults with AD from the AD-VISE study through month 18. Results presented here are from an interim analysis (data cutoff: Oct 17, 2025). Outcomes included validated Investigator Global Assessment for AD (vIGA-AD) 0/1 (primary), Eczema Area and Severity Index improvement ≥75%/90% (EASI 75/90), EASI ≤3, and Worst Pruritus Numeric Rating Scale (WP-NRS) 0/1. Achievement of minimal disease activity (MDA) was defined as simultaneously achieving EASI ≤3 and WP-NRS 0/1. Other patient-reported outcomes (PROs) were also assessed. Results are reported using observed cases. This analysis included 861 patients. At month 18, most patients achieved vIGA-AD 0/1 (63.8%, 280/439), EASI 75 (81.4%, 349/429), EASI 90 (64.3%, 276/429), and EASI ≤3 (73.3%, 322/439). WP-NRS 0/1 was achieved by 40.3% (163/404) of patients and MDA was achieved by 38.4% (155/404) of patients. Clinically meaningful improvements and scores corresponding to no/minimal disease burden were observed across other PRO measures, including impact on quality of life. Effectiveness was largely consistent over 18 months. These real-world results align with clinical trial data showing that most patients with AD treated with UPA achieve clear/almost clear skin, and many achieve no/minimal itch through month 18. Additionally, over 1/3 of patients met MDA criteria.

***BP#2075***

## ASSOCIATION BETWEEN SYSTEMIC IMMUNOMODULATORY MEDICATIONS AND ACHIEVEMENT OF SUPER-RESPONSE IN PATIENTS WITH ATOPIC ECZEMA: RESULTS FROM THE UK-IRISH ATOPIC ECZEMA SYSTEMIC THERAPY REGISTER (A-STAR)

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Previous post-hoc analyses of randomised controlled trial demonstrated that more patients with atopic dermatitis (AD) on Janus Kinase-1 inhibitors (JAK1i) achieved super-response compared to dupilumab. To study the association between systemic medications and super-response in the UK-Irish Atopic Eczema Systemic Therapy Register (A-STAR). Patients enrolled in A-STAR who initiated either conventional systemics (methotrexate and ciclosporin), dupilumab or a JAK1i (abrocitinib and upadacitinib) were included in this analysis. Patients were stratified by the medications they received at baseline. Super-response was defined as achieving ≥90% improvement in Eczema Area and Severity Index, Peak Pruritus Numerical Rating Scale score of ≤1, and Child/Dermatology Life Quality Index of ≤1 at the same visit during the follow-up (censored at 6 months). Cox regression was used to assess the association between systemic medication exposure and time-to-achieve super-response. Methotrexate was used as a reference medication. Hazard ratio (HR) and 95% confidence intervals (95%CI) were estimated with covariate adjustment. A total of 929 patients (methotrexate: N=227; ciclosporin: N=69; dupilumab: N=500; JAK1i: N=133) were included in the analysis, with a baseline mean± standard deviation age of 29.7±15.6, EASI of 19.4±12.4, PP-NRS of 6.8±2.1 and C/DLQI of 15.0±7.8. In adjusted Cox regression, JAK1i (HR 12.43, 95%CI 2.24–69.01) and ciclosporin (HR 10.74, 95%CI 1.66–69.46) were associated with a higher likelihood of achieving super-response compared with methotrexate. Dupilumab showed a non-significant trend towards higher likelihood of achieving super-response (HR 3.91, 95%CI 0.84–18.28). Treatment with JAK1i and ciclosporin were associated with a higher chance of achieving super-response in AD patients, compared to methotrexate.

### *BP#2080*
### PREDICTION MODELING FOR SYSTEMIC THERAPY IN MODERATE-TO-SEVERE ATOPIC DERMATITIS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease. Patients with moderate-to-severe AD often require systemic therapy. Although biologics and JAK inhibitors have promoted structured assessment frameworks such as Treat-to-Target (T2T) and Minimal Disease Activity (MDA), multicenter prediction models for treatment outcomes in Chinese patients remain limited. To develop prediction models for achieving T2T and MDA goals after 12 weeks of dupilumab or JAK inhibitor treatment in a real-world Chinese cohort of patients with moderate-to-severe AD. This multicenter retrospective cohort study included patients with moderate-to-severe AD treated with dupilumab or JAK inhibitors. Baseline clinical data and disease severity at baseline and week 12 were collected. Outcomes were achievement of T2T (EASI-75, pp-NRS4), and MDA (EASI-90, pp-NRS≤1) at week 12. Patients were randomly divided into training and validation sets at a 7:3 ratio. Candidate predictors were selected using least absolute shrinkage and selection operator (LASSO). Logistic regression (LR), random forest (RF), and extreme gradient boosting (XGBoost) models were developed and evaluated by discrimination, probability accuracy, and calibration. A total of 1,161 patients were included. After LASSO-based variable selection, LR, RF, and XGBoost models were constructed. XGBoost performed best for EASI-75 and pp-NRS4, whereas LR showed better performance for EASI-90 and pp-NRS≤1. Validation AUCs ranged from 0.637 to 0.735. The final models showed relatively stable calibration and potential clinical net benefit. The 12-week prediction models showed moderate discrimination and good calibration, supporting their potential use in risk stratification and individualized treatment management for patients with moderate-to-severe AD receiving dupilumab or JAK inhibitors.

### *BP#2085*
### A PHASE 1 STUDY OF A NOVEL ORAL INTERLEUKIN-1 RECEPTOR–ASSOCIATED KINASE 4 (IRAK4) DEGRADER QLS12010 IN PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS (AD)

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QLS12010 is a novel oral small-molecule IRAK4 degrader via proteolysis-targeting chimera technology, which could improve AD-related inflammation. The aim of this study was to evaluate the safety and preliminary efficacy of QLS12010 in patients with moderate-to-severe AD. This study (NCT06946641) recruited patients with moderate-to-severe AD aged 18-75 years. Eligible patients had AD diagnosed according to Hanifin-Rajka criteria for at least 6 months at the screening visit, with intolerance to or inadequate response to topical therapy. QLS12010 was orally administered at 25 mg once daily for 28 days, with a 14-day follow-up through day 42. The primary endpoint was safety. Twelve patients were enrolled. Baseline AD severity: the median Eczema Area and Severity Index (EASI), validated Investigator Global Assessment scale (vIGA-AD™), weekly average of Peak Pruritus Numeric Rating Scale (PP NRS) score, and affected body surface area (BSA) were 21.6, 4, 6.4, and 28.5%, respectively. Ten (83.3%) patients experienced treatment-emergent adverse events (TEAEs) (treatment-related, 8 [66.7%]), and the majority of these events were grade 1. No patient experienced grade ≥3 TEAEs, and no TEAEs led to treatment discontinuation or death. No clinically significant corrected QT interval by Fredericia prolongation was observed. There was 65.8%, 41.8%, and 53.6% reduction in EASI score (maximum 85.1% reduction), weekly average PP NRS score and affected BSA on day 28, respectively. The median vIGA-AD™ score was 2.0, with 25% of patients achieved a ≥2-point reduction from baseline on day 28. QLS12010 was well-tolerated with a favorable safety profile in patients with moderate-to-severe AD and showed preliminary efficacy, supporting phase 2 study.

### *BP#2104*
### IMPROVEMENT OF ATOPIC DERMATITIS WITH MG-K10 ACROSS DIFFERENT ANATOMIC REGIONS: DATA FROM PHASE III CLINICAL TRIAL

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Background: MG-K10 is an innovative long-acting mAb that specifically binds to human IL-4Rα, and efficiently blocks the Th2 inflammatory signaling of IL-4 and IL-13. Following Fc mutation, MG-K10 allows long dosing interval owing to its prolonged half-life. Objective: To evaluate the efficacy of MG-K10 in improving atopic dermatitis (AD) lesions across various anatomic regions. Methods: The study enrolled 499 adults with moderate-to-severe AD and randomized 2:1 to receive subcutaneous MG-K10 300 mg (600 mg loading dose, n=333) or placebo (n=166) every 4 weeks (Q4W). After 16-week double-blind treatment period was completed, all patients entered a 36-week maintenance treatment period and received MG-K10 300 mg Q4W and were monitored for an additional 8 weeks. Results: At Week 16, the percentage changes of EASI scores from baseline in the MG-K10 group was −72.7%, −77.9%, −74.8%, and −71.0% in the head and neck, trunk, upper extremities, and lower extremities, respectively. MG-K10 showed significantly greater improvement than placebo across all anatomic regions. Additionally, improvements continued through Week 52 in both the MG-K10 and placebo-to-MG-K10 groups, reaching percentage changes of −90.9% and −86.8% for the head and neck, −92.9% and −91.7% for the trunk, −93.2% and −90.3% for the upper extremities, and −93.7% and −91.3% for the lower extremities, respectively. These improvements were also sustained after treatment discontinuation until week 60. Conclusion: MG-K10 administered every 4 weeks (Q4W) provides rapid and sustained improvements in atopic dermatitis lesions across all major anatomic regions in adults with moderate to severe AD.

***BP#2125***

## LONG-TERM EFFICACY OF ABROCITINIB THROUGH APPROXIMATELY TWO YEARS IN CHINESE PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: A POOLED LONG-TERM EXTENSION ANALYSIS

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Abrocitinib is an oral, once-daily, Janus kinase 1–selective inhibitor approved for treatment of moderate-to-severe atopic dermatitis (M2S AD) in China. Although abrocitinib has demonstrated efficacy and safety in Chinese patients in global phase 3 trials, long-term efficacy in these patients has not been well described. To assess the long-term efficacy of abrocitinib in Chinese patients with M2S AD using pooled data from four phase 3 trials. This pooled post hoc analysis of the JADE MONO-2 (NCT03575871), TEEN (NCT03796676), REGIMEN (NCT03627767), and EXTEND (NCT03422822) trials included 194 patients with M2S AD who received placebo (PBO; n=24), abrocitinib 100 mg (n=28), or 200 mg (n=142). Following transition to EXTEND, 18 patients who had received PBO switched to abrocitinib, resulting in 188 patients receiving ≥1 dose of abrocitinib. Efficacy endpoints included ≥75% improvement from baseline in Eczema Area and Severity Index (EASI-75), EASI-90, Investigator's Global Assessment (IGA) 0/1, ≥4-point improvement in Peak Pruritus Numerical Rating (PP-NRS4), and achievement of PP-NRS 0/1. At Week 12, among patients receiving PBO, abrocitinib 100 mg, and 200 mg, respectively, 36.8%/66.7%/86.9% achieved EASI-75, 15.8%/54.2%/73.0% achieved EASI-90, 26.3%/45.8%/71.5% achieved IGA 0/1, 18.8%/50.0%/69.7% achieved PP-NRS4, and 6.3%/20.0%/39.5% achieved PP-NRS 0/1. At Week 96-100, among patients receiving abrocitinib 100 mg and 200 mg, 73.7%/98.1% achieved EASI-75, 42.1%/78.8% achieved EASI-90, 26.3%/61.5% achieved IGA 0/1, 52.6%/75.5% achieved PP-NRS4, and 26.3%/45.3% achieved PP-NRS 0/1. Abrocitinib at either dose provided sustained efficacy in Chinese patients with M2S AD over 96-100 weeks, with higher response rates observed with the 200-mg dose.

***BP#2146***

## IMPROVEMENTS IN SYMPTOMS AND SEVERITY WITH ABROCITINIB IN ADULT PATIENTS WITH ATOPIC DERMATITIS: LONG-TERM EFFECTIVENESS THROUGH 64 WEEKS FROM AHEAD REGISTRY

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Real-world data on the use of abrocitinib in atopic dermatitis (AD) in China are scarce. To evaluate the long-term effectiveness of abrocitinib up to Week 64 in the AHEAD registry (ChiCTR2400086045). Adults (≥18 years old) were eligible if they were abrocitinib-naïve, or had discontinued abrocitinib for >30 days. Patient characteristics, treatment patterns and clinical outcomes, like Eczema Area and Severity Index (EASI) and Peak Pruritus Numerical Rating Scale (PP-NRS), were analyzed. A total of 1275 AD adults initiating abrocitinib were enrolled. The mean (SD) age of patients was 43.2 (16.3) years and 48.0% were female. 1052 (94.2%) patients had received abrocitinib 100 mg QD without following dose escalation. Rapid improvements in all physician- and patient-reported outcomes were observed as early as Week 2 and through Week 64. Higher proportions of patients achieved EASI-90 (71.3% vs. 57.9%, p=0.014) and PP-NRS 0/1 response (63.0% vs. 42.5%, p=0.0003) at Week 64 in early responders (who ever achieved EASI-90 and PP-NRS 0/1 response through Week 12) than non-early responders. At Week 52, PP-NRS0/1 was reported by 43.6%, 23.7% and 47.8% of patients who maintained at 100 mg QD (n=362), who up-titrated from 100 mg to 200 mg (n=38) and down-titrated from 200 mg (<12 weeks) to 100 mg (n=23), respectively. An EASI-100 response at Week 24 occurred in 117 of 405 (28.9%) patients with (almost) clear skin or mild lesions at head and neck at BL and 46 of 277 (16.6%) patients with moderate or severe lesions. The proportions of physicians and patients who were satisfied with current treatment both increased over time. Abrocitinib demonstrated sustained effectiveness up to Week 64 in real-world practice. Moderate-to-severe AD patients benefited from starting abrocitinib at 200 mg with dose decrease to 100 mg for maintenance (this study was Pfizer-sponsored).

### *BP#2149*
### REAL-WORLD EFFECTIVENESS OF LEBRIKIZUMAB FOR HEAD AND NECK INVOLVEMENT IN MODERATE-TO-SEVERE ATOPIC DERMATITIS

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Head and neck involvement is common in patients with atopic dermatitis (AD). This clinical presentation may be more difficult to treat and can show a lower response to some AD therapies than lesions affecting other body areas. To assess the effectiveness of lebrikizumab in the treatment of head and neck involvement in patients with moderate-to-severe AD in routine clinical practice. This ongoing retrospective, observational multicenter study includes patients with moderate-to-severe AD treated with lebrikizumab in Poland. The present analysis is based on interim data. Treatment response to lebrikizumab in the head and neck region was assessed using the Eczema Area and Severity Index (EASI), specifically the head and neck EASI (H&N EASI) subscore, which evaluates the extent and severity of lesions in this anatomical region (range 0–7.2). Facial involvement was also assessed using the Facial Investigator's Global Assessment (Face IGA), a 5-point scale ranging from 0 (clear) to 4 (severe). So far, a total of 30 patients were included (43.3% male; mean age at lebrikizumab initiation: 33.5 ± 14.9 years). Treatment with lebrikizumab resulted in a reduction of the mean EASI score from 24.0 at baseline to 6.8 at week 16. The mean H&N EASI score improved from 2.3 at baseline to 0.63 at week 16. The proportion of patients achieving a Face IGA score of 0 or 1 increased from 6.7% (n = 2/30) at baseline to 53.3% (n = 16/30) at week 16. Lebrikizumab treatment also improved H&N erythema, with the percentage of patients achieving H&N EASI erythema scores ≤1 increasing from 20.0% (6/30) at baseline to 73.3% (22/30) at week 16. These interim real-world findings suggest that lebrikizumab provides clinically meaningful improvement in H&N AD, including reductions in H&N EASI and erythema and improved Face IGA scores. Ongoing follow-up will further characterize treatment outcomes.

### *BP#2178*
### CLINICAL CHARACTERISTICS OF SELF-REPORTED SYMPTOM RECURRENCE AFTER NON-CONTINUATION OF DUPILUMAB IN PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: A DESCRIPTIVE CASE SERIES

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Dupilumab is effective for moderate-to-severe atopic dermatitis (AD), but some patients discontinue treatment. Data on symptom recurrence after non-continuation are scarce, particularly from Chinese real-world settings. To describe clinical characteristics of symptom recurrence after discontinuing dupilumab. This single-center, retrospective, descriptive case series included 38 patients with moderate-to-severe AD who discontinued dupilumab and completed a questionnaire between December 2023 and March 2025. Clinical features including recurrence timing, area, pruritus burden, affected sites, and triggers were analyzed using descriptive statistics. Among 33 patients with recurrence, median age was 20.0 years (IQR: 14-28), 57.6% were female. The most common discontinuation reason was "improvement" (50.0%). Recurrence most frequently occurred 1-6 months after discontinuation (54.5%). Although area was mostly limited (<3 palms, 54.5%), pruritus burden was significant with 71.0% reporting pruritus "affects daily life" or worse. Common sites included upper extremities (59.4%), neck (53.1%), and trunk (50.0%). Climate (82.1%) and sweating (53.6%) were the most reported triggers. In this sample of dupilumab-discontinued patients, most reported symptom recurrence within 1-6 months. While recurrence area was often limited, pruritus burden was clinically significant. Climate and sweating were predominant triggers. These findings describe the recurrence phenotype and generate hypotheses for prospective validation.

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***BP#2179***

## CLINICAL CHARACTERISTICS AND BIOMARKERS OF SUPER-RESPONSE TO DUPILUMAB IN PATIENTS WITH REFRACTORY ATOPIC DERMATITIS: A SINGLE-CENTER RETROSPECTIVE STUDY

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Therapeutic response to dupilumab in patients with refractory moderate-to-severe atopic dermatitis (AD) is highly heterogeneous. This study aimed to identify the clinical characteristics and baseline biomarkers of patients who achieve a super responder (SR) status within 16 weeks, to inform personalized treatment strategies. This single-center retrospective study included patients with refractory moderate-to-severe AD who received dupilumab for ≥16 weeks. SR was defined as meeting all three criteria at week 16: EASI-75, ≥4-point improvement in PP-NRS, and ≥4-point improvement in DLQI. Baseline demographics, clinical characteristics, and laboratory parameters (e.g., IgE, ESO, LDH) were compared between SR and non-SR groups (NSR). Among the 209 patients, 116 (55.5%) were identified as SR. No significant differences were found between SR and NSR including sex, age, BMI. Onset Age showed a marginal trend (p=0.085), suggesting later onset in SR. Household income was higher in SR (P=0.03). Shorter shower duration was observed (p=0.032). Family history was more prevalent in SR (p=0.013). At baseline, all scores (SCORAD, EASI, NRS, DLQI, PEOM, ADCT, BSA) were significantly higher in SR (p<0.001). After treatment, score improvements were significantly greater in the SR (p<0.001), while post-treatment scores remained significantly different (p<0.001). Baseline vitamin D levels were lower in SR (p=0.001). Both groups showed marked IgE reductions after treatment; notably. Higher baseline NRS and POEM scores were independent positive predictors for becoming an SR (OR: 1.47, 95% CI: 1.19-1.80; OR: 1.11, 95% CI: 1.02-1.21). Baseline severity scores are key predictors of a super response in AD. Early identification of these characteristics can help optimize treatment decisions and manage patient expectations.

***BP#2180***

## COMPARATIVE EFFICACY OF SYSTEMIC AND TOPICAL THERAPIES FOR ATOPIC DERMATITIS: A BAYESIAN NETWORK METAANALYSIS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease with an expanding therapeutic arsenal. Direct headtohead comparisons among systemic and topical agents are scarce, complicating clinical decisionmaking. To compare the efficacy of all available AD treatments on EASI response using a Bayesian network metaanalysis (NMA). We conducted a Bayesian randomeffects NMA including 32 interventions from randomized controlled trials identified through a systematic literature review. The primary outcome was EASI response (achievement of 50%, 75%, or 90% improvement relative to baseline). The reference comparator was placebo plus standard care. The NMA included data from 32 interventions. Compared with placebo, the most efficacious treatments were Upadacitinib 30 mg (OR 0.05, 95% CrI 0.03–0.08), Dupilumab + TCS (OR 0.04, 0.02–0.06), and Upadacitinib 15 mg (OR 0.06, 0.04–0.09). Abrocitinib 200 mg (OR 0.08, 0.06–0.12) and Dupilumab 300 mg Q2W (OR 0.13, 0.10–0.16) also demonstrated strong efficacy. Lebrikizumab and Tralokinumab showed moderate effects (ORs 0.23–0.56). Emollient only (OR 1.10, 0.71–1.67) did not significantly differ from placebo. Betweenstudy heterogeneity was low (τ = 0.13, 95% CrI 0.01–0.31). In headtohead comparisons, Upadacitinib 30 mg was superior to Dupilumab Q2W (OR 0.39, 0.26–0.56), while Abrocitinib 100 mg did not significantly differ from Dupilumab Q2W (OR 0.92, 0.65–1.33). These findings support a tiered treatment algorithm where JAK inhibitors and combination biologics offer superior efficacy over standard monotherapies. The results can guide clinicians in personalizing therapy and inform future guideline development.

***BP#2183***

## EFFICACY OF STAPOKIBART IN PATIENTS WITH DUPILUMAB- AND/OR JAK INHIBITOR-REFRACTORY FACIAL AND NECK ATOPIC DERMATITIS: A PROSPECTIVE CASE SERIES OF 12 PATIENTS

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Atopic dermatitis (AD) involving the facial and neck regions is often refractory to treatment and exerts a disproportionately severe impact on patients' quality of life. Although dupilumab (IL-4Rα antagonist) and oral JAK inhibitors are established systemic therapies for moderate-to-severe AD, some patients show poor response in facial and neck areas despite improvement elsewhere. Stapokibart, a novel humanized IL-4Rα monoclonal antibody developed in China, has demonstrated robust efficacy in moderate-to-severe AD, with rapid and significant improvements in facial and neck lesions. To evaluate the efficacy of stapokibart in patients with persistent facial and neck AD refractory to dupilumab and/or JAK inhibitors. We prospectively studied 12 patients with moderate-to-severe AD who had persistent facial and neck involvement despite prior treatment with dupilumab and/or JAK inhibitors (upadacitinib or abrocitinib). Patients were switched to stapokibart (600 mg loading dose, followed by 300 mg every 2 weeks). Some patients continued concomitant JAK inhibitor therapy for the first 4 weeks. Facial and neck EASI scores were assessed at baseline, week 8, and week 16. The study included 12 patients (9 males and 3 females; mean age 32 years, range 19-55). The mean duration of prior dupilumab and/or JAK inhibitor treatment was 18 months. All 12 patients showed improvement in facial and neck EASI scores after switching to stapokibart. The mean EASI score decreased from 2.3 at baseline to 1.0 at week 8 and 0.9 at week 16, representing mean percentage improvements of 57% and 61%, respectively. Stapokibart demonstrated meaningful clinical benefit in dupilumab- and/or JAK inhibitor-refractory facial and neck AD. Larger prospective studies are warranted to confirm these findings and the underlying mechanisms.

***BP#2199***

## SHORT-TERM EFFICACY OF ABROCITINIB VS IVARMACITINIB IN MODERATE-TO-SEVERE ATOPIC DERMATITIS: AN ANCHORED MATCHING-ADJUSTED INDIRECT COMPARISON

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Abrocitinib and ivarmacitinib are oral Janus kinase 1–selective inhibitors approved in China for moderate-to-severe atopic dermatitis (M2S AD) in adults and adolescents. Per China labels, abrocitinib may be initiated at 200 mg or 100 mg depending on patient characteristics, while ivarmacitinib must be initiated at 4 mg; dose escalation (to abrocitinib 200 mg or ivarmacitinib 8 mg) is permitted in case of inadequate response. To conduct an anchored matching-adjusted indirect comparison (MAIC) for abrocitinib vs ivarmacitinib 4 mg in primary efficacy endpoints at Week 12. Data from 980 patients from abrocitinib monotherapy trials (NCT02780167, NCT03915496, NCT03349060, and NCT03575871) and 294 from ivarmacitinib monotherapy trials (NCT04162899 and NCT04875169) were included. Standard MAIC methods were used for adjustments based on treatment effect modifiers. Investigator's Global Assessment score of 0/1 (IGA 0/1) and ≥75%/90% improvement from baseline in Eczema Area and Severity Index (EASI-75/90) response at Week 12 with abrocitinib 200 mg or 100 mg vs ivarmacitinib 4 mg was determined. Abrocitinib 200 mg demonstrated favorable EASI-75 at Week 12 with evidence of difference and favorable IGA 0/1 and EASI-90 with weak evidence of difference vs ivarmacitinib 4 mg. Point estimates were favorable to abrocitinib 100 mg for Week 12 IGA 0/1 and EASI-75 vs ivarmacitinib 4 mg with no evidence of difference; no evidence of difference was observed for EASI-90. In this MAIC analysis, both doses of abrocitinib showed favorable efficacy trends vs ivarmacitinib. The availability of 2 abrocitinib starting doses in China allows for individualization of treatment from initiation, reducing the therapeutic delay of step-up dosing in patients who require rapid, robust disease control.

### *BP#2240*
### A REAL-WORLD DATA STUDY ON THE CLINICAL EFFICACY AND SAFETY OF DUPILUMAB IN THE TREATMENT OF MODERATE TO SEVERE ATOPIC DERMATITIS IN CHILDREN AND ADOLESCENTS AGED 5-16 YEARS

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Atopic dermatitis (AD) is a prevalent chronic inflammatory skin disease that severely affects children and adolescents, causing intractable pruritus, skin lesions, and impaired quality of life, as well as sleep and developmental disturbances. However, comprehensive clinical data regarding its efficacy and safety in children aged 5–16 years are still limited. To evaluate the clinical efficacy and safety of dupilumab in the treatment of atopic dermatitis in children and adolescents aged 5-16 years. Thirty-six patients meeting the inclusion criteria were selected and treated with dupilumab for 16 weeks. The following assessment scales were collected: Atopic Dermatitis Score (SCORAD), Eczema Area and Severity Index (EASI), Children's Dermatology Life Quality Index (CDLQI), Numerical Rating Scale (NRS) for pruritus and sleep, Atopic Dermatitis Control Tool (ADCT), and Patient-Oriented Eczema Measure (POEM). Data were statistically analyzed, and adverse events were recorded. At week 16 of treatment, 97.06% (33/34), 70.59% (24/34), and 32.35% (11/34) of patients achieved EASI-50, EASI-75, and EASI-90, respectively. The SCORAD score decreased from 62.35 ± 14.30 to 25.59 ± 10.74 ($P < 0.05$), and the CDLQI score decreased by 73.12% after 16 weeks. At week 16, the pruritus NRS decreased from 7.44 ± 1.65 to 2.82 ± 2.02 ($P < 0.05$), and the ADCT score decreased from 15.35 ± 5.05 to 5.47 ± 3.89 ($P < 0.05$). The POEM score decreased from 19.12 ± 7.28 to 5.56 ± 5.12 ($P < 0.05$). Adverse events: 5.88% (2/34) of patients experienced facial flushing, and 2.94% (1/34) of patients developed conjunctivitis. Dupilumab is effective in reducing pruritus, improving skin lesions, and enhancing the quality of life in children with atopic dermatitis, with good safety.

### *BP#2252*
### DUPILUMAB MODULATES TIGIT EXPRESSION TO SUPPRESS TYPE 2 INFLAMMATORY RESPONSE IN ATOPIC DERMATITIS

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Immune checkpoint molecules play pivotal roles in immune regulation and tolerance and may provide new therapeutic opportunities for atopic dermatitis (AD). T cell immunoglobulin and ITIM domain (TIGIT) is an immune checkpoint molecule whose expression varies across different diseases and has been associated with disease initiation and progression. Elucidating the precise role of TIGIT in AD may provide important insights into the mechanisms that contribute to the effectiveness of dupilumab. Single-cell sequencing analysis was used to characterize the expression landscape of TIGIT. Skin tissue samples were collected from healthy volunteers and patients with AD after dupilumab treatment to validate the findings derived from the single-cell data. Anti-interleukin (IL)-4/IL-13 antibody treatment was administered in mice to mimic the therapeutic effects of dupilumab. The present study revealed that dupilumab treatment significantly reduced TIGIT expression on $CD4^+$ T cells in patients with AD. Blockade of TIGIT in vitro modulated $CD4^+$ T-cell differentiation, shifting the balance from Th2 cells toward Th1 and Th17 phenotypes. Reduced TIGIT expression on $CD4^+$ T cells attenuated differentiation toward Th2 cells, thereby suppressing the type 2 inflammatory response in AD. Mechanistically, anti-IL-4/IL-13 therapy downregulated TIGIT expression and subsequently modulated $CD4^+$ T-cell differentiation through the regulation of histone acetylation. Taken together, our findings revealed that dupilumab could modulate TIGIT expression to suppress type 2 inflammatory response in AD, thereby providing novel insights into the immunological mechanisms underlying the therapeutic effects of dupilumab and identifying TIGIT as a potential therapeutic target in AD.

### *BP#2318*
### SHORT-TERM EFFECTIVENESS OF JAK INHIBITORS VERSUS DUPILUMAB IN ERYTHRODERMIC ATOPIC DERMATITIS: A REAL-WORLD RETROSPECTIVE COHORT STUDY

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Erythrodermic atopic dermatitis (EAD) is a severe and difficult-to-treat subtype of atopic dermatitis. Although dupilumab and Janus kinase (JAK) inhibitors are established systemic treatments for moderate-to-severe atopic dermatitis, comparative evidence in patients with EAD remains limited. To compare the short-term real-world effectiveness of JAK inhibitors and dupilumab in adults with EAD. This single-centre retrospective observational cohort included patients treated with dupilumab or a JAK inhibitor, comprising abrocitinib and upadacitinib. Clinical outcomes included the Scoring Atopic Dermatitis index (SCORAD), Eczema Area and Severity Index (EASI), affected body surface area (BSA), Investigator's Global Assessment

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(IGA), and Peak Pruritus Numerical Rating Scale (PP-NRS), assessed at baseline and weeks 2, 4, 8, and 12. Forty-two patients had at least one recorded clinical assessment, including 21 treated with dupilumab and 21 treated with JAK inhibitors (abrocitinib, n=15; upadacitinib, n=6). Available baseline means in the dupilumab and JAK inhibitor groups were 68.2 and 66.6 for SCORAD, 30.2 and 33.1 for EASI, and 91.6% and 93.3% for BSA, respectively. By week 2, the corresponding means decreased to 41.2 and 34.1 for SCORAD, 17.3 and 13.2 for EASI, and 45.5% and 31.7% for BSA. At week 4, EASI50 was achieved by 46.2% of dupilumab-treated patients and 60.0% of JAK inhibitor-treated patients, whereas EASI75 was achieved by 30.8% and 30.0%, respectively. SCORAD50 response rates were 46.2% and 60.0%, respectively. Improvements were generally maintained through week 12. Both dupilumab and JAK inhibitors were associated with marked short-term improvements in clinical severity and pruritus in patients with EAD. JAK inhibition showed numerically greater early reductions in several disease-severity measures.

***BP#2336***

## DIFFERENCES IN BASELINE CHARACTERISTICS AND OUTCOMES OF BIOLOGIC THERAPY AMONG MODERATE-TO-SEVERE ATOPIC DERMATITIS PATIENTS BASED ON SINGLE, DUAL, OR MULTIPLE DIAGNOSTIC CRITERIA

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The heterogeneous clinical manifestations of atopic dermatitis and the lack of clear biological markers present challenges in clinical diagnosis and treatment. This study aims to provide a basis for the precise diagnosis and treatment of moderate-to-severe AD patients and conducting a multifactorial analysis of treatment outcomes following biologic intervention in patients meeting different diagnostic criteria for AD. Patients were divided into three groups based on the number of diagnostic criteria met: the single criteria group (n=32) comprised patients meeting only one AD diagnostic criterion, the dual-criteria group (n=25) included those meeting any two criteria, and the multi-criteria group (n=57) consisted of patients meeting all three criteria. Baseline assessments and evaluations at 4,8,12,16,20,and 24 weeks post-biologic treatment included changes in IGA, ADCT, EASI, SCORAD, DLQI, pruritus NRS, and sleep NRS scores. Additionally, serum IgE levels, eosinophil counts, and serum Th1/Th2/Th17 cytokine levels in some patients were measured at baseline. A total of 114 patients with AD were enrolled, with 113 completing the 24week follow up of biologic treatment and one withdrawing due to disease exacerbation. Across all three groups, scores for IGA, ADCT, EASI, SCORAD, DLQI, pruritus NRS, and sleep NRS demonstrated a consistent downward trend at each time point post-treatment (4,8,12,16,20,and24weeks). Patients fulfilling all three diagnostic criteria presented with the largest extent and severity of skin lesions and responded well to biologic treatment. Those meeting any two diagnostic criteria had milder conditions and showed the most favorable response to biologic therapy. In contrast, patients meeting only one diagnostic criterion had the mildest conditions but demonstrated the poorest response to biologic treatment.

***BP#2361***

## EFFICACY AND SAFETY OF LEBRIKIZUMAB EVERY 4 OR 8 WEEKS MAINTENANCE DOSING THROUGH WEEK 52 IN INDUCTION RESPONDERS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: RESULTS FROM ADVANCE-ASIA STUDY

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ADvance-Asia (NCT06280716) was a 52-week, randomized, double-blind, phase 3 study of Lebrikizumab (LEB) in patients with moderate-to-severe AD in China and South Korea. To report the efficacy and safety of LEB maintenance dosing subcutaneous 250 mg Q4W or Q8W through Week 52. After 16 weeks of treatment (with/without TCS), LEB 250 mg Q2W responders, who achieved EASI-75 and/or IGA (0,1) response without using rescue medication, were re-randomized 1:1 to receive LEB Q4W or Q8W for a 36-week maintenance period. Endpoints included EASI-75, IGA (0,1) with ≥ 2-point improvement, EASI-90, patient-reported outcomes, and safety. All maintenance period analyses were descriptive, with no formal statistical comparisons between arms. MI or NRI were used to handle missing data. At Week 16, disease characteristics were balanced between Q4W (n=56) and Q8W (n=55) arms. In Q4W and Q8W arms at Week 52, 81.8% and 88.1% of patients maintained EASI-75; 72.1% and 85.5% maintained an IGA (0,1) with ≥ 2-point improvement; 88.2% and 91.7% maintained EASI-90; 72.8% and 73.7% maintained Itch NRS ≥ 4-point improvement; 82.4% and 78.1% maintained DLQI score ≥ 4-point improvement, respectively. Across treatment arms, 4 (3.6%) patients used rescue medication during maintenance period (3 [2.7%]: systemic therapy; 1 [0.9%]: high-potency TCS). TEAEs occurred in 62.5% and 72.7% of Q4W and Q8W arms, respectively. Two SAEs were reported in the Q8W arm. No death or treatment discontinuation due to AEs was reported. Conjunctivitis was reported in 5.4% and 1.8% of Q4W and Q8W arms, respectively. Herpes infection was observed in one patient in the Q8W arm. No parasitic infections were reported. LEB Q4W and Q8W maintained consistent efficacy and safety through Week 52 in patients with moderate-to-severe AD with Q8W dose as a new and effective alternative for treatment maintenance.

***BP#2370***

## SAFETY AND EFFICACY OF BBT001, A NOVEL BISPECIFIC IL-4RA/IL-31 ANTIBODY: PROOF-OF-CONCEPT RESULTS FROM THE BIOLOGIC-NAÏVE PORTION OF A DOUBLE-BLIND, PLACEBO-CONTROLLED PHASE I STUDY IN PATIENTS WITH ATOPIC DERMATITIS

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IL-4, IL-13, and IL-31 play critical yet distinct roles in AD. BBT001 is a novel tetravalent "2+2" bispecific antibody engineered to simultaneously target IL-4Rα and IL-31 and features

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Fc modifications for half-life extension. NCT06808477 is an ongoing randomized, double-blind, placebo-controlled, phase 1 study with the objective of evaluating safety, tolerability, PK, PD, immunogenicity and clinical activity of BBT001 in healthy volunteers and adults with moderate-severe AD in the USA and New Zealand. In the biologic-naïve cohort, moderate-severe AD patients without biologic/JAKi experience were randomized 2:1 to BBT001 450mg IV infusion or placebo (PBO) every 2 weeks for 3 doses. Primary endpoints are safety / tolerability. Exploratory endpoints include % change from baseline in EASI, proportion achieving EASI-50 / EASI-75, % change from baseline in PP-NRS, and type 2 inflammatory biomarkers. As of the June 8, 2026 cutoff, 17 patients were enrolled with 12 patients randomized to BBT001 and 5 patients to PBO. At baseline, mean EASI was 34.64 / 29.06 and mean PP-NRS was 7.34 / 6.33 for the BBT001 / PBO groups. BBT001 was well-tolerated with no events of conjunctivitis. Statistically significant reductions in EASI vs PBO were observed at week 1 (-30.3% vs +5.3%, p=0.0012) and through week 12 (-76.3% vs +17.7%, p<0.0001). PBO-adjusted EASI-50 / EASI-75 at Week 6 reached 82% / 64%. Reductions in PP-NRS vs PBO were observed on Day 1 (-27.5% vs -3.4%) and through week 12 (-46.7% vs -5.5%). Rapid and sustained reductions in TARC/IgE were also observed. The half-life of BBT001 was 33.0 days with a low incidence of treatment-emergent ADAs (2.1%). Rapid and clinically meaningful improvements in skin lesions and itch were observed. Together with the well-tolerated safety profile and extended half-life, the compelling results support advancement to a Phase 2b study.

## BP9. Topical Treatment and Phototherapy

***BP#2052***

### THE EFFICACY AND SAFETY OF NARROWBAND ULTRAVIOLET B IN PATIENTS WITH ATOPIC ECZEMA: RESULTS OF THE UPDATE TRIAL (UVB PHOTOTHERAPY IN DERMATOLOGY FOR ATOPIC ECZEMA)

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Narrowband ultraviolet B (NB-UVB) is a commonly prescribed phototherapy for atopic eczema (AE), but a Cochrane review found the evidence to be of low certainty. More high-quality evidence on its efficacy is needed. To evaluate the efficacy and safety of NB-UVB combined with optimal topical therapy (OTT) versus OTT alone, in patients with AE. In this prospective randomized open blinded end-point (PROBE) trial, 316 patients with mild-to-severe AE were randomized 1:1 into the NB-UVB+OTT or OTT group between February 2023 and January 2025. NB-UVB was applied thrice weekly for 8 to 16 weeks, in-clinic or at home. OTT was applied for at least 3 months. Visits took place at baseline and after 1, 3, 6, 9 and 12 months. Patient-reported outcomes were assessed through digital surveys. The primary outcome was the proportion of patients achieving a 50% decrease of eczema severity (EASI50) at 3 months. The intention-to-treat population included 289 patients (148 NB-UVB+OTT; 141 OTT). At 3 months, EASI50 was achieved by 107 patients from the NB-UVB+OTT group (75.4%) and 79 patients from the OTT group (57.2%) (p=0.002). EASI scores were lower in the NB-UVB+OTT group at 3, 6, and 9 months. Patient-reported severity was similar at all timepoints (p=0.966). At 3 months, NB-UVB patients reported better quality of life, with 68.4% achieving a DLQI score of 5 or lower compared to 56.1% in the OTT group (p=0.040), and better disease control, with a RECAP score of 7.7 vs 9.7 respectively (p=0.006). Treatment satisfaction was higher in the NB-UVB+OTT group at 3 and 6 months. Topical therapy use, time to initiating systemic therapy, and non-phototherapy-related adverse events were similar between groups. NB-UVB combined with OTT was safe and more effective than OTT monotherapy, reducing eczema severity for up to 6 months after treatment.

***BP#2116***

### THE EFFICACY AND SAFETY ANALYSIS OF TOPICAL RUXOLITINIB 1.5% CREAM ON DIFFERENT BODY SITES IN SINGAPORE ATOPIC DERMATITIS PATIENTS

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Topical 1.5% ruxolitinib (RUX) cream is an FDA-approved JAK 1/2 inhibitor for mild-to-moderate atopic dermatitis (AD) in patients 2 years or older. This prospective study evaluated its efficacy and safety for chronic hand eczema (CHE), head and neck dermatitis (HND),and prurigo nodularis (PN) in Asian AD patients at a Singapore tertiary centre. 113 participants (median age 37, 67% male, median disease duration 23.5 years) were prescribed RUX cream for CHE (n=26), HND (n=62), or PN (n=26). Endpoints were recorded at baseline and median 12-week follow-up: IGA 0/1 and HECSI-50/75/90 (CHE); rEASI-50/75/90 (HND); IGA-PN Stage/Activity 0/1 (PN). Pruritus was assessed by PPNRS across all arms. 28 patients received RUX as monotherapy; 82 received concurrent systemic therapy. For CHE (n=26): HECSI-50 57.7%, HECSI-75 42.3%, HECSI-90 12%, IGA 0/1 11.5%. For HND (n=62): rEASI-50 61.3%, rEASI-75 37.1%, rEASI-90 16.1%. For PN (n=26): IGA-PN Activity 0/1 46%, IGA-PN Stage 0/1 30.8%. Among patients with baseline PPNRS of 4 or more, PPNRS of 4 or lower was achieved in 41.2% (CHE), 42.3% (HND), and 52.4% (PN); a 4-point or more PPNRS reduction was achieved in 29.4% (CHE), 24.4% (HND), and 42.9% (PN). Adverse events in 21 patients (acne, erythema, stinging, upper respiratory infection); 3 skin infections were

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treatment-related (furunculosis, impetigo, herpes), and 3 patients discontinued RUX. Topical RUX 1.5% demonstrated significant efficacy across three off-label AD-related indications in Asian patients, as monotherapy and combination therapy, with an acceptable safety profile.

***BP#2237***

### EFFECTS OF A REPAIR CREAM CONTAINING ARTEMISIA ANNUA EXTRACT AND RICE DISTILLER'S GRAIN EXTRACT ON SKIN LESIONS AND SKIN BARRIER FUNCTION IN INFANTS AGED 29 DAYS TO 3 YEARS WITH MILD-TO-MODERATE ATOPIC DERMATITIS

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Artemisia annua extract contains active constituents such as artemisinin, which exert multiple effects including anti-inflammatory, antibacterial and immunomodulatory activities. Rice distiller's grain extract is rich in various nutrients and exhibits moisturizing, antioxidant and skin-soothing properties. Incorporation of these two distinctive ingredients into skincare products for AD is expected to provide safer and more effective care regimens for pediatric patients. To evaluate the efficacy of a repair cream containing artemisia annua extract and rice distiller's grain extract for Infants in improving skin lesions and its influence on skin barrier function in infants aged 29 days to 3 years suffering from mild-to-moderate AD. A single-center, single-arm self-controlled clinical trial was conducted. A total of 24 infants aged 29 days to 3 years who met the AADC diagnostic criteria for mild-to-moderate AD were enrolled. All subjects received study product for 4 weeks. Follow-up assessments and measurements of skin barrier parameters were performed at baseline, Week 2 and Week 4. In addition, age-matched healthy infants aged 29 days to 3 years were recruited as controls, with only baseline skin barrier parameters detected. After 2 weeks and 4 weeks of treatment, the EASI scores of subjects decreased significantly from the baseline value of 3.02±1.54 to 1.85±2.13 ($P<0.01$) and 1.92±2.18 ($P<0.01$), respectively.The TEWL significantly declined ($P<0.01$).the IDQOL decreased from 7.88±4.50 to 5.42±4.22 ($P<0.01$); the DFI decreased from 9.17±5.22 to 5.58±4.23 ($P<0.01$).No product-related adverse reactions were observed. The repair cream containing artemisia annua extract and rice distiller's grain extract for Infants exerts significant therapeutic effects on skin lesions in infants aged 29 days to 3 years with mild-to-moderate AD.

***BP#2379***

### TOPICAL CORTICOSTEROID MAINTENANCE FOR ATOPIC DERMATITIS: AN ISAD* SURVEY (INTERNATIONAL SOCIETY OF ATOPIC DERMATITIS)

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Topical corticosteroids (TCS) are central to atopic dermatitis (AD) management, but practical guidance on quantities used for maintenance is limited. We aimed to describe monthly TCS quantities recommended by clinicians across four age groups and to characterize maintenance schedules, potency selection, prescribing and follow-up practices, safety communication and perceived gaps in guidance; principal patterns were also examined in a second cohort. A 21-item online questionnaire was distributed to 160 International Society of Atopic Dermatitis (ISAD) members. All 59 submissions were included. A separate cohort of 65 ISAD newsletter registrants and Rajka Symposium participants completed the same survey and was analysed descriptively for replication; datasets were not pooled. The primary-cohort response rate was 37% (59/160). Twice-weekly proactive treatment was selected by 40/58 respondents (69.0%). Recommended quantities increased with age but remained widely dispersed: 57.6% recommended <10 g/month for infants; 10–20 g/month was most frequent for children (32.2%); adolescent responses were almost equally distributed between <15, 15–30 and 30–60 g/month (25.4%, 25.4% and 23.7%); and 20–40 g/month was most frequent in adults (32.2%), while 35.6% recommended ≥40 g/month. Low-potency TCS predominated for infants (55.9%) and children (54.2%), whereas moderate-potency TCS predominated for adolescents (67.8%) and adults (76.3%). Only 10.2% considered guidelines quantitatively clear. The second cohort reproduced the main frequency and potency patterns. Specialist practices vary substantially, particularly regarding monthly quantities. These findings support consensus development and prospective studies but should not be interpreted as quantitative dosing recommendations.

## BP10. Integrative Medicine & Traditional Chinese Medicine (TCM)

***BP#2197***

### EFFICACY OF ACUPUNCTURE COMBINED WITH BLOODLETTING THERAPY FOR FACIAL ATOPIC DERMATITIS: A CASE SERIES

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Atopic dermatitis (AD) is a chronic, relapsing inflammatory skin disorder characterized by intractable pruritus and eczematous lesions. Facial involvement is particularly distressing due to its high visibility and impact on quality of life. Conventional treatments including antihistamines and topical corticosteroids often yield unsatisfactory results or carry long-term safety concerns. Acupuncture and bloodletting therapy, rooted in Traditional Chinese Medicine (TCM), have been increasingly explored as complementary approaches for dermatological conditions. However, evidence specifically addressing facial AD remains limited. To evaluate the clinical efficacy of acupuncture combined with bloodletting therapy in the treatment of facial atopic dermatitis.

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Ten patients with facial atopic dermatitis received oral Chinese herbal medicine combined with acupuncture and bloodletting therapy.Four of them reported poor control of their skin lesions with biologics or JAK inhibitors, presenting with prominent facial erythema and pruritus. All ten patients underwent acupuncture at acupoints on the limbs and face, along with bloodletting at either the ear tips or the Dazhui acupoint (GV14), once weekly. After 4 weeks, the SCORAD index and BSA score were evaluated. After more than four weeks of treatment, the patients' facial erythema almost resolved and pruritus ceased with no adverse events reported. These cases demonstrated that acupuncture combined with bloodletting therapy may represent an effective and safe therapeutic option for facial atopic dermatitis, particularly in patients who have failed to respond to conventional treatments. The immunomodulatory effects – potentially involving regulation of T cell subsets and anti-inflammatory pathways – warrant further investigation through rigorous controlled studies.

***BP#2378***

### SHARED INFLAMMATORY-METABOLIC MICROENVIRONMENT LINKS ATOPIC DERMATITIS AND TYPE 2 DIABETES MELLITUS: AN INTEGRATIVE POPULATION AND MOLECULAR STUDY

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by barrier dysfunction and immune dysregulation. Increasing evidence indicates an association between AD and type 2 diabetes mellitus (T2DM), although their shared biological basis remains unclear. The Traditional Chinese Medicine concept of "same treatment for different diseases" provides a perspective for understanding common pathological features linking metabolic imbalance and chronic inflammation. To investigate the relationship between metabolic abnormality burden and AD-related inflammatory skin phenotypes and explore shared tissue microenvironment characteristics. NHANES 1999–2004 data were analyzed to evaluate the association between metabolic abnormality burden and AD-related phenotypes. Publicly available AD skin transcriptomic datasets, including single-cell RNA sequencing and spatial transcriptomics, were integrated to characterize cellular composition and tissue microenvironment alterations. Among 4,027 adults from NHANES, higher metabolic abnormality load showed an overall positive association trend with AD-related phenotypes. Integrated transcriptomic analyses revealed coordinated remodeling of keratinocyte, immune, vascular and stromal compartments in AD lesions, suggesting a shared inflammatory-metabolic tissue environment. AD and T2DM may share overlapping inflammatory-metabolic characteristics at systemic and tissue levels. The damp-heat collateral obstruction pattern provides a potential integrative perspective for interpreting AD and metabolic comorbidity and supports further investigation of phenotype-based stratification.

## BP11. Precision Dermatology, AI, and New Technologies

***BP#2138***

### CORD BLOOD IMMUNE BIOMARKERS ENABLE BIRTH-TIME PREDICTION OF ATOPIC DERMATITIS: DEVELOPMENT AND EXTERNAL VALIDATION OF A MACHINE-LEARNING MODEL

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Atopic dermatitis (AD) commonly begins in infancy, but reliable prediction at birth remains challenging. To develop and externally validate a cord blood biomarker–based model for predicting infant AD and to determine whether biomarker profiling improves prediction beyond routinely collected clinical variables. Participants were drawn from a prospective birth cohort and followed longitudinally for incident AD diagnosed according to the Hanifin–Rajka criteria. The development cohort were used for model training and an external cohort were used for validation. The panel of biomarkers included immune, itch, chemotaxis, and extracellular matrix–related biomarkers and were measured using Luminex and ELISA. Five machine-learning algorithms were developed using clinical variables alone (MS1) or clinical variables combined with biomarkers (MS2). Models were validated with an external cohort. Model performance was assessed using discrimination, calibration, reclassification, and decision-curve analyses. Minimum redundancy–maximum relevance feature selection was used to derive a parsimonious model. Of 38 biomarkers tested in our panel, 23 were reliably detectable in cord blood and included in model development. The clinical-only random forest model showed limited discrimination, with an area under the receiver operating characteristic curve (AUROC) of 0.560. In contrast, the biomarker-enhanced random forest model achieved an AUROC of 0.869, an F1 score of 0.747, and an accuracy of 0.785. Brier score reduced from 0.259 to 0.163. A reduced 13-feature model retained good discrimination, with an AUROC of 0.846. In the independent validation cohort, the full biomarker-enhanced model achieved an AUROC of 0.786. Cord blood immune biomarkers substantially improve prediction of infant AD beyond routine clinical variables.

***BP#2145***

### INTERNATIONAL SURVEY OF HEALTHCARE PROFESSIONALS ON ATOPIC DERMATITIS MANAGEMENT: GAPS IN PATIENT SUPPORT AND OPPORTUNITIES FOR DIGITAL FOLLOW-UP

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Long-term management of atopic dermatitis (AD) depends on treatment adherence and patient self-management, yet support between consultations remains limited. Understanding current practice and unmet needs may help improve long-term care. To evaluate current practices, barriers to treatment adherence, unmet needs between consultations, and healthcare professionals' attitudes toward digital patient support in AD. An international online survey was conducted between October 2025 and January 2026 among 53 healthcare professionals from 10 countries across Europe, the Americas and Africa. The questionnaire explored patient monitoring, communication, adherence assessment, barriers to treatment, desired resources and attitudes toward digital health tools. Data were analysed descriptively. Although 93% of respondents routinely assessed treatment adherence and

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92% reported adherence problems, only 21% used digital tools to collect patient information. Daily-life constraints (60%), lack of motivation (47%), fear of treatment adverse effects (42%) and poor treatment understanding (42%) were the main barriers. Therapeutic patient education was the most frequently recommended resource (92%), while 68% supported a personalised follow-up application. Overall, 98% favoured a patient application to monitor disease status between consultations, regardless of country or practice setting. This international survey highlights a gap between current practice and clinicians' expectations for patient support in AD. The broad support for therapeutic education and digital follow-up suggests that integrated digital tools could strengthen self-management and complement routine clinical care.

***BP#2299***

### NON-INVASIVE PREDICTION OF DUPILUMAB RESPONSE IN FACIAL ATOPIC DERMATITIS USING EARLY POST-TREATMENT REFLECTANCE CONFOCAL MICROSCOPY FEATURES

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Background: Non-invasive prediction of the efficacy of dupilumab on facial lesions in patients with atopic dermatitis (AD) was unresolved. Objective: To explore reflectance confocal microscopy (RCM), a non-invasive method, for predicting dupilumab efficacy in treating facial AD lesions and to achieve effective prediction via deep learning. Methods: 52 AD patients received dupilumab treatment between May 2023 and June 2025 were enrolled. Patients were categorized into 'responder' and 'non-responder' groups based on whether achieved 75% improvement from baselinein Eczema Area and Severity Index at week 16. RCM was utilized to evaluate facial lesions. Deep learning was employed to construct a prediction model for identifyingintergroup differences. Results: Dermal papillary dilation (AUC = 0.83, P < 0.001) and tortuous papillary capillary dilation (AUC = 0.81, P < 0.001) at week 4 correlated significantly with therapeutic non-response. The ResNet101-based deep learning model, trained on patients' RCM images of week 4 post-treatment scans, had a final test AUC of 0.796, with heatmaps illustrating its decision-making basis. Conclusion: Early post-treatment RCM features can effectively predict the efficacy of dupilumab in facial AD lesions combined with deep learning.

***BP#2312***

### A FEW-SHOT PROTOTYPE NETWORK ADPRONET FOR OBJECTIVE SEVERITY GRADING OF ERYTHEMA IN PEDIATRIC ATOPIC DERMATITIS

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Clinical assessment of erythema severity in pediatric atopic dermatitis (AD) heavily relies on physicians' subjective judgment, resulting in notable inter-rater variability. Furthermore, the shortage of high-quality labeled lesion images of pediatric AD hinders the clinical translation of artificial intelligence-assisted evaluation tools To develop a few-shot prototype network named ADProNet that enables objective and standardized severity stratification of pediatric AD erythema using limited labeled lesion images. The ADProNet classification model was constructed based on the EasyFSL few-shot learning framework, with a pre-trained ResNet18 network serving as the feature extraction backbone. Pediatric skin lesion images were collected from the Capital Center For Children's Health, Capital Medical University between July and September 2025. A dataset consisting of 140 AD erythema images across three severity grades was established for model training and validation. Under the 1-shot and 5-shot few-shot experimental settings, the ADProNet model achieved superior classification performance compared with conventional deep learning models. For the 1-shot task, the model reached an accuracy of 80.31% and an F1-score of 80.49%. In the 5-shot task, the classification accuracy and F1-score were 88.16% and 88.17%, respectively. ADProNet maintains stable grading accuracy even with limited labeled images. It provides an auxiliary tool for standardized, objective evaluation of erythema in pediatric atopic dermatitis, effectively mitigating subjective assessment bias and improving the efficiency of clinical diagnosis for children with AD.

## BP12. Itch, Prurigo, and Neuro-dermatology

***BP#2121***

### NOCTURNAL SCRATCHING, SLEEP AND BRAIN NETWORK CONNECTIVITY IN ATOPIC DERMATITIS

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Sleep disturbances are common in atopic dermatitis (AD) due to nocturnal itch and scratching. Chronic itch could also result in central neural changes, altering how the brain processes itch signals over time. A likely key region is the insula which processes salient events, acting as a bridge to integrate itch sensation with motor planning and execution of the downstream scratching behaviour. Here, we examined how nocturnal scratching affects sleep and insula functional connectivity (FC) in adolescents. Home-based polysomnography was conducted in 43 AD patients (18 males; Age: 12–17; EASI: 0.8–56.8) and 26 healthy controls (12 males; Age: 12–18). A subset also had simultaneous actigraphy data, enabling quantification of scratch intensity and

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precise mapping of scratch events onto sleep hypnograms. The effect of scratch on transition probabilities between sleep stages and wake was tested with Bayesian multinomial regression model. Resting-state (RS) fMRI data were also acquired using a 3 T GE SIGNA Premier Scanner. Scratch intensity was correlated with FC of insula subregions to the whole brain. Scratch increased transition probability to wake from all sleep stages in both groups. In AD, scratch events specifically disrupted REM sleep, with moderate-strong evidence of increased REM-wake and reduced REM-REM transition probabilities. Scratch intensity was associated with RS-FC between right anterior insula and sensorimotor as well as cognitive control areas in the brain. Our findings show that scratching disrupts sleep and is associated with RS-FC changes in adolescents, detectable even in the absence of active scratching. Given the importance of sleep for brain maturation throughout childhood and adolescence, persistent nocturnal scratching may have compounding effects on brain network circuitry and cognitive functions in AD patients.

***BP#2135***

## CANDIDA ALBICANS-INDUCED ITCH IS LINKED TO A TYPE 2 MAST CELL - NEURO-IMMUNE SIGNALING

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Itch accompanies various dermatoses negatively affecting patients' quality of life. Candida albicans is a harmless commensal that drives skin inflammation via classical TH17 response upon epithelial barrier dysfunction. However, the precise neuro-immune mechanisms underlying Candida albicans-driven itch are yet to be studied. In this study, we developed a Candida albicans-induced itch mouse model to investigate interactions between immune cells and peripheral sensory neurons underlying itch sensation. We developed Candida albicans-induced itch mouse model and assessed itch behavior with conduction of two-photon microscopy and VSDi (voltage-sensitive dye imaging) analysis, scRNA-seq of skin, DRG (dorsal root ganglion) and lymph nodes along with whole-mount imaging, flow cytometry and IF staining of skin, ELISA for detection of Candida albicans-specific IgEs. Itch behavioral phenotype ($p<0.0001$), nerve fiber thickness and density ($p<0.01$) along with enhanced responsiveness of DRG cells were increased on day 10 under daily epicutaneous application of Candida albicans (105 CFU/mL). Expression of type 2 receptors' genes was upregulated in itch-specific sensory neurons (NP1, NP2, NP3) ($p<0.001$) and mast cell expansion with enhanced type 2 cytokines production were confirmed in skin in the experimental group. Moreover, whole-mount imaging showed close anatomical association between nerve fibers and mast cells in skin. Additionally, Candida albicans-specific IgEs were increased on day 10 ($p<0.001$) in Candida albicans group accompanied by upregulation of FcεRI in mast cells and heavy chain of IgE and IL-4 in lymph nodes. Taken together, this study shows the upregulation of type 2 mast cell - neuro-immune signaling in Candida albicans-induced itch mouse model.

***BP#2170***

## BUTYRATE ALLEVIATES ITCH AND INFLAMMATION IN ATOPIC DERMATITIS BY INHIBITING TRPV1 CHANNELS AND NPPB RELEASE

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Atopic dermatitis (AD), a highly prevalent chronic pruritic skin disorder, is increasingly associated with microbiota dysbiosis. Although microbial metabolites have been implicated in AD pathogenesis, their specific role in modulating itch remains unclear. This study aims to elucidate the effect of butyrate, a key microbiota-derived short-chain fatty acid, on AD-related itch and neuroimmune dysregulation. By employing acute and MC903 or acetone-ether-water induced chronic pruritus mice models, we investigated the impact of butyrate on itch behavior and skin inflammation. Further mechanistic insights were obtained through RNA sequencing, electrophysiological recordings, calcium imaging, and enzyme-linked immunosorbent assays in primary mouse dorsal root ganglion (DRG) neurons. Butyrate administration significantly alleviated spontaneous scratching in the MC903-induced AD mice, independently of the GPR41 receptor signaling and histone deacetylases inhibition. Transcriptome profiling revealed significant enrichment of pathways related to neuron ion channel activity in butyrate-treated DRG neurons. Mechanistically, butyrate mitigated itch and inflammation in MC903-induced AD model by suppressing TRPV1 channel activity and reducing the release of the neuropeptide natriuretic polypeptide B (NPPB). This study demonstrated that butyrate could ameliorate itch and inflammation in AD, and targeting microbial metabolites might represent a promising therapeutic strategy for the management of AD.

***BP#2291***

## RESTING-STATE NEURAL OSCILLATORY SIGNATURES OF ATOPIC DERMATITIS: ASSOCIATIONS WITH ITCH, DISEASE SEVERITY, NEGATIVE EMOTION, AND IMPULSIVITY

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Atopic dermatitis (AD) is a multidimensional skin disease involving lesions, itch, emotional, sleep, and cognitive symptoms. Despite reported neural oscillation abnormalities in AD, the underlying connectivity patterns remain unclear. To characterize neural oscillatory connectivity in patients with AD and investigate its associations with multidimensional clinical features using high-density electroencephalography (HD-EEG). We recruited 97 AD patients and 80 matched healthy controls (HCs). Clinical assessments included disease severity (EASI), itch (WI-NRS), anxiety (GAD-7), depression (PHQ-9), sleep (PSQI), stress (CPSS), and impulsivity (BIS). Eyes-closed resting-state HD-EEG data was recorded for 5 minutes and analyzed for source-level functional connectivity (FC) among 113 cortical and subcortical regions. Compared with HCs, AD patients exhibited significantly greater psychological burden (all $P < 0.05$). AD patients exhibited significant FC alterations across all frequency bands except beta, dominated by high-gamma hyperconnectivity. Clinical dimensions were associated with FC across multiple frequency bands, while each dimension showed a distinct frequency-preferential pattern. Specifically, itch intensity, disease severity, and non-planning impulsivity were positively associated with theta, beta, and low-gamma FC, respectively; negative emotion and disease

duration showed negative associations with delta and alpha FC, respectively. Low-frequency (delta and theta) FC consistently showed broad involvement across all clinical dimensions. AD exhibits a dual oscillatory organization, characterized by a shared low-frequency connectivity component across clinical dimensions and frequency-preferential oscillatory patterns for individual dimensions.

## BP13. Multispecialty & Holistic Approach (Nursing, Psychology, Nutrition)

***BP#2023***

### STIGMA AND CULTURAL MISCONCEPTIONS SURROUNDING ATOPIC DERMATITIS IN SOUTHWESTERN KENYA: A MULTISPECIALTY APPROACH TO COMMUNITY HEALTH, PSYCHOLOGICAL WELL-BEING, NUTRITIONAL CARE, AND SOCIAL INCLUSION

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well-being. In Kenya's underserved rural and peri-urban settings, cultural misconceptions label eczema as contagious, a curse, hereditary punishment or bad omen, driving stigma, delayed care and social exclusion. Vulnerable adults (caregivers, low-income households and those with low health literacy) are disproportionately affected. Evidence on social determinants remains limited. To assess prevalence of stigma and cultural misconceptions surrounding atopic dermatitis among vulnerable adult populations in Kenya and examine implications for community health, psychological well-being, nutritional care and social inclusion. A cross-sectional mixed-methods study was conducted among 1,248 participants in underserved Kenyan communities. Data were collected using questionnaires, focus group discussions and key informant interviews assessing knowledge, attitudes, health-seeking behavior, dietary practices and psychosocial experiences. Quantitative data were analyzed descriptively while qualitative data underwent thematic analysis. 61% believed atopic dermatitis is contagious, 47% associated it with curses. 58% avoided contact with affected individuals. Among affected households, 42% delayed seeking care due to stigma and 36% reported anxiety, low self-esteem or social withdrawal. Nutritional misconceptions affected 54%, leading to unnecessary dietary restrictions. Health education exposure improved awareness and reduced stigma. Cultural misconceptions and stigma significantly hinder effective management of atopic dermatitis among vulnerable adults in Kenya. Multisectoral interventions integrating nursing, psychology, nutrition and community education are essential to improve outcomes, reduce discrimination and enhance social inclusion.

***BP#2094***

### DISEASE CONTROL AND ITS BASELINE PREDICTORS AT FOLLOW-UP IN ADULT ATOPIC DERMATITIS IN BENIN: HIGH ATTRITION AND THE WEIGHT OF DEPRESSION

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Real-world disease control and its determinants are undocumented in sub-Saharan adult atopic dermatitis (AD), where follow-up and treatment continuity are challenging. To assess disease control at follow-up using the Atopic Dermatitis Control Tool (ADCT) and to identify baseline predictors of poor control. Prospective follow-up of a 212-patient adult AD cohort (January 2024 - June 2025) in Cotonou, Benin. Control was defined as ADCT <7. Baseline predictors of uncontrolled disease (ADCT ≥7) were analysed by Firth-penalized logistic regression, and ADCT score by linear regression. Only 85/212 patients (40.1%) attended at least one follow-up visit (mean 1.6). At first review, 85.8% had improved or cleared; where evolution was unfavourable, causes were mostly patient-related (poor application or early discontinuation of treatment). Among attenders, disease was controlled in 80.0% (95%CI 69.9-87.9; mean ADCT 4.9±4.4). Baseline pathological depression independently predicted uncontrolled disease (adjusted odds ratio 4.81; 95%CI 1.45-17.61), and higher baseline pruritus predicted a higher ADCT score (β 0.53 per point; 0.05-1.00); baseline severity was not predictive. Most adult AD patients seen at follow-up achieved control, but attrition was high (59.9%) and this rate applies only to returnees. Baseline depression strongly predicted poor control, underscoring the value of integrating mental-health assessment and improving retention to achieve real-world control on pigmented skin.

## BP14. Other

***BP#2041***

### REAL-WORLD PATIENT-REPORTED PAIN IN ATOPIC DERMATITIS: INSIGHTS FROM THE TREAT NL/BE REGISTRY

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In addition to the hallmark symptoms of atopic dermatitis (AD), pain may represent a clinically relevant symptom, but remains insufficiently characterized. To evaluate the extent of pain, its associations with physician- and patient-reported outcomes, and longitudinal course in patients with AD receiving systemic therapy. An observational cohort study was conducted using data from the TREAT NL/BE registry. Adults and children with moderate-to-severe AD receiving systemic therapy were included. Pain was assessed using the Visual Analogue Scale (VAS) and EuroQol-5 Dimensions (EQ-5D) pain/discomfort item. Associations between pain and disease severity, skin damage, pruritus, sleep loss, and dermatology specific quality of life (DLQI) were evaluated, together with longitudinal changes in pain. Of the 691 included patients, 609/684 (89%) reported pain at baseline. Median VAS pain was 8/100 (IQR 3-38), with a mean of 22.13 (SD +/-26.7). Pain correlated strongly with sleep loss (rho=0.68), moderately with patient-reported skin damage (rho=0.46) and weakly with impaired DLQI (rho=0.35), pruritus (rho=0.34), patient global assessment (rho=0.24), physician-reported skin damage (rho=0.15) and disease severity (rho=0.14)(all P<0.001). Pain scores decreased during treatment, following a trajectory similar to pruritus. Although pain scores were generally low, pain was highly prevalent and varied substantially between patients. Pain was more strongly associated with patient-reported skin damage than with physician-reported disease severity. However, the parallel trajectory of pain and pruritus suggests that pain responds to treatment and contributes to the overall impact of AD.



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***BP#2087***

## SEX-BASED DISCORDANCE BETWEEN OBJECTIVE SEVERITY AND PATIENT-REPORTED BURDEN IN ATOPIC DERMATITIS

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While the role of sex in atopic dermatitis is increasingly recognized, gender-related disparities in clinical severity and in the functional burden experienced by patients remain insufficiently documented, particularly in resource-limited settings among patients on prolonged systemic therapy. This study aims to compare objective severity and patient-reported burden between men and women with moderate-to-severe atopic dermatitis treated with methotrexate. A cross-sectional study was conducted among 52 patients (24 men, 28 women) receiving methotrexate (7.5 to 25 mg/week). SCORAD, EASI, BSA, and ISGA scores, the pruritus numerical rating scale (NRS), and the DLQI were compared according to sex, then adjusted for age, disease duration, dosage, and clinical phenotype. The two groups were demographically comparable. Men showed significantly higher objective scores, including SCORAD (median 57.4 vs 45.3, p=0.006), EASI (22.0 vs 15.3, p=0.004), and BSA (37.5% vs 25.5%, p=0.031), whereas no significant difference was observed for pruritus (p=0.852) or DLQI (p=0.450). Male sex remained an independent predictor of a higher SCORAD (p=0.015). No difference was found regarding clinical sign profile, environmental factors, or occupation. These findings reveal a marked divergence whereby male sex is associated with more severe objective involvement without an equivalent functional burden, consistent with other authors' observations of a sex-related dichotomy between clinical severity and patients' lived experience

***BP#2259***

## INCREASED PERIPHERAL MONOCYTES MARK A DISTINCT INFLAMMATORY SUBTYPE OF ADULT ATOPIC DERMATITIS

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Atopic dermatitis (AD) exhibits marked immunological heterogeneity, leading to variable responses to biologics and Janus kinase (JAK) inhibitors. The clinical relevance of peripheral monocyte levels in defining AD endotypes remains underexplored. To investigate whether peripheral monocyte counts can define distinct clinical AD endotypes and predict targeted treatment outcomes. Clinical data were analyzed from discovery (n=349) and validation (n=160) cohorts. Multiplex profiling of 96 inflammatory mediators was performed in AD patients (n=66) and controls (n=25). Longitudinal clinical and molecular responses to abrocitinib or dupilumab were assessed over 12 weeks. A "Mono-high" subtype (elevated peripheral monocytes) was identified in 40% of adult patients and characterized by elevated Eczema Area and Severity Index (EASI), lactate dehydrogenase, neutrophils, and eosinophils. This group exhibited a broad inflammatory signature, including increased interleukin (IL)-4, granulocyte-macrophage colony-stimulating factor, fractalkine, IL-6, IL-16, IL-1RA, IL-20, and interferon-gamma. In Mono-high patients, abrocitinib achieved rapid and sustained clinical improvement by week 4, whereas dupilumab demonstrated only modest efficacy. Distinct cytokine trajectories were observed between treatments. Elevated peripheral monocytes define a severe inflammatory adult AD subtype. JAK1 inhibition may provide faster clinical benefit in this population.

***BP#2281***

## DNA METHYLATION ANALYSES PROVIDE INSIGHTS INTO IMMUNE REGULATION, EPITHELIAL BARRIER DYSFUNCTION, AND NEUROIMMUNE SIGNALING IN HAND ECZEMA

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Hand eczema is a common inflammatory skin disease that often follows a recurrent or chronic course and substantially impairs quality of life. To characterize DNA methylation alterations associated with hand eczema and assess their biological and cell-type-specific relevance. We performed an epigenome-wide association study using the Infinium Methylation Screening Array in 103 participants, including 21 healthy controls and 82 patients with hand eczema. Differentially methylated regions (DMRs), cell-type-specific associations, and functional enrichment networks were analyzed. We identified 1,036 peripheral-blood DMRs associated with hand eczema. Among the 82 patients, 42 had a history of atopic dermatitis (AD) and 40 did not. Patients with an AD background showed more pronounced methylation alterations involving immune regulation and epithelial barrier function. Cell-type-specific associations were detected at GATA2 in T cells, WWC2-AS2 in B cells and neutrophils, RHOH in monocytes, and CHCT1 in $CD8^+$ T cells. Gene ontology and network analyses highlighted coordinated alterations in T-cell-mediated immunity, epithelial barrier and cell-adhesion processes, transcriptional regulation, and neuronal and sensory signaling. Hand eczema is associated with widespread, biologically coordinated DNA methylation alterations, suggesting that epigenetic regulation may contribute to disease pathogenesis through systemic immune responses, epithelial barrier dysfunction, and neuroimmune signaling.

***BP#2303***

## ECZEMA HERPETICUM: A RETROSPECTIVE ANALYSIS OF 91 CASES – CLINICAL CHARACTERISTICS, PREDISPOSING FACTORS AND TREATMENT OUTCOMES

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Eczema herpeticum (EH), also known as Kaposi varicelliform eruption, is an acute disseminated viral infection that occurs in patients with preexisting inflammatory skin conditions, most commonly atopic dermatitis (AD). However, data on the clinical spectrum and management of EH in large case series remain limited. To characterize the demographic features, clinical presentations, predisposing factors, laboratory findings, treatment regimens and outcomes of EH in a cohort of 91 patients. This study retrospectively reviewed 91 cases of EH diagnosed at Hunan Children's Hospital during the period from January 2015 to March

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2023. Data on age, sex, underlying dermatoses, clinical manifestations, laboratory parameters, antiviral therapy, complications and prognosis were collected and analyzed. Of the 91 patients, 65 (71.4%) were male and 26 (28.6%) were female, with a male-to-female ratio of 5:2. Male predominance was statistically significant. 92.3% had underlying AD, consistent with previous reports that over 90% of EH cases occur in patients with AD. Food allergy was documented in 34% of patients (n=31), predominantly to eggs and milk. Disease severity was significantly higher in foodallergic patients than in those without food allergy.The most common affected sites were face, neck and chest. 51% presented with fever (≥38.5°C). HSV-1 was identified in 16.5% of cases. All patients received systemic antiviral therapy (aciclovir), with a mean time to resolution of 7.5 days. 59.3% developed secondary bacterial infection. No fatalities were recorded. EH predominantly affects patients with underlying AD and requires prompt recognition and timely antiviral intervention. Early diagnosis and treatment are critical to reducing morbidity and preventing complications.

***BP#2380***

## DISTINCT IMMUNE AND EPIGENETIC SIGNATURES PREDICT THERAPEUTIC RESPONSE TO TYPE-2 INFLAMMATION INHIBITION IN ATOPIC DERMATITIS

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Approximately 70% of patients with atopic dermatitis (AD) exhibit adequate response to inhibition of Type2-inflammation, monoclonal antibodies targeting IL-4/IL-13 signaling. However, mechanisms of treatment non-response are insufficiently understood. The study aimed to perform immune and molecular profiling of lesional and non-lesional skin (n=3 complete responders, n=3 non-responders) from well-characterized AD patients prior to the start of dupilumab treatment (baseline) using bulk RNA-sequencing (bulkRNAseq), immunofluorescence staining combined with Luminex-proteomics analysis of plasma (n=9 complete responders and n=4 non-responders), complemented by computational validation. BulkRNAseq of lesional skin biopsies at baseline identified 40 differentially expressed genes (DEGs) associated with epigenetic, chromatin-related and immune signaling pathways between complete responders and non-responders. Computational sub-analysis further revealed reduced B- and T-cell infiltration in lesional skin from non-responders. Moreover, non-responders exhibited upregulation of epidermal barrier genes KRT17 and SPRR4, combined with lower plasma CD40 ligand levels. Conventional phenotyping solely based on the clinical metadata and IL-4Ra skin expression failed to differentiate prospective responders from non-responders. These findings suggest that inadequate immune cell infiltration and epigenetic changes in lesional skin may drive therapeutic non-response. Baseline transcriptional signature of lesional skin offers potential predictive biomarkers for treatment outcome.

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## ON DISPLAY PRESENTATIONS (DP)

### *DP#2021*

### CHARACTERIZATION OF PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS CONTROLLED BY SYSTEMIC TREATMENTS, THEIR NEEDS AND EXPECTATIONS REGARDING EMOLLIENT USE

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Atopic dermatitis (AD) is a common chronic inflammatory disease. Although numerous publications have documented the major role of emollients in the management of AD, there is limited data on how patients with AD treated with systemic treatments use and evaluate these products. The aim of this exploratory study was to characterize patients with moderate-to-severe AD, controlled by systemic treatments, to explore their needs and expectations regarding emollients. An exploratory multicenter study has been conducted in Europe, in adult atopic patients. The main inclusion criteria were: moderate-to-severe AD controlled by systemic treatment, ongoing systemic treatment for AD (biologics, Janus kinase inhibitors or conventional immunosuppressants) initiated for at least 6 months prior to inclusion, with a stable treatment dose for at least 2 months, and a validated Investigator Global Assessment (vIGA-AD) ≤ 2 (Mild). Patients completed a questionnaire assessing their disease perception, skin condition under systemic treatment (controlled phase), and the role of emollients in their care. Seventy-six patients were analyzed. Patients assessed their AD as controlled by systemic treatment (mean ADCT [Atopic Dermatitis Control Tool] score < 7). Half of them had applied topical corticosteroids and/or calcineurin inhibitors during the previous month (on average 5.5 and 4.8 days, respectively). Only around 60% of them used emollients daily. During the previous week, they reported persistent signs and symptoms, such as dryness, roughness, redness and itching. Approximately 40% found their skin uncomfortable and their eczema still visible. The results of this study highlight the persistence of AD symptoms and functional signs in patients with AD controlled by systemic treatments and the need to optimize the use of emollients in this population.

### *DP#2024*

### REAL-WORLD EXPERIENCE OF ABROCITINIB FOR ATOPIC DERMATITIS: A 16-WEEK MULTICENTER RETROSPECTIVE STUDY

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Abrocitinib is an oral, once-daily selective Janus kinase 1 inhibitor approved for moderate-to-severe atopic dermatitis (AD). Randomized trials support its efficacy, but real-world evidence in treatment-refractory patients remains limited. To evaluate the real-world effectiveness and safety of abrocitinib for AD over 16 weeks in routine clinical practice. We conducted an international multicenter retrospective review across 2 Canadian centres and 1 centre in Hong Kong, China of adolescent and adult patients with AD initiated on oral abrocitinib. Patients with a baseline Investigator Global Assessment (IGA) of 0/1 or missing 16-week data were excluded. Effectiveness at week 16 ± 8 was assessed using the Eczema Area and Severity Index (EASI) and IGA; safety via adverse events and discontinuations. Thirty-seven patients were included (mean age 41.9 years; 51.4% male). Most had previously failed topical (94.6%), systemic (67.6%), or biologic (37.8%) therapy. Mean baseline EASI was 15.9. At week 16 ± 8, 78.8%, 66.7%, and 51.5% achieved 75%, 90%, and 100% improvement in EASI, respectively (mean improvement 86.1%). An absolute EASI ≤7 was reached by 87.9% and IGA 0/1 (clear/almost clear) by 78.4% (29/37). The most common adverse events were hyperlipidemia (n=3) and acne (n=3); one patient reported nausea/vomiting; no candidiasis or inflammatory bowel disease occurred, and no patients discontinued through week 16. In this real-world cohort, including many patients refractory to prior systemic and biologic therapy, abrocitinib demonstrated high effectiveness and a favourable short-term safety profile for AD through 16 weeks, with response rates consistent with or exceeding clinical trials. Limitations include the retrospective design, small sample, and variable assessment window.

### *DP#2046*

### ITCH–LESION DISSOCIATION IN ATOPIC DERMATITIS: PREVALENCE, PREDICTORS, AND DIFFERENTIAL TREATMENT RESPONSE OF THE ITCH-DOMINANT PHENOTYPE

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In atopic dermatitis (AD), eczematous lesions and pruritus contribute independently to burden and do not always correlate, yet eligibility for advanced therapies remains anchored to lesion scores, overlooking severe-itch patients with moderate lesions. To define the prevalence, biomarker profile, predictors, and treatment response of the itch-dominant phenotype (moderate lesion–severe itch, ML-SI). 289 patients with AD were stratified by baseline Eczema Area and Severity Index (EASI; cutoff 16) and Itch Numeric Rating Scale (NRS; cutoff 7) into ML-MI (n=69), ML-SI (n=103), SL-MI (n=36), and SL-SI (n=81). Biomarkers, EASI subscores, multivariate predictors, and 16-week response were analyzed. ML-SI was the single largest subgroup (35.6%). Despite severe pruritus matching SL-SI, ML-SI showed no significant difference from the mildest group (ML-MI) in total IgE (p=0.33) or eosinophil counts (p=0.80), suggesting its severe itch is not fully explained by type 2 inflammation. Predictors of severe itch differed by stratum: erythema (OR 1.57; 95% CI 1.12–2.22) and trunk EASI subscore (OR 1.28; 1.07–1.54) in moderate-lesion patients, and excoriation (OR 1.71; 1.19–2.61) in severe-lesion patients (all p<0.01). At 16 weeks, ML-SI showed the greatest Itch NRS improvement (median reduction 3.0 points; p<0.001), whereas EASI improvement did not differ across groups (p=0.804). The

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most prevalent phenotype, ML-SI, is systematically missed by lesion-based eligibility criteria. Its severe pruritus, disproportionate to type 2 biomarkers and most responsive to treatment, implicates mechanisms beyond classical type 2 inflammation and marks it a high-yield therapeutic target. Incorporating Itch NRS alongside EASI may better capture burden and ensure equitable access to therapies.

### *DP#2047*
### METABOLIC PROFILING OF STAPHYLOCOCCUS AUREUS IN ATOPIC DERMATITIS: IMPLICATIONS FOR DISEASE SEVERITY AND PRURITUS

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Staphylococcus aureus colonization is a critical driver of skin microbiota dysbiosis in atopic dermatitis (AD), yet the relationship between its specific metabolic activities and clinical phenotypes remains underexplored. This study investigated the colonization patterns and untargeted metabolomic profiles of S. aureus in AD lesions to elucidate their correlations with disease severity and pruritus. In 73 AD patients, lesional S. aureus colonization was assessed at baseline and post-treatment (4 weeks). LC-MS/MS profiled metabolomic signatures linked to distinct colonization phenotypes and pruritus severities S. aureus colonization was detected in 74% of lesional skin samples and was significantly associated with a higher body mass index, earlier disease onset, more extensive lesion distribution, and elevated Eczema Area and Severity Index (EASI) scores. Notably, despite four weeks of treatment, 69.2% of colonized patients exhibited persistent S. aureus colonization, a phenotype strongly correlated with more pruritus. LC-MS/MS revealed distinct metabolomic signatures that differentiated persistent from transient carriers, driven by alterations in pathways such as pyrimidine metabolism, β-alanine metabolism, and ABC transporters. Furthermore, differential metabolic profiling successfully stratified patients based on pruritus severity. Biomarker analysis identified maleamic acid and linoleic acid as significant indicators of the persistent colonization phenotype, whereas higenamine was robustly inversely associated with pruritus severity. Collectively, these findings demonstrate that S. aureus colonization and its metabolic profiles may contribute significantly to the clinical heterogeneity of AD, highlighting microbiota-derived metabolic pathways as potential therapeutic targets for disease management.

### *DP#2050*
### ITCH CONTROL OF MG-K10 IN ADULTS WITH MODERATE TO SEVERE ATOPIC DERMATITIS: A POST-HOC ANALYSIS OF A PHASE III CLINICAL TRIAL

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Background: MG-K10 is an innovative long-acting mAb that specifically binds to human IL-4Rα, and efficiently blocks the Th2 inflammatory signaling of IL-4 and IL-13. Following Fc mutation, MG-K10 allows long dosing interval owing to its prolonged half-life. Objective: Evaluate the improvement of itching symptoms after treatment with MG-K10 for moderate-to-severe atopic dermatitis. Methods: The study enrolled 499 adults with moderate-to-severe AD and randomized 2:1 to receive subcutaneous MG-K10 300 mg (600 mg loading dose, n=333) or placebo (n=166) every 4 weeks (Q4W). After 16-week double-blind treatment completed, all patients entered a 36-week maintenance treatment period and received MG-K10 300 mg Q4W. At Week 16, the MG-K10 group had a significantly higher proportion of patients achieving weekly mean daily PP-NRS≤4 and ≤1 compared to placebo. At Week 52, 84.9% of MG-K10 group and 88.3% of placebo-to-MG-K10 group achieved PP-NRS≤4, while 43.9% and 47.6% achieved PP-NRS≤1, respectively. Rapid improvement was observed from Day 1, with 5.1% of MG-K10 patients achieving a ≥3-point PP-NRS reduction versus 1.2% in placebo (p=0.0322). On Day 2, MG-K10 showed a -7.17% least squares mean percentage Results: change from baseline in PP-NRS compared to placebo (P=0.0267). MG-K10 achieved optimal itch response (PP-NRS≤4) faster, with a median time to response of 34 days compared to 65 days for placebo (P<0.0001). Among patients achieving EASI-75 or IGA 0/1 and had a PP-NRS≤4 at Week 16, 92.9% of the MG-K10 group maintained optimal itch response through Week 52. The median number of weeks to maintained optimal itch response was 36.0. Conclusion: In adult patients with moderate-to-severe atopic dermatitis, MG-K10 Q4W provides rapid itch relief, achieves maximal itch improvement, and enables sustained long-term itch control.

### *DP#2056*
### POSTBIOTICS EMOLLIENT AND RISK OF RELAPSE IN PEDIATRIC ATOPIC DERMATITIS: A RANDOMIZED TRIAL

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Preventing flares is crucial in the long-term management of atopic dermatitis (AD). This study aimed to evaluate whether the continued use of postbiotic-containing emollients could reduce the risk of AD recurrence in young children with moderate AD compared with conventional emollients. In this single-center, randomized, open-label, parallel-group trial, children aged under 6 years with moderate AD who achieved disease clearance (Investigator's Global Assessment [IGA] ≤ 1) after topical corticosteroid treatment plus the investigational emollient during screening were randomized 1:1 to continue twice-daily the investigational postbiotic-containing emollient or to discontinue the investigational emollient and receive routine maintenance skin-care advice, with the use of conventional non-biotic emollient permitted as standard care, for 12 weeks. The primary outcome was the 12-week cumulative relapse rate, defined as IGA ≥ 2. Among 98 randomized children, 96 were included in the modified intention-to-treat analysis. Median relapse-free survival was 22 days in the control group and was not reached in the intervention group during the 12-week observation period. The 12-week cumulative relapse rate was lower in the intervention group than in the control group (40.8% vs. 76.6%, P<0.001; hazard ratio, 0.29; 95% CI: 0.17–0.50). Adverse events were infrequent and comparable between groups, with no serious adverse events or application-site tolerability issues reported. In this study, the use of a postbiotic-containing emollient was associated with a lower cumulative relapse rate during 12-week maintenance therapy compared to conventional emollients in young children with moderate AD.

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***DP#2057***

## EFFECTIVENESS AND SAFETY OF SYSTEMIC JANUS KINASE INHIBITORS FOR THE TREATMENT OF MODERATE-TO-SEVERE ATOPIC DERMATITIS IN PATIENTS SWITCHED FROM DUPILUMAB: A REAL-WORLD RETROSPECTIVE STUDY

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Dupilumab has revolutionized the management of patients with moderate-to-severe atopic dermatitis (AD). Despite its superior efficacy, nonresponse and adverse effects are not infrequent. Consequently, additional novel therapeutic options, including abrocitinib, baricitinib, and upadacitinib - oral Janus kinase (JAK) inhibitors - have been approved. To demonstrate the effectiveness and safety of switching from dupilumab to JAK inhibitor in AD patients. We retrospectively analyzed adults with moderate-to-severe AD who switched from dupilumab to JAK inhibitors. Collected data included demographics, laboratory findings, baseline disease severity (EASI, ppNRS, IGA, DLQI), reasons for switching, longitudinal changes in severity scores, and all adverse events. Total of 10 patients was included in the study. The mean age of patients was 38.9 years, and all were male; 60% had adult-onset AD, and no atopic comorbidities were reported. Baseline assessments showed a mean IgE level of 6580 IU/mL, EASI score of 28.99, IGA score of 3.7, ppNRS score of 8, and DLQI score of 21.6. After an average of 152.4 weeks of dupilumab treatment, mean IgE level decreased to 1428.41 IU/mL, confirming its pharmacologic effect. However, clinical outcomes were suboptimal: at the time of switching, mean EASI, IGA, ppNRS, and DLQI were 11.34, 2.6, 5.8, and 15.4, respectively. At week 16 post-switch, significant improvements were observed: mean EASI 1.78, IGA 0.9, ppNRS 1, and DLQI 4. During a mean follow-up of 36.8 weeks, adverse events included hand flare and acne, but well tolerable. Our finding suggest that male sex, adult-onset AD, and absence of allergic comorbidities may be predictive factors for reduced response to dupilumab. For them, switching to JAK inhibitors led to favorable outcomes. However, further large-scale studies are required.

***DP#2077***

## DERMATOLOGIC COMORBIDITIES IN PATIENTS WITH ATOPIC DERMATITIS COMPARED WITH PSORIASIS: A TWO-CENTER RETROSPECTIVE STUDY

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Atopic dermatitis (AD) is a chronic inflammatory skin disease associated with a broad spectrum of dermatologic comorbidities. Comparative data regarding the prevalence and patterns of dermatologic comorbidities between patients with AD and psoriasis (PsO) remain limited. To compare the prevalence and patterns of dermatologic comorbidities between patients with AD and PsO. In this retrospective two-center study, patients diagnosed with AD or PsO between June 2025 and May 2026 were identified. The prevalence of dermatologic comorbidities, including allergic contact dermatitis, hand eczema, chronic idiopathic urticaria, hidradenitis suppurativa, alopecia areata, vitiligo, lupus erythematosus, bullous diseases, Sjögren disease, systemic sclerosis, and facial inflammatory diseases such as acne, rosacea, and seborrheic dermatitis, was compared between the two cohorts. A total of 3,197 patients with AD and 1,051 patients with PsO were included. Among facial inflammatory diseases, acne (6.8% vs. 1.8%, P<0.001) and rosacea (5.7% vs. 1.4%, P<0.001) were more prevalent in AD, whereas seborrheic dermatitis was more common in PsO (1.1% vs. 1.9%, P=0.035). Among other dermatologic comorbidities, allergic contact dermatitis was the most common in both cohorts (29.1% vs. 35.1%, P<0.001). Chronic idiopathic urticaria (5.5% vs. 1.1%, P<0.001) and alopecia areata (4.3% vs. 1.1%, P<0.001) were significantly more prevalent in AD, whereas the prevalences of hand eczema, hidradenitis suppurativa, and vitiligo were comparable between groups. Other autoimmune diseases including lupus erythematosus, bullous diseases, Sjögren disease, and systemic sclerosis, were uncommon in both cohorts. Patients with AD demonstrated a distinct dermatologic comorbidity profile compared with PsO, particularly with respect to facial inflammatory diseases.

***DP#2081***

## NICKEL SENSITIZATION IS NOT ASSOCIATED WITH ATOPIC DERMATITIS: A META-ANALYSIS

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Atopic dermatitis (AD) involves skin barrier defects that may facilitate allergen penetration. Nickel is the leading cause of allergic contact dermatitis, yet its association with AD remains controversial. To evaluate nickel sensitization prevalence in AD patients. The databases PubMed, EMBASE, Cochrane, and Web of Science were searched. Pooled random-effects odds ratios (ORs) with 95%CI were calculated. Among 26 studies (n=213,897; 53,803 AD patients), no overall significant association was found between AD and nickel sensitization (OR=1.06, 95%CI 0.94-1.20, P =0.32), though heterogeneity was substantial ($I^2$=92%, P <0.00001). Significant regional variation emerged (P =0.0002), with AD patients in the Americas exhibiting an 18.8% increased sensitization risk (OR = 1.18, 95% CI 1.11-1.25; P < 0.00001), while European cohorts showed marginal association (OR = 1.03, 95% CI 1.00-1.06; P = 0.04), and Asian studies demonstrated a non-significant trend (OR = 1.12, 95% CI 0.99-1.27; P = 0.07). Age and patch test timing subgroups showed no significant effects (both P >0.5). While no global increase in nickel sensitization was observed among AD patients, clinically important elevated risks exist in American populations and marginally in Europeans.

***DP#2088***

## REAL-WORLD UTILIZATION AND EFFECTIVENESS OF UPADACITINIB IN ATOPIC DERMATITIS: 12-MONTH INTERIM ANALYSIS OF THE 500 CHINESE PATIENTS IN REACH-AD STUDY

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Upadacitinib (UPA) has been approved for moderate-to-severe AD treatment and is accumulating real-world data of efficacy and safety profiles in China. This study aimed to characterize the real-world utilization patterns of UPA and to assess its effectiveness using the minimal disease activity (MDA) target derived from the AHEAD consensus. REACH-AD study is a prospective, ongoing observational study recruiting 1000 patients across 40 specialized centers. Primary endpoints focused on clinical utilization of UPA. Key secondary efficacy outcomes comprised EASI and PP-NRS, with MDA (defined as a composite outcome of EASI 90 or ≤3 + PP-NRS 0/1) set as exploratory endpoints.

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This interim analysis evaluated the first 500 enrolled patients, with a data cutoff of March 2, 2026. Among the 500 patients, 95.8% had National Healthcare Insurance, 10% had Commercial Insurance, and 98.6% initiated UPA 15 mg. At 12 months, 75.2% (376/500) of patients were on continuous treatment, with median 12.0 months (IQR, 11.7-12.0), mean 10.47 months (Min-Max, 0.13-12.0). 73.6% remained UPA without interruption, and 26.4% had first UPA interruption. The reasons included that 53.8% (71/132) had disease improvement/ stabilization, 15.9% had inadequate control/switch to others, 20.5% had AE, 1.5% reported economic reasons and 8.3% others. After the first UPA interruption, 36 patients restarted UPA. 20 patients reported permanent discontinuation. At 12 months, 95.5% achieved EASI 75 or ≤7, and 86.6% achieved EASI 90 or ≤3. PP-NRS improvement ≥4 was observed in 74.4% patients, and PP-NRS 0/1 in 53.1%. The composite outcome of MDA was observed in 48.8% patients. The interim analysis demonstrates that UPA treatment in China practice results in durable persistence and optimal MDA achievement. As study continues to 1000 patient data will provide more insights.

***DP#2091***

## THERAPEUTIC INADEQUACY PRIOR TO SPECIALIST CONSULTATION IN ATOPIC DERMATITIS AMONG OUTPATIENTS SEEN AT THE DERMATOLOGY DEPARTMENT OF THE UNIVERSITY HOSPITAL MAHAVOKY ATSIMO OF MAHAJANGA, MADAGASCAR

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Atopic dermatitis (AD) is a common chronic inflammatory skin disease that is often poorly recognized by first-line prescribers in regions with limited access to specialist care. This study aimed to describe treatments received prior to the first specialist dermatology consultation among patients with AD in Mahajanga, and to assess their appropriateness relative to standard AD management guidelines. It was a descriptive study conducted at the Dermatology Department of the university hospital Mahavoky Atsimo, Mahajanga, over a 3 year period (January 2021–December 2023). All patients diagnosed with AD according to the UK Working Party criteria were included. Pre-consultation treatments were classified as appropriate, partially appropriate, or inappropriate based on AD management guidelines, and compared with treatments prescribed by the dermatologist. Twenty children and 35 adults were included. Among them, 33 patients (60%) had received treatment before specialist consultation. In children, antifungals and systemic antibiotics were most frequently reported (20% each), followed by antihistamines, medicinal plants, and topical antibiotics (15% each). Emollients had been used in only 15% of cases. In adults, antihistamines (22.9%) and moderately potent topical corticosteroids predominated (20%), the latter used without concurrent emollients or a confirmed diagnosis. At specialist consultation, emollients and skin-hygiene measures were prescribed in 100% of patients regardless of age. Outcome at 3 months under appropriate treatment was favorable in both children and adults. Inappropriate pre-consultation treatment is common in AD in Mahajanga, particularly among children. This finding reflects limited recognition of AD outside specialized care and supports strengthening first-line prescriber training and patient education.

***DP#2092***

## ADULT ATOPIC DERMATITIS ON WEST AFRICAN PIGMENTED SKIN: EPIDEMIOLOGICAL AND CLINICAL PHENOTYPE

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Adult atopic dermatitis (AD) is poorly characterized on Black African skin, where clinical phenotype and lesion morphology differ from European descriptions and remain undocumented in West Africa. To describe the epidemiological and clinical phenotype of adult AD on pigmented skin. Prospective analytical study (January 2024–June 2025) of adults (≥18 years) meeting Hanifin and Rajka criteria in a tertiary dermatology department in Cotonou, Benin. Age at onset, elementary lesions, clinical form and anatomical distribution were recorded. Annual incidence was 5.54% (212/2549 new patients). Mean age was 41.5±18.2 years; 59.9% were women. Allergic rhinitis was the leading atopic comorbidity (35.4%). Pruritus was near-constant (96.2%) and intense (mean VAS 7). Late-onset disease predominated (88.2%, 95%CI 83.1–92.2). The most frequent elementary lesions were scales (78.8%), crusts (51.4%), lichenification (38.2%), erythema (36.3%) and hyperpigmented macules (35.4%); oozing was rare (3.8%). The lichenified form was the most frequent presentation (38.7%). Lesions were widely distributed, predominating on the limbs (lower 63.2%, upper 48.1%) and trunk (anterior 39.6%, posterior 38.7%), with lower facial (20.3%) and scalp (9.4%) involvement. Adult AD on West African pigmented skin is a late-onset, dry, scaly-crusted and lichenified phenotype with rare oozing and frequent post-inflammatory hyperpigmentation. This morphology, and erythema that is hard to grade on dark skin, is poorly captured by current severity scores. Immune and mycological characterization is needed to establish whether this phenotype reflects a distinct signature in West African AD.

***DP#2108***

## EFFICACY AND SAFETY OF DIRECT SWITCHING TO MANFIDOKIMAB, A NOVEL ANTI-IL-4RA MONOCLONAL ANTIBODY, IN PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS CURRENTLY RECEIVING BIOLOGICS OR JAK INHIBITORS

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Systemic IL-4Rα- and JAK- inhibitors are increasingly utilized in treating atopic dermatitis (AD). However, evidences on evaluating efficacy and safety of direct switching between different biologics or from JAK inhibitors to biologics are limited. Manfidokimab, a novel anti-IL-4Rα monoclonal antibody, having been proved to be efficient and safe in a Phase 3 confirmative trial, were evaluated in current trial. This trial consists of 2 cohorts. Cohort 1 evaluated the efficacy and safety of manfidokimab

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after a sufficient washout of prior AD therapies, and Cohort 2 evaluated that of manfidokimab following direct switching from other biologics or JAK inhibitors so as to represent real-world practice settings. 450 adults with moderate-to-severe AD were assigned to Cohort 1 (n=172) or Cohort 2 (n=278). Patients in Cohort 1 received manfidokimab 300 mg (first dose 600 mg) every 2 weeks (Q2W), and patients in Cohort 2 were switched directly to receive manfidokimab 300 mg Q2W (600 mg loading only for prior JAK inhibitor users) for 16 weeks. In Cohort 1, 68.6% and 37.8% of patients achieved EASI 75 and IGA 0/1. In Cohort 2, 134 and 144 patients were on stable IL-4Rα- or JAK- inhibitors respectively. After switching to manfidokimab from other biologics, EASI improved from week 2. At week 16, mean EASI reduction was 40.8%, and 48.6% achieved IGA 0/1. A transient early rebound occurred in some JAK inhibitor users, followed by improvement from week 4. TEAE rates were 60.5% and 70.5% in Cohorts 1 and 2, respectively, with most events mild-to-moderate. AD patients switching from approved IL-4Rα- or JAK- inhibitors to manfidokimab with or without washout showed consist efficacy and safety, providing valuable evidence for routine practice.

***DP#2109***

## MIRNA DETECTED IN PLASMA-DERIVED EXOSOMES REVEALS DIFFERENTIALLY EXPRESSED MIRNAS RELATED TO ATOPIC DERMATITIS

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Atopic dermatitis (AD) is a prevalent chronic dermatitis which lacks specific diagnostic biomarkers. Exosomal miRNAs are involved in gene regulation which be found in various body fluids. Therefore, exosomes have promising potential as AD biomarkers. To investigate plasma-derived exosomal miRNAs in AD, explore the relationship between biomarkers and the clinical characteristics. Exosomes were isolated by ultracentrifugation and identified by TEM, NTA, and flow cytometry from 8 AD patients and 8 controls. Small RNA sequencing and WGCNA were performed. Five candidate miRNAs were validated by qRT-PCR, and analyzed the correlation with clinical characteristics. TEM, NTA, and surface marker analysis confirmed the presence of plasma-derived exosomes. We found 1,421 miRNAs which had different expressions, including 474 up-regulated and 947 down-regulated miRNAs. 5 candidates(hsa-miR-411-5p, hsa-miR-651-5p, hsa-miR-1236-3p, hsa-miR-3200-5p, hsa-miR-4671-5p) were significantly higher in patients. Among them, hsa-miR-411-5p was positively correlated with eosinophil count ($r=0.86$, $p<0.01$), pruritus severity($r=0.79$, $p<0.05$), sleep reduction($r=0.76$, $p<0.05$). WGCNA analysis identified 18 miRNA modules from the two most significant positive and negative modules that showed significant enrichment in several inflammation-associated pathways. This demonstrates exosomal miRNAs may participated in AD by affecting the inflammation mechanism. Plasma-derived exosomes appear to be biomarkers of AD. Functional enrichment analysis demonstrates that they are enriched in many inflammatory pathways. The specific association between hsa-mir-411-5p and eosinophils, itching and sleep in AD patients. More research needed to be studied in the future to verify the functions of these possible biomarkers.

***DP#2122***

## EFFECTIVENESS AND SAFETY OF TRALOKINUMAB IN KOREAN PATIENTS WITH ATOPIC DERMATITIS: A MULTICENTER RETROSPECTIVE STUDY

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Atopic dermatitis (AD) is a chronic inflammatory skin disease that significantly impairs patients' quality of life. Tralokinumab, a selective interleukin-13 (IL-13) inhibitor, has demonstrated efficacy and safety in clinical trials; however, real-world data (RWD) in Korean patients remain limited. This study aimed to evaluate the effectiveness and safety of tralokinumab in Korean patients with moderate-to-severe AD in a real-world clinical setting, with a particular focus on head and neck involvement. This multicenter retrospective study included patients aged ≥12 years with AD who received tralokinumab at three hospitals in Korea. Clinical outcomes were assessed at baseline, week 16, and week 48 using the Eczema Area and Severity Index (EASI) and Investigator's Global Assessment (IGA). Head and neck involvement was evaluated using Head and Neck EASI (H&N EASI). A total of 46 patients were included. Mean baseline EASI was 25.59 ± 7.08. At week 16, 67.4%, 65.2%, 13.0%, and 10.9% of patients achieved EASI-50, EASI-75, EASI-90, and IGA 0/1, respectively. At week 48, response rates were sustained, with 60.9%, 58.7%, 21.7%, and 28.3% achieving EASI-50, EASI-75, EASI-90, and IGA 0/1, respectively. For head and neck lesions, H&N EASI-75 was achieved in 23.9% at week 16 and 39.1% at week 48, indicating overall improvement, although responses were lower compared to other body regions. Adverse events were reported in 34.8% of patients, with AD exacerbation being the most common. Tralokinumab demonstrated sustained effectiveness and an acceptable safety profile in Korean patients with moderate-to-severe AD in a real-world setting.

***DP#2127***

## EFFICACY AND SAFETY OF MOISTURIZING CREAM CONTAINING EOP(1), NP(3), & AP(6-II) AS ADJUVANT THERAPY IN ADULT PATIENTS WITH MILD ATOPIC DERMATITIS: A MULTICENTER, RANDOMIZED, PARALLEL-CONTROLLED TRIAL

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Atopic dermatitis (AD) is a chronic inflammatory skin disease with skin barrier dysfunction. Topical crisaborole, a PDE-4 inhibitor, treats mild-to-moderate AD through anti-inflammatory and anti-pruritic effects but does not restore the skin barrier. Combining crisaborole with a barrier-repair moisturizer may offer added benefit. This study evaluated the efficacy and safety of a ceramide-containing moisturizer(CCM) containing ceramdes EOP(1), NP(3), &AP(6-II) as adjunctive therapy in adult patients with mild AD. This study presents data from two center sub-cohorts of a larger multicenter, randomized, parallel-controlled trial. 54 adult patients (18-45 years) with mild AD (SCORAD<24) were randomized to Crisaborole plus CCM (test, n=28) or Crisaborole alone (control, n=26) for 4 weeks. Assessments at baseline ((Day 0), Days 7, 14, and 28. Primary endpoint: SCORAD score change. Secondary endpoints: TEWL, stratum corneum hydration (Corneometer), and DLQI. Day 28, SCORAD scores reduced 60.4% in test group vs 19.9% in control ($p<0.05$). Total effectiveness rate (≥20% SCORAD reduction) was higher in test group (82.1% vs 42.3%, $p<0.05$). Cure rate (≥95% SCORAD reduction) was 28.6% in test group vs 3.8% in control. TEWL reduction at Day 28 was greater in test group (30.1%) than control ($p<0.001$). Stratum

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corneum hydration improved in test group ($p<0.05$ vs Baseline), peaking at Day 14 (+33.8% vs Baseline, $p<0.001$ vs Control). DLQI scores improved 92.5% in test group vs 40.3% in control ($p<0.05$). Both treatments were well-tolerated with no serious adverse events. Moisturizing Cream containing EOP(1), NP(3), & AP(6-II) as potential adjunctive therapy to topical crisaborole (a PDE4 inhibitor) significantly improved skin barrier function, reduced AD severity, and enhanced quality of life in adult patients with mild atopic dermatitis.

***DP#2131***

## SAFETY, TOLERABILITY, PHARMACOKINETICS (PK), PHARMACODYNAMICS (PD), AND FOOD EFFECT (FE) OF QLS12010, A NOVEL ORAL INTERLEUKIN-1 RECEPTOR–ASSOCIATED KINASE 4 (IRAK4) DEGRADER IN HEALTHY PARTICIPANTS (HPS): A DOUBLE-BLIND, RANDOMIZED PHASE 1 STUDY

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QLS12010 is a novel oral small-molecule proteolysis-targeting chimera IRAK4 degrader that blocks IRAK4 kinase and scaffolding functions. Here we report the safety, tolerability, PK, PD, and FE of QLS12010 in HPs. This double-blind randomized study (NCT06946641) recruited HPs aged 18-45 years. In single-ascending dose (SAD) part, HPs were randomized 3:1 to receive QLS12010 at 25–900 mg or placebo orally. In multiple ascending dose (MAD) part, HPs were randomized 4:1 to receive QLS12010 at 25-150 mg or placebo once daily for 14 days. The FE part adopted a randomized, open-label design with QLS12010 at 25 mg. The primary endpoint was safety. Forty-eight (QLS12010: N=36), 31 (QLS12010: N=24), and 12 HPs were enrolled in SAD, MAD, and FE part, respectively. No dose-limiting toxicities occurred. Most of the treatment-emergent adverse events (TEAEs) were mild. The most common TEAE was grade 1 headache (8/30), which was in MAD part. No grade≥3 drug related adverse events occurred. No health participant died or discontinued treatment due to TEAE. No clinically significant corrected QT interval by Fredericia prolongation was observed. The exposure of QLS12010 in plasma was dose-dependent increased in 25-150 mg, with steady state reached at day 14 after daily dosing. No significant effects of food were observed on drug absorption and systemic exposure. Single-dose QLS12010 showed rapid, dose-dependent IRAK4 degradation in peripheral blood mononuclear cells (PBMCs) in SAD cohort, with maximal reduction at 24–48 h. QLS12010 showed rapid and sustained IRAK4 degradation (-80% ~ -90%) in PBMCs during 14-day consecutive dosing, and could reach saturated degradation at 25 mg. QLS12010 showed well-tolerated safety profile and predictable PK in HPs with rapid, potent, sustained, and long-lasting IRAK4 inhibition, supporting further clinical development.

***DP#2142***

## EXPLORING ORAL MICROBIOME AND METABOLIC CHARACTERISTICS OF ATOPIC DERMATITIS IN CHILDREN AND ADOLESCENTS USING SALIVARY METAGENOMICS AND METABOLOMICS

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Atopic dermatitis (AD) is a common inflammatory skin disease in children and adolescents. The oral microbiome and metabolism are closely related to immune and inflammatory disorders, but their roles in pediatric/adolescent AD remain unclear. To compare oral microbiome and metabolic profiles between pediatric/adolescent AD patients and healthy controls, analyze differences across disease severity, and explore associations with clinical characteristics and early factors. Thirty AD patients (4–18 years, 14 mild/9 moderate/7 severe) and 10 healthy controls were recruited. Unstimulated saliva, baseline data, serum IgE and 25-hydroxyvitamin D were collected. Samples were analyzed by metagenomic sequencing and LC-MS with KEGG annotation. AD patients had higher food allergy and familial atopy rates ($P < 0.05$). Serum IgE correlated positively with SCORAD. Oral Actinomycetes, Diatomella, Lipomyces and TM7 were decreased, while Staphylococcus aureus was enriched in severe AD. Microbial metabolism and antimicrobial resistance pathways were enhanced. Several metabolites were downregulated in AD; some lipids and peptides changed in a severity-dependent manner. PI3K-Akt, mTOR, AMPK and cortisol pathways were downregulated in AD. Pediatric AD patients show allergic predisposition. Early intervention may slow progression. Oral microbiome shifts to inflammatory imbalance with S. aureus as a potential severity biomarker. Oral metabolic disorders involve immune, lipid, energy and endocrine pathways with stage-specific changes.

***DP#2168***

## SHORT CHAIN FATTY ACIDS ALLEVIATE ATOPIC DERMATITIS ASSOCIATED ITCH BY REGULATING BASOPHIL ACTIVATION AND MITOCHONDRIAL LIPID DROPLET HOMEOSTASIS

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Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by persistent pruritus. Basophils contribute to AD pathogenesis through the release of histamine, leukotrienes, and type 2 cytokines, but the mechanisms regulating basophil activation remain unclear. Short chain fatty acids (SCFAs), important metabolites derived from intestinal microbiota, have immunomodulatory effects; however, their role in basophil regulation during AD remains unknown. This study aimed to investigate the effects of SCFAs on AD associated inflammation and itch and to explore their regulation of basophil activation and cellular metabolism. An AD like mouse model was induced by MC903 combined with ovalbumin stimulation. Mice were treated with individual SCFAs or SCFA mixtures, and skin inflammation and scratching behavior were evaluated. Basophil activation was assessed by flow cytometry. The effects of SCFAs on basophil signaling and mitochondrial lipid droplet interactions were analyzed by western blot and immunofluorescence staining. SCFAs reduced skin inflammation and scratching behavior in AD like mice, with butyrate showing the strongest effect. SCFA treatment decreased activated basophil populations and downregulated basophil activation markers, including CD200R and FcεRIα. In vitro, SCFAs suppressed basophil activation and enhanced AMPK phosphorylation. Furthermore, AD associated basophils showed impaired mitochondrial lipid droplet interactions, which were restored by butyrate treatment. SCFAs, particularly butyrate, alleviate AD associated itch by suppressing basophil activation and improving cellular metabolic homeostasis. These findings suggest that regulation of basophil metabolism by microbial metabolites may represent an important mechanism in AD pathogenesis.

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***DP#2169***

## PERFORMANCE EVALUATION OF LARGE LANGUAGE MODEL CHATBOTS FOR ATOPIC DERMATITIS PATIENT EDUCATION

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Atopic dermatitis (AD) requires long term disease management and patient education. Artificial intelligence chatbots are increasingly used to obtain medical information, but their safety and quality for AD education remain uncertain. This study aimed to evaluate the safety, accuracy, empathy, information quality, transparency, and readability of publicly accessible large language model chatbots for AD related questions. Thirty four AD related questions across six domains were submitted to five chatbot interfaces: ChatGPT 5.5 Instant, DeepSeek V4 Flash, Doubao Seed 2.1, Qwen3.7 Plus, and Gemini 3.5 Flash. Responses were independently assessed by five dermatologists using safety, accuracy, empathy, DISCERN, EQIP, JAMA benchmark criteria, and Global Quality Scale. Readability was evaluated using six validated indices according to the Chatbot Assessment Reporting Tool framework. A total of 170 responses were analyzed. Inter rater agreement was good to substantial, with Fleiss kappa of 0.879 for safety and ICC values of 0.803 to 0.872 for other outcomes. Potentially unsafe responses occurred in all five chatbots, with no significant differences among interfaces. Accuracy differed significantly across models, although all showed a median score of 4.00. DeepSeek achieved the highest empathy score and favorable information quality performance. Significant differences were observed in DISCERN, EQIP, and readability. ChatGPT generated the most difficult responses to read, whereas Gemini, Qwen, and DeepSeek showed better readability. Large language model chatbots can provide generally useful AD information but remain limited in safety, transparency, and readability. Multidimensional evaluation and expert oversight are necessary before their application in patient education.

***DP#2171***

## EARLY TRANSCRIPTOMIC REMODELING AND MOLECULAR-INFLAMMATORY TRAJECTORIES DEFINE LONG-TERM RESPONSE TO ABROCITINIB IN ATOPIC DERMATITIS

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Abrocitinib improves moderate-to-severe atopic dermatitis (AD), but molecular features linked to durable control and recurrence remain unclear. To characterize longitudinal blood transcriptomic and serum cytokine changes during abrocitinib treatment and their association with long-term outcomes. Patients with moderate-to-severe AD receiving abrocitinib in real-world practice were followed for at least 52 weeks, with clinical assessments and blood sampling at baseline and at 1, 3, and 12 months. Recurrence events were recorded throughout follow-up. Transcriptomic and cytokine data were analyzed using pathway-level, network-based, and trajectory-based approaches. Abrocitinib induced sustained improvement in disease severity and eosinophil burden, although recurrence burden varied across patients. Transcriptomic analyses showed early and relatively sustained suppression of T helper 2- and eosinophil-related inflammatory signatures. Relapse-prone patients tended to show less persistent suppression or rebound of these signatures. Network-based analysis identified the first month of treatment as an important transcriptomic window, when module-level changes were associated with later recurrence and long-term efficacy. Serum cytokine profiling showed rapid and durable attenuation of T helper 2-related signals. Integrated transcriptomic-cytokine trajectory analysis identified two molecular-inflammatory subtypes with distinct long-term outcomes. Early blood-based molecular-inflammatory remodeling during abrocitinib treatment was associated with durable disease control and recurrence heterogeneity. Longitudinal molecular monitoring may help characterize response heterogeneity during long-term AD treatment.

***DP#2172***

## CLINICAL AND INFLAMMATORY DETERMINANTS OF SUCCESSFUL ABROCITINIB DOSE REDUCTION IN ATOPIC DERMATITIS: A REAL-WORLD COHORT STUDY WITH IMPLICATIONS FOR TREATMENT OPTIMIZATION

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Abrocitinib, a selective JAk1 inhibitor, is an effective therapy for moderate-to-severe atopic dermatitis (AD). However, evidence guiding dose reduction during long-term maintenance in real-world practice remains limited, and determinants of successful dose tapering are unclear. To evaluate the feasibility of abrocitinib dose reduction and identify clinical and immunological features associated with tapering. In this prospective real-world study, 66 adults with moderate-to-severe AD received standard-dose abrocitinib for 12 weeks, followed by individualized dose adjustment based on disease control. Clinical outcomes and serum cytokine profiles were assessed longitudinally to characterize treatment responses and immunological correlates of dose reduction. Baseline disease severity was comparable across dose-adjustment groups. Patients requiring dose maintenance or escalation had a longer disease duration and higher prevalence of atopic comorbidities and family history, whereas those achieving dose reduction tended to be older. By Week 12, the dose-reduction group achieved significantly lower Eczema Area and Severity Index scores, pruritus numerical rating scale scores, and eosinophil counts. These differences persisted during long-term follow-up despite dose reduction. Cytokine analyses demonstrated significantly lower IL-13 levels at Week 12, with consistent trends toward reduced inflammatory activity during maintenance therapy. Successful dose reduction was associated with shorter disease duration, lower atopic burden, and deeper early responses. These findings support individualized abrocitinib optimization to maintain long-term disease control with the minimal effective dose.

***DP#2186***

## EFFICACY OUTCOMES OF ABROCITINIB IN ADULT PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS USING CANADIAN TREAT-TO-TARGET CRITERIA

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Treat-to-target (T2T) strategies use both physician rated and patient reported outcomes to guide therapeutic decisions for patients with atopic dermatitis (AD). The Canadian T2T criteria provide a practical framework for physicians and patients to assess treatment response. Abrocitinib offers rapid and clinically meaningful improvements in AD signs and symptoms, but how it performs in the context of the Canadian T2T criteria is not yet well characterized. This study assessed the efficacy of abrocitinib in AD in phase 3 clinical trials when evaluated using the Canadian T2T criteria for up to 2 years. This pooled post hoc analysis of three phase 3 clinical trials (JADE DARE, COMPARE, and EXTEND) included adult patients with moderate-to-severe AD receiving abrocitinib 100 mg or 200 mg daily. Concomitant topical therapy was permitted. The proportion of patients achieving Canadian T2T was assessed at Week 12, Months 6-8, Year 1, and Year 2 using last observation carried forward (LOCF) and nonresponder imputation (NRI). Kaplan-Meier methodology was used to estimate the time to first achievement of Canadian T2T criteria. At Week 12, Months 6-8, Year 1, and Year 2, Canadian T2T criteria were achieved with abrocitinib 100 mg and 200 mg by 76/91%, 59/79%, 61/72%, and 59/66% of patients when using LOCF and 73/86%, 59/73%, 57/69%, and 42/54% when using NRI, respectively. Median times to first achieving the Canadian T2T criteria were 29 and 15 days for the Week 12 target, 85 and 29 days for the Months 6-8 target, and 114 and 82.5 days for the Year 1 target with abrocitinib 100 mg and 200 mg, respectively. At all time points, high proportions of patients in both abrocitinib 100 mg and 200 mg groups achieved the Canadian T2T criteria, and median times to achievement were shorter than the corresponding target time frames.

### *DP#2190*

## REAL-WORLD SUSTAINED IMPROVEMENT IN TYPE 2 INFLAMMATORY COMORBIDITIES WITH DUPILUMAB IN CHINESE PEDIATRIC AND ADOLESCENT PATIENTS WITH ATOPIC DERMATITIS: 52-WEEK RESULTS FROM THE ADOPED-STAD OBSERVATIONAL STUDY

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Despite the high prevalence of type 2 (T2) comorbidities (allergic rhinitis [AR], asthma) among pediatric patients (pts) with atopic dermatitis (AD), data on the impact of dupilumab on these T2 comorbidities in China are limited. To evaluate the real-world impact of dupilumab on T2 comorbidities in Chinese pediatric pts with AD. ADOPED-STAD was a 1-year (y), prospective, multicenter, observational study of dupilumab in pts aged ≥6 months (mo) to <18 y with AD, including pts with comorbid AR and/or asthma. In this analysis, key outcomes were changes from baseline (BL) to Week 52 (W52) in pt-reported outcomes (PROs) for AR (AR-Visual Analog Scale [AR-VAS; score 0–100; <20 = well-controlled AR]) and asthma (5-item Asthma Control Questionnaire [ACQ-5] for pts aged ≥6 y [score 0–6; ≤0.75 = well-controlled asthma] or Pediatric Asthma Questionnaire [PAQ] for pts aged ≥6 mo to <6 y [score 0–27; ≥20 = well-controlled asthma]); safety was also assessed. Of 596 pts enrolled from 28 Sep 2022 to 14 May 2026, 316 (53.0%) had AR (23 [23.7%] aged ≥6 mo to <6 y, 194 [53.0%] ≥6 to <12 y, and 99 [74.4%] ≥12 to <18 y) and 51 (8.6%) had asthma (4 [4.1%], 22 [6.0%], and 25 [18.8%] in respective age groups). In pts with AR, mean AR-VAS scores improved from BL to W52 (53.0 to 29.0; absolute mean change −22.5 overall [−5.3, −25.3, and −22.1 in respective age groups]). In pts with asthma aged ≥6 y, mean ACQ-5 scores improved from BL to W52 (0.80 to 0.23; absolute mean change −0.95 overall [−0.77 in pts aged ≥6 to <12 y, −1.20 in pts aged ≥12 to <18 y]); PAQ scores also showed numerical improvement in pts aged ≥6 mo to <6 y. Safety outcomes were consistent with the overall dupilumab safety profile. Dupilumab demonstrated clinically meaningful and sustained benefits for T2 comorbidities at W52 among Chinese pediatric pts with AD across all age groups.

### *DP#2191*

## INFLAMMATORY MEMORY IN ATOPIC DERMATITIS RECURRENCE: A COMPREHENSIVE REVIEW OF CELLULAR AND MOLECULAR MECHANISMS

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Atopic dermatitis (AD) is a chronic recurrent inflammatory skin disease with a persistently high recurrence rate. Existing therapies fail to prevent recurrence after drug withdrawal, creating an urgent clinical need to explore the underlying causes of recurrence. Inflammatory memory is currently considered the main cause of AD recurrence. Systematically review the inflammatory memory related cell types and their molecular mechanisms involved in AD recurrence, and explore potential intervention strategies. Integrate recent literature and focus on analyzing the roles of TRM cells, keratinocytes, macrophages, mast cells, and dermal fibroblasts in the formation and maintenance of inflammatory memory. Studies found that TRM can persist via the JAK/STAT signaling pathway even after clinical skin lesions have resolved, and upon re exposure to antigens, they trigger an inflammatory burst through neutrophil recruitment. In addition, keratinocytes rely on transcription factors such as FOS, JUN, and STAT3 to

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maintain their chromatin accessibility, and the accompanying accumulation of the glycolytic metabolite lactate enables them to mount an exaggerated response to minimal stimulation. Upon stimulation by pathogens, macrophages develop trained immunity, maintaining a heightened state of alert through epigenetic modifications and rapidly amplifying the inflammatory cascade. The remodeling of signaling pathways in mast cells and the longer-term epigenetic stability in dermal fibroblasts also contribute to the establishment of this inflammatory memory. The recurrence of AD is caused by the continuous activation of the multicellular inflammatory memory loop. In the future, targeted epigenetic or metabolic reprogramming should be developed to develop precise intervention drugs to block recurrence.

***DP#2196***

## REAL-WORLD EFFECTIVENESS OF LEBRIKIZUMAB IN KOREAN PATIENTS WITH SEVERE ATOPIC DERMATITIS: A 16-WEEK RETROSPECTIVE ANALYSIS

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Lebrikizumab, a high-affinity anti-IL-13 monoclonal antibody, demonstrated robust efficacy in phase 3 trials for moderate-to-severe atopic dermatitis (AD). However, real-world data in Korean patients remain limited. We evaluated the 16-week effectiveness of lebrikizumab in Korean patients with severe AD.We retrospectively analyzed 40 patients with severe AD (baseline EASI ≥23) treated with lebrikizumab at a tertiary center in Korea (2023–2025). Patients received a 500-mg loading dose followed by 250 mg every 2 weeks. Total and regional EASI scores (head & neck, upper extremities, trunk, lower extremities) were assessed at baseline and week 16. Primary outcome was EASI75; secondary outcomes included EASI90, EASI change, regional responses, and outcomes by prior biologic exposure. Forty patients (mean age 33.3 years) completed 16 weeks. Mean EASI decreased from 26.7 to 3.3 (−87.5%). EASI75 was achieved by all patients, and EASI90 by 12.5%. The greatest absolute improvement occurred in the lower extremities, while the head & neck showed the smallest percentage improvement (−79.7%, P<0.001 vs. lower extremities). Twenty-nine patients were biologic-naïve and 11 had prior biologic/JAK inhibitor exposure. Both groups achieved identical EASI75 rates (100%) and comparable mean EASI reductions (87.3% vs. 87.8%, P=0.495). Lebrikizumab demonstrated rapid and substantial real-world effectiveness in Korean patients with severe AD. Treatment responses were maintained regardless of prior biologic or JAK inhibitor exposure, supporting its use in difficult-to-treat patients. Lower responses in the head & neck suggest this region may require additional therapeutic strategies.

***DP#2207***

## REAL-WORLD EFFICACY, SAFETY, AND TREATMENT PATTERNS OF SWITCHING ADVANCED THERAPIES IN PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS: A SINGLE-CENTRE STUDY

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Atopic dermatitis (AD) is a heterogeneous chronic inflammatory disease characterized by variable responses to multiple therapeutic options. In patients with difficult-to-treat AD, switching between advanced therapies has emerged as a practical strategy in routine clinical practice. This study aimed to investigate real-world switching patterns and evaluate the clinical efficacy and safety of alternative advanced therapies in patients with AD requiring treatment switching. This single-center retrospective study included patients aged ≥ 12 years with severe AD who underwent switching between advanced therapies at Chosun University Hospital between January 2021 and September 2025. Advanced therapies included biologics (dupilumab and tralokinumab) and Janus kinase inhibitors (upadacitinib, abrocitinib, and baricitinib). Clinical efficacy, laboratory biomarkers, and treatment-emergent adverse events (TEAEs) were assessed. A total of 36 patients were included. Dupilumab was the most common first-line therapy, and switching most frequently occurred from dupilumab to upadacitinib. After the first switch, all AD control tools significantly improved at week 12 or 16. EASI-75 and EASI-90 were achieved in 86.1% and 16.7% of patients, respectively. Peripheral blood eosinophil counts significantly decreased, whereas other laboratory biomarkers show no significant changes. TEAEs were less frequent during second-line therapy, and most adverse events improved after switching. In this real-world cohort of patients with severe difficult-to-treat AD, switching between advanced therapies was associated with improved clinical outcomes and an acceptable safety profile. Switching between therapies with different mechanisms of action may provide additional clinical benefit for patients who do not respond adequately to initial treatment.

***DP#2208***

## VALIDATION OF THE AD PREVENTION EFFECT OF AN OAT-CONTAINING BALM USING AN IN VITRO SKIN MODEL OF NEWBORNS

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Neonatal skin has an immature epidermal barrier with low natural moisturizing factor (NMF) levels, making it prone to dryness, sensitization, and atopic dermatitis (AD). To evaluate the AD-preventive efficacy and mechanism of an oat-containing balm using a neonatal-like 3D skin model, and to determine whether early intervention provides superior protection. A neonatal-like 3D skin model was used. (1) Early intervention study: The oat-containing balm was applied on days 1–4 after model construction. On day 5, TEWL, tissue morphology, and barrier proteins (FLG, LOR) were assessed. (2) AD-risk assessment: Poly I:C/LPS stimulation was used to induce AD-like inflammation. Barrier proteins, NMFs, lipids, and inflammatory cytokines were evaluated. (3) Repair comparison: The oat-containing balm was compared with six commercial baby products using TEWL, tissue morphology, and barrier protein expression. Day-1 application produced the greatest benefit, significantly reducing TEWL and improving barrier proteins and epidermal morphology versus later intervention. Under AD-like conditions, early treatment enhanced barrier integrity, increased NMF and lipid levels, and reduced sensitization and inflammatory markers. Compared with seven commercial baby products, the oat-containing balm demonstrated superior barrier repair and moisturizing efficacy, reflected by lower TEWL, improved tissue structure, and higher barrier protein expression. Early intervention with oat-containing balm provided the greatest prevention against sensitization and AD-like changes via improving skin barrier function, enhancing barrier proteins, NMFs, lipids and suppressing inflammatory responses. The oat-based formulation also outperformed multiple commercially available infant skincare products in barrier repair efficacy.

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***DP#2219***

## THE IMPACT OF DUPILUMAB ON SKIN BARRIER-RELATED PROTEIN AND MICROBIOTA IN CHILDREN AGED 6-12 YEARS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS

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Atopic Dermatitis (AD) causes chronic, recurrent skin inflammation in children. While dupilumab (an IL-4/IL-13 inhibitor) improves clinical symptoms, its dynamic effects on skin barrier proteins and microbiota in pediatric patients require systematic evaluation. This study investigated dupilumab's impact on barrier repair and microbial dynamics in children aged 6–12 with moderate-to-severe AD to clarify its mechanism and identify potential biomarkers. A total of 24 pediatric AD patients treated with dupilumab for 16 weeks and 10 healthy volunteers (HVs) were evaluated. Clinical scores (EASI, ISS, CDLQI, POEM, NRS itch) and Stratum Corneum Hydration (SCH) were tracked. Epidermal tape stripping before and after 16 weeks of treatment was analyzed using Data-Independent Acquisition (DIA) proteomics to identify differentially abundant barrier proteins. Skin swab samples were collected across eight time points (baseline through 12 weeks post-discontinuation) for 16S rRNA gene sequencing to profile microbial diversity and functional shifts. Clinical & Barrier Improvement: Dupilumab significantly improved all clinical scores (EASI dropped from 19.05 to 3.98, $P < 0.001$) and elevated SCH from 27.46 to 46.11 AU ($P < 0.001$). Proteomic Shift: Proteomics identified 610 differentially abundant proteins, including nine core skin barrier markers. Post-treatment, FLG2, KRAS, KRT1, CSTA, LORICRIN, SPINK5, and SLC27A4 were upregulated, whereas ELANE and ITGB2 were downregulated. Upregulation of CSTA, SPINK5, and FLG2 correlated with clinical and quality-of-life improvements ($P < 0.05$). Microbiota Restoration & Relapse: Treatment restored microbial diversity toward HV levels, reduced pathogenic genera, and modulated metabolic pathways (e.g., carbon metabolism). However, these microbial benefits were drug-dependent; diversity and community structures rebounded toward baseline within 12 weeks post-discontinuation, coinciding with clinical relapse. Dupilumab repairs the skin barrier multi-dimensionally—enhancing terminal differentiation, restoring protease balance, improving adhesion and lipid metabolism, and suppressing inflammation—while temporarily normalizing skin microbiota. Because microbial dysbiosis recurs post-discontinuation, continuous maintenance therapy is critical for sustained barrier stability and relapse prevention.

***DP#2226***

## THE EFFECT OF EASE OF SKIN TANNING, CHILDHOOD SUNBURN, SUN/UV PROTECTION ON ATOPIC DERMATITIS IS RELATED TO THE SKIN MICROBIOTA: EVIDENCE FROM TWO-STEP MENDELIAN RANDOMISATION STUDIES

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Previous studies showed that sun or UV radiation exposure and skin microbiota is associated with atopic dermatitis (AD). However, whether sun/UV exposure aggravates or alleviates AD remains controversial, and the causal association between UV radiation, skin microbiota and AD is yet to be fully clarified. To infer the causal relationships between sun exposure, skin microbiota and risk of AD and provide recommendations for sun exposure during AD treatment. Leveraging the publicly accessible summary-level statistics from genome-wide association studies, we employed two-sample MR and two-step mediation MR approach to analyze potential mediated effect of skin microbiota in the relationships between sun exposure and AD. In univariable MR, genetically predicted ease of skin tanning was associated with reduced AD risk (OR=0.918, P=0.026), while childhood sunburn and sun/UV protection showed no significant associations. In multivariable MR adjusting for confounders, ease of skin tanning remained protective (OR=0.544, P=0.002), whereas childhood sunburn (OR=1.731, P=0.034) and sun/UV protection (OR=2.999, P=0.006) emerged as significant risk factors. We identified 75 causal associations between sun exposure and skin microbial taxa, and 11 between microbial taxa and AD. Mediation analyses revealed that ASV011 [Staphylococcus (unc.)], Genus.Micrococcus, Genus.Corynebacterium and Family. Flavobacteriaceae significantly mediated the sun exposure-AD pathways. Our findings suggested that sun exposure may be beneficial for easy-tanned individuals with AD and harmful for easy-burned and sun/UV protected individuals with AD. Our results provide recommendations on whether AD patients can be exposed to sunlight.

***DP#2227***

## EFFECT OF CFTR-REGULATED TH17 CELL ACTIVATION ON THE SKIN BARRIER IN ATOPIC DERMATITIS

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Studies have suggested that abnormal CFTR function may affect the differentiation and function of T cells, but its specific regulatory effect on Th17/Treg balance, especially how it affects the skin barrier and inflammatory process in the context of atopic dermatitis (AD) pathology, is still unclear. To investigate whether CFTR affects skin barrier function and inflammation in AD by regulating Th17 cell activation. AD was induced in Balb/c mice with calcipotriol. Groups: control, model, CFTR knockdown, CFTR overexpression, hydrocortisone. Assessed by dermatitis score, ear swelling, H&E, Masson, TEM, flow cytometry (Th17/Treg), RT-qPCR, Western blot, and HaCaT cell functional assays. Compared with controls, AD model mice showed significantly increased dermatitis scores and ear swelling, with epidermal hyperplasia, inflammatory infiltration, increased collagen deposition, disrupted stratum corneum structure, and reduced desmosomes. Th17 proportion rose while Treg proportion declined. CFTR knockdown exacerbated all pathological manifestations, whereas CFTR overexpression significantly alleviated AD symptoms, improved skin barrier structure, and reversed Th17/Treg imbalance. In vitro, TNF-α/IFN-γ inhibited HaCaT cell viability, promoted apoptosis, induced G0/G1 arrest, reduced collagen I synthesis, and enhanced IL-17 secretion. CFTR knockdown aggravated these effects, while CFTR overexpression enhanced viability, inhibited apoptosis, promoted cell cycle progression, increased collagen synthesis, and reduced IL-17 release. CFTR plays a protective role in the development of AD, and its mechanism may be related to enhancing keratinocyte function, maintaining skin barrier integrity, regulating Th17/Treg immune balance and inhibiting inflammatory response. CFTR may become a potential target for AD treatment.

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***DP#2245***

## REAL-WORLD EXPERIENCE OF LEBRIKIZUMAB FOR ATOPIC DERMATITIS: A 16-WEEK MULTICENTER RETROSPECTIVE STUDY

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Lebrikizumab is a monoclonal antibody targeting interleukin-13, recently approved for moderate-to-severe atopic dermatitis (AD) in adults and adolescents. Randomized controlled trials have demonstrated efficacy and a favourable safety profile, but real-world evidence remains limited. To evaluate the real-world effectiveness and safety of lebrikizumab for AD over 16 weeks. We conducted a multicenter retrospective review across 3 Canadian institutions of adolescent and adult patients with AD initiated on lebrikizumab (subcutaneous injection; 500 mg at weeks 0 and 2, then 250 mg every 2 weeks until week 16, followed by 250 mg every 4 weeks thereafter). Effectiveness was assessed at week 16 ± 8 and safety via treatment-related adverse events. Thirty-two patients were included (mean age: 45.5 years; 50% male). At week 16 ± 8: 74.2% (23/31) achieved an Investigator Global Assessment of clear/almost clear (0/1), while 59.4%, 50.0%, and 43.8% achieved 75%, 90%, and 100% improvement in Eczema Area and Severity Index, respectively; Dermatology Life Quality Index of 0/1 was reached by 45.5% (10/22). Over approximately 24.3 patient-years of follow-up, no adverse events occurred, including no conjunctivitis, and no patients discontinued treatment. In this real-world cohort, lebrikizumab showed high effectiveness and an excellent safety profile for AD, with response rates for clear/almost clear skin (74.2%) and conjunctivitis (0%) that compared favourably to clinical trials and prior real-world studies. Limitations include the retrospective design, heterogeneous assessment window, and short follow-up.

***DP#2246***

## A PILOT STUDY TO ESTABLISH AN OVALBUMIN-INDUCED ATOPIC DERMATITIS CHRONIC RECURRENCE MOUSE MODEL

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Atopic dermatitis (AD) is a common, chronic and relapsing inflammatory skin disease. To date, the mechanisms of chronic recurrence in AD are less understood. We aimed to establish an animal model to demonstrate AD recurrent inflammatory process effectively. This study aims to establish a chronic relapsing ovalbumin-induced atopic dermatitis mouse model to elucidate the immune mechanisms of AD recurrence and support preclinical therapeutic development. Here, six-week-old female C57 mice were randomly divided into five groups (control group, acute group, regression group, relapse group and restimulation group; n = 6) and underwent induction of AD-like dermatitis by Epicutaneous (EC) sensitized ovalbumin (OVA) after repeated tape-stripping. Gross phenotype, histopathological manifestations, serum total immunoglobulin E (IgE) level and skin lesion resident memory T cell (TRM) subsets infiltration were performed and analyzed. The results showed that the OVA-induced AD-like lesions in the relapse group and restimulation group exhibited highest disease severity, epidermal thickness and serum IgE. Furthermore, we found the predominance of CD4+TRM cells in the basal layer of the epidermis and the follicular root sheaths of AD lesions, with CD4+TRM expansion upon OVA re-exposure. Collectively, our data demonstrate that this chronic relapsing AD mouse model renders it very attractive to study AD pathogenesis and sustained immunologic abnormalities involved in AD development, maintenance and recurrence. Furthermore, this model might be useful for preclinical studies aiming at unraveling new therapeutic strategies to treat AD.

***DP#2263***

## 4-OCTYL ITACONATE ATTENUATES ATOPIC DERMATITIS BY INHIBITING MACROPHAGE FERROPTOSIS VIA THE NRF2/GPX4 PATHWAY

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Atopic dermatitis (AD) is a chronic inflammatory skin disease in which macrophages infiltrate lesional tissue, yet their pathogenic role and regulatory mechanisms remain elusive. We sought to investigate the presence and pathogenic role of macrophage ferroptosis in AD skin lesions and to unravel how 4-octyl itaconate (4-OI) mitigates AD inflammatory skin damage via inhibiting oxidative stress and macrophage ferroptosis. To this end, we employed MC903induced AD mouse models and examined skin lesions by histopathology, qPCR and Western blotting for inflammatory and ferroptosisrelated markers, immunofluorescence for macrophage infiltration, and ELISA/flow cytometry for oxidative stress. Our preliminary data demonstrate that AD lesions exhibit increased macrophage ROS and MDA, downregulated GPX4, upregulated PTGS2, and enhanced ACOD1 lactylation; 4-OI treatment reverses these ferroptotic changes, restores Nrf2 nuclear translocation, and reduces IL-4, IL-5, and IL-13 levels. Collectively, our findings identify macrophage ferroptosis as a critical driver of AD inflammation and establish 4-OI as a promising therapeutic agent that acts through the Nrf2/GPX4 pathway, offering new mechanistic insights and potential translational opportunities for AD management.

***DP#2273***

## AN EVALUATION OF DIFFERENCES IN THE EFFICACY OF DUPILUMAB IN TREATING PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS, WITH OR WITHOUT FACIAL DERMATITIS, BASED ON CBS MULTISPECTRAL EXAMINATION

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Dupilumab has been shown to be effective in the treatment of atopic dermatitis (AD), but conventional assessment methods are highly subjective. This study utilised the CBS® Cloud Mirror (a multispectral dermatoscopy workstation) to objectively quantify facial lesions and compare the differences in treatment efficacy after 16 weeks between patients with moderate-to-severe AD, with or without facial dermatitis. A total of 41 patients with moderate-to-severe AD were included and divided into a group with facial dermatitis (Group F, 22 patients) and a group without

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facial dermatitis (Group NF, 19 patients). All patients received treatment with dupilumab for 16 weeks. CBS examinations were conducted before and after treatment to obtain objective parameters such as pigmentation, pore size, skin smoothness, wrinkles, red areas and porphyrins, and clinical scores were recorded. There were no differences between the two groups in terms of baseline age, SCORAD or EASI. Group F had higher BMI, longer disease duration, longer duration of electronic device use and higher HADS scores. After 16 weeks of treatment, there was a significant improvement in CBS parameters in both groups. Prior to treatment, the Group F parameters for red areas, porphyrin, fine lines, wrinkles and pores were all higher than those in the NF group, however whilst smoothness was lower. In terms of the degree of improvement, Group F showed significantly greater improvements in fine lines, red areas and porphyrin levels than Group NF. Treatment with dupilumab for 16 weeks significantly improved the overall condition and facial objective parameters in patients with moderate-to-severe atopic dermatitis, with even more pronounced improvements observed in those with facial dermatitis.

***DP#2275***

## ATOPIC DERMATITIS ASSOCIATED WITH NUTRITIONAL RICKETS IN A CHILD: A CASE REPORT

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Atopic dermatitis (AD) is a chronic inflammatory skin condition whose severity may be influenced by vitamin D deficiency. Although the association with deficiency-related rickets remains rare, it deserves recognition. We present a case of atopic dermatitis associated with nutritional rickets We report the case of a 4-year-old boy with atopic dermatitis that began at the age of 3 months and evolved with recurrent flares of diffuse eczematous lesions, severe skin xerosis, and secondary bacterial infection. At 4 years of age, osteoarticular examination revealed thoracic and limb deformities suggestive of rickets. Laboratory investigations showed hypocalcemia (1.6 mmol/L) and vitamin D deficiency (25-OH vitamin D: 14.5 ng/mL). Radiographs demonstrated bone demineralization and widening of the costochondral junctions. A diagnosis of atopic dermatitis (SCORAD: 40), secondary bacterial infection, and a CDLQI score of 15, associated with nutritional rickets, was established. Treatment included topical corticosteroids, emollients, vitamin D and calcium supplementation, together with therapeutic education resulting in a favorable outcome Several studies suggest an association between vitamin D deficiency and the severity of atopic dermatitis. Vitamin D helps maintain the skin barrier, modulates immune responses, and promotes the expression of antimicrobial peptides. Screening for vitamin D deficiency should be considered in children with severe atopic dermatitis or atopic dermatitis associated with signs of growth retardation or bone involvement.

***DP#2276***

## EPIDERMAL BMP2/BMP4 DEFICIENCY DISRUPTS SKIN BARRIER HOMEOSTASIS

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The epidermal barrier plays a critical role in maintaining skin homeostasis by regulating keratinocyte differentiation, lipid organization, and environmental protection. BMP signaling is essential for epidermal development and homeostasis, but its contribution remains unclear. We used a keratinocytespecific BMP2/BMP4 knockout mouse to investigate the molecular alterations. n Keratinocyte-specific BMP2/BMP4 conditional double-knockout (DKO) mice were generated using the K14-Cre/loxP system. Dorsal skin tissues were subjected to histological examination and label-free quantitative LC-MS/MS proteomic analysis. Differentially expressed proteins (DEPs) were analyzed using GO, KEGG, and PPI networks. Proteomics identified 7,242 proteins, with 493 DEPs between DKO and controls. Histology showed disrupted architecture and shortened follicles. Proteomic data indicated impaired differentiation (FLG, KRT1), altered protein–lipid complexes, and cholesterol metabolism changes—suggesting barrier defects. Enrichment revealed activated acute inflammation, immunoglobulinmediated immunity, complement, and S. aureus infection pathways.PPI network analysis identified key hub proteins including APOA1, APOC3, ALB, F2, PLG, AHSG, and AGT, suggesting coordinated regulation of lipid transport, extracellular matrix-associated processes, and epidermal homeostasis. Our study demonstrates that BMP2/BMP4 signaling is essential for maintaining epidermal homeostasis by regulating keratinocyte differentiation and lipid metabolic processes. Loss of epidermal BMP signaling results in extensive molecular remodeling affecting barrier-associated proteins and lipid organization. These findings provide new insights into the mechanisms underlying BMP-mediated regulation of skin barrier integrity and epidermal function.

***DP#2309***

## CLINICAL EFFICACY AND SAFETY OF DUPILUMAB IN THE TREATMENT OF ATOPIC DERMATITIS IN INFANTS AND YOUNG CHILDREN AGED 6 MONTHS TO 6 YEARS: A SINGLE-CENTER STUDY

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We evaluated individualized dupilumab therapy for this age group and compared outcomes stratified by type 2 inflammatory comorbidities and atopic family history to guide pediatric AD management. To evaluate efficacy and safety of dupilumab for children aged 6 months–6 years with atopic dermatitis (AD), and explore how type 2 inflammatory comorbidities and atopic family history affect treatment outcomes. This retrospective study enrolled 213 children with moderate-to-severe AD from Jan 2025 to Jan 2026. All received individualized dupilumab every four weeks for 16 weeks, with dose adjusted by age, weight and disease severity. Objective scores (SCORAD, EASI, ADCT), subjective pruritus scores (NRS, sD-NRS), eosinophil counts, serum total IgE and allergen-specific IgE were compared pre- and post-treatment. Adverse events were recorded. Subgroup comparisons were performed based on type 2 comorbidities and family allergic history. After 16-week treatment, all clinical scores significantly improved. Peripheral eosinophils and total IgE decreased notably ($P<0.05$), alongside reduced levels of food and inhalant specific IgE. Patients without type 2 inflammatory comorbidities achieved superior therapeutic responses ($P<0.05$). Significant symptom relief was observed regardless of family allergic history, with no intergroup difference ($P>0.05$). Only mild adverse events were noted, without severe reactions. Individualized dupilumab effectively controls AD and suppresses type 2 inflammation in young children. Concurrent type 2 comorbidities may reduce treatment response. This therapy demonstrates

satisfactory efficacy and safety for infants and young children with moderate-to-severe AD.

***DP#2310***

## ENVIRONMENTAL HEAT EXACERBATES ATOPIC DERMATITIS THROUGH TRPV1 ACTIVATION: PROTECTIVE EFFECTS OF CAPSAZEPINE

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Environmental heat is increasingly recognized as a risk factor for atopic dermatitis (AD) exacerbation, but the role of transient receptor potential vanilloid 1 (TRPV1) in this response remains unclear. To determine whether heat aggravates AD through transient receptor potential vanilloid 1 (TRPV1) activation and to evaluate the protective effect of the TRPV1 antagonist capsazepine (CZP). AD was induced by repeated topical 2,4-dinitrochlorobenzene application. Mice were assigned to two vehicle-control groups, AD, AD plus capsazepine, AD plus heat, or AD plus heat and capsazepine groups (n=6/group). During the challenge phase, mice were exposed to 40 °C for 4 h/day for 2 weeks, and capsazepine was administered intraperitoneally. Dermatitis severity and scratching were recorded. Skin histopathology and mast-cell degranulation were assessed by hematoxylin and eosin and toluidine blue staining; cutaneous TRPV1 and thymic stromal lymphopoietin (TSLP) expression by immunohistochemistry; apoptosis and oxidative DNA damage by TUNEL and 8-hydroxy-2′-deoxyguanosine immunofluorescence. Serum IgE, IL-13, TNF-α, and TSLP were measured by ELISA. Heat exposure significantly increased dermatitis severity, scratching, epidermal hyperplasia, mast-cell degranulation, cutaneous TRPV1 and TSLP expression, apoptosis, oxidative DNA damage, and serum IgE, IL-13, TNF-α, and TSLP compared with AD alone ($P < 0.01$). Capsazepine treatment significantly attenuated these changes ($P < 0.01$). High-temperature exposure exacerbates experimental AD, accompanied by increased TRPV1 and TSLP expression, mast-cell activation, inflammatory responses, apoptosis, and oxidative DNA damage. Capsazepine attenuates these alterations, supporting TRPV1 as a potential therapeutic target for environmentally exacerbated AD.

***DP#2317***

## EFFECTIVENESS AND SAFETY OF DUPILUMAB IN THE TREATMENT OF MODERATE-TO-SEVERE ATOPIC DERMATITIS IN INFANTS, CHILDREN, AND ADOLESCENTS: A REAL-WORLD STUDY

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Atopic dermatitis (AD) is a common skin condition that significantly impacts patients' quality of life. Dupilumab has demonstrated favorable efficacy and safety in the treatment of AD in adolescents and adults, but there is limited real-world data on its use in moderate-to-severe AD patients among infants, children, and adolescents in China. To investigate the efficacy and safety of Dupilumab in Chinese patients aged 6 months to 17 years with moderate-to-severe AD, explore differences in efficacy across different age groups, and identify predictors of response to Dupilumab. This retrospective study included 243 patients aged 6 months to 17 years with moderate-to-severe AD treated with dupilumab. Clinical outcomes, laboratory parameters, adverse events, and relapse were assessed at baseline, after the first injection, and at week 16. Significant improvements in SCORAD, EASI, IGA, BSA, POEM, and NRS were observed after the first injection and were maintained through week 16 (all $p<0.05$). At week 16, 47.95% and 63.93% of patients achieved IGA0/1 and EASI75, respectively, with comparable efficacy across age groups. Eosinophil count, eosinophil percentage, and total IgE showed declining trends during treatment. Early disease onset (<2 years) and higher baseline SCORAD were associated with better treatment response, whereas asthma predicted poorer response. No serious adverse events were reported. Dupilumab is effective and well tolerated in Chinese infants, children, and adolescents with moderate-to-severe AD. Early disease onset, asthma, and baseline disease severity may help predict treatment response.

***DP#2320***

## RELATIONSHIP BETWEEN ATOPIC DERMATITIS AND OBESITY AT DIFFERENT AGES

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Atopic dermatitis (AD) is a chronic inflammatory skin disease influenced by genetic, immunological, and environmental factors. Obesity has been proposed as a potential risk factor for AD; however, published evidence remains inconsistent. Age-related differences may partly explain these discrepancies, and a comprehensive evaluation across different life stages is needed. To summarize current evidence on the association between obesity and AD across different age groups and to clarify age-specific patterns of this relationship. A narrative review of published epidemiological studies was conducted. Evidence was categorized according to life stages, including maternal obesity, early childhood, prepuberty, adolescence, and adulthood. Associations between obesity-related indicators, including pre-pregnancy body mass index, gestational weight gain, childhood obesity, and adult obesity, and the risk of AD were synthesized. Current evidence indicates that maternal obesity, higher pre-pregnancy body mass index, and excessive gestational weight gain are associated with an increased risk of AD in offspring. Obesity during early childhood and adulthood also appears to be associated with a higher risk of AD. In contrast, evidence for children aged 3–10 years remains limited, and studies in adolescents have reported inconsistent findings. These discrepancies may reflect differences in study design, obesity definitions, age-specific immune and metabolic characteristics, and potential confounding factors. The association between obesity and AD appears to be age dependent. Current evidence supports a positive association in maternal obesity, early childhood, and adulthood, whereas further high-quality studies are needed to clarify this relationship during prepuberty and adolescence.

***DP#2323***

## MOLECULAR MECHANISMS OF FIRE NEEDLING THERAPY IN DERMATOLOGICAL DISEASES: A REVIEW

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Fire needling (Huo Zhen) is a traditional Chinese external therapy involving rapid insertion of a red-hot needle into acupoints or skin lesions, exerting dual thermal and mechanical stimulation. It has shown efficacy in acne, post-herpetic neuralgia, vitiligo, keloids, and chronic eczema. Systematic reviews on its molecular mechanisms remain scarce. To summarize molecular mechanisms of fire needling in dermatological diseases and provide evidence for standardized clinical application. Based on PubMed and CNKI databases, we searched literature from 2013 to 2026 using keywords such as "fire needle," "molecular mechanism,"



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"inflammation," and "skin disease." Studies with clear molecular biological indicators were included. (1) Thermal stimulation activates HSP70/HSP90, suppresses NF-κB and MAPK/p38, inhibits NLRP3 inflammasome, reducing pro-inflammatory cytokines. (2) Restores Th1/Th2 and Treg/Th17 balance, elevates IFN-γ, lowers IL-4 and IgE. (3) Micro-injury triggers DAMPs, upregulates Filaggrin and tight junction proteins, reducing TEWL by 53%. (4) VEGF/bFGF upregulation promotes angiogenesis. (5) Direct ablation eliminates pathogens and sebaceous glands. (6) Elevated Bax/Bcl-2 and Caspase-3 induces apoptosis of hyperproliferative cells. (7) TGF-β1/Smad and PI3K/Akt/mTOR suppression inhibits keloid fibroblasts. (8) SCF/c-Kit and Wnt/β-catenin promotes melanocyte regeneration. (9) TRPV1 desensitization and opioid release provide analgesia and antipruritus. Fire needle acts through multiple dimensions including inflammation regulation, immune modulation, tissue repair, and direct pathological intervention. Its clinical application deserves rapid expansion and further scientific and international promotion.

### *DP#2324*
### LONG-TERM REAL-WORLD EFFECTIVENESS, DRUG RETENTION AND SAFETY OF UPADACITINIB, ABROCITINIB AND DUPILUMAB FOR ATOPIC DERMATITIS

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Long-term direct real-world comparisons of systemic therapies for atopic dermatitis (AD) are scarce. To compare the effectiveness, drug retention and safety of upadacitinib, abrocitinib and dupilumab. This prospective cohort included 359 patients with moderate-to-severe AD initiating abrocitinib (n=147), upadacitinib (n=88) or dupilumab (n=124),and physician- and patient-reported outcomes were evaluated at multiple time points. JAK inhibitors, particularly upadacitinib, demonstrated superior shortterm efficacy over dupilumab, whereas no significant differences were observed in the long term. At week 4, EASI75 was achieved by 69.1% of patients receiving upadacitinib, 56.9% receiving abrocitinib, and 47.5% receiving dupilumab. Upadacitinib also achieved higher early IGA0/1 response rates than dupilumab at week 4. Drug retention did not differ significantly among the three treatments. At week 52, retention rates were 80.7% for upadacitinib, 78.9% for dupilumab, and 72.7% for abrocitinib. Any AE (adverse event) occurred in 70.5% of upadacitinibtreated patients, 61.9% of abrocitinibtreated patients, and 21.5% of dupilumabtreated patients. No serious AEs were reported. The frequencies of individual adverse events differed between the two JAK inhibitors. Acneiform eruptions were observed in 33.0% of upadacitinibtreated patients compared with 19.7% in the abrocitinib group, and infections occurred in 30.7% versus 10.9%, respectively. Conversely, gastrointestinal discomfort was more frequently reported with abrocitinib (17.7%) than with upadacitinib (4.5%). No significant efficacy differences were observed in the long term. All three therapies were well tolerated. The predominant AE profiles differed between the two JAK inhibitors.

### *DP#2328*
### EFFICACY AND SAFETY OF UPADACITINIB IN MODERATE-TO-SEVERE ATOPIC DERMATITIS: A 48-WEEK REAL-WORLD STUDY IN CHINESE PATIENTS

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Upadacitinib, a selective JAK1 inhibitor, has shown potent efficacy in clinical trials for moderatetosevere atopic dermatitis (AD). However, 48week realworld data in Chinese patients remain scarce, particularly regarding dose adjustment and longterm outcomes. To assess 48week efficacy, safety, dosetapering patterns, relapse risk, and early predictors of treatment discontinuation in Chinese patients receiving upadacitinib 15 mg once daily. This singlecenter prospective study enrolled 29 patients with moderatetosevere AD. Clinical evaluations were performed at baseline and at 1, 3, 6, and 12 months using EASI, SCORAD, IGA, Peak Pruritus Numerical Rating Scale (PPNRS), pain/sleep NRS, DLQI, POEM, and ADCT. Adherence, adverse events, lesion distribution, and relapse episodes were systematically recorded. Of 29 patients, 20 (69.0%) completed the followup. Baseline disease was severe (median EASI 16.64; mean PPNRS 6.79). At month 1, rapid improvements were noted: EASI reduction 83.6%, PPNRS reduction 75.7%, EASI75 response 73.1%, and IGA 0/1 achievement 25.9%. Efficacy sustained to week 48 (median EASI 0.86, mean PPNRS 1.57). Lesional analysis showed best trunk response and poorest lowerextremity (EASI75 37.5%). Adherence 95.6%, dose tapering 55.9%. Among 18 completers, relapse occurred in 9 (50%), with median time 5 days posttaper and 5.4 months postdiscontinuation. Baseline ADCT ≥19 and month1 PPNRS drop <5 predicted dropout. Adverse events were mild acne and upper respiratory infections; none severe, zoster, or thrombosis occurred. Upadacitinib 15 mg daily provides rapid and sustained efficacy over 48 weeks with a favorable safety profile in Chinese moderatetosevere AD. Given the high relapse rate after tapering or withdrawal, individualized maintenance therapy and close monitoring are recommended.

### *DP#2330*
### SMART EASI: AN AI-POWERED SYSTEM FOR STANDARDIZED AND EFFICIENT ATOPIC DERMATITIS SEVERITY ASSESSMENT

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EASI (Eczema Area and Severity Index) is a globally recognized gold standard for assessing atopic dermatitis (AD) severity. However, manual EASI scoring is time-consuming and prone to subjective variability. Smart EASI, developed by Beijing Children's Hospital and Yongliu Technology, integrates AI image recognition to automate and standardize AD assessment. To introduce Smart EASI, an AI-powered system that streamlines EASI scoring, enhances accuracy, and supports standardized AD management across clinical settings. Smart EASI employs a specialized AI model trained on AD lesion images to perform pixel-level analysis of four body regions (head/neck, trunk, upper limbs, lower limbs). It evaluates area scores (0–6) and severity scores (0–3) for four clinical features (erythema, edema/papulation, excoriation, lichenification), automatically calculating the total EASI score (0–72). The system reduces scoring time from manual calculation to minutes. It ensures inter-rater consistency, supports remote assessment, and enables longitudinal tracking of disease progression. Smart EASI is freely available to dermatologists, facilitating standardized AD evaluation in primary care. Smart EASI effectively translates the EASI gold standard into a practical, accessible tool, improving diagnostic precision and efficiency. It promotes standardized AD care, supports clinical research, and enhances telemedicine capabilities.

### *DP#2346*
### PEDIATRIC ATOPIC DERMATITIS INCIDENCE: DRIVEN BY GENES AND ENVIRONMENT

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Pediatric atopic dermatitis (AD) is a "modern urban disease." Urbanization, industrialization, and family socioeconomic

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status (SES) drive the global rise in childhood prevalence. To provide an integrated perspective on the "environment–gene" multidimensional drivers of AD pathogenesis, offering theoretical support for precision prevention and public health interventions. Based on literature review, integrating epidemiological and molecular mechanistic evidence to analyze and construct a framework for AD pathogenesis. Only 20%–50% of AD patients carry FLG mutations, suggesting strong external drivers. Disease patterns evolve with environmental and lifestyle changes. Urban children have significantly higher prevalence than rural ones. Developed countries show higher rates than less developed ones. The dual role of urban SES contributes to rising AD incidence. Urbanization reduces exposure to natural microbes via the "hygiene hypothesis," impairing immune tolerance, leading to "microbial deprivation" and "biodiversity loss," promoting Th2 responses and AD susceptibility. Air pollution and indoor chemicals activate AhR/NF-κB pathways, inducing oxidative stress, skin barrier damage, and Th2 inflammation. Environmental pollutants influence fetal immune gene programming via epigenetic mechanisms. AD results from gene–environment–lifestyle interactions. Its growing epidemic in urban populations calls for comprehensive public health strategies targeting environmental triggers to shift from "passive treatment" to "active prevention."

***DP#2371***

## THE LEVEL OF NATURAL MOISTURISING FACTORS IN THE STRATUM CORNEUM OF AFRICAN ATOPIC DERMATITIS PATIENTS IN KWAZULA-NATAL, SOUTH AFRICA.

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AD is characterised by epidermal barrier dysfunction, in which depletion of natural moisturising factors (NMF) plays a role. Two studies in Africa suggest that filaggrin-related barrier dysfunction may differ from that described in European and Asian cohorts. Filaggrin LOF variants were uncommon in Ethiopian patients with AD, while South African amaXhosa children with AD showed reduced NMF despite an absence of these mutations. This prompts further research in African populations to better understand the pathogenesis of AD in our patients. To quantify NMF levels in African children and adolescents with AD and to examine correlations between NMF levels and disease severity. Skin swabs (n=56) from paired lesional and non-lesional sites were analysed using NMR spectroscopy to quantify the relative abundances of surface metabolites. A composite NMF index was calculated as the mean of the relative abundances of UCA and PCA. We calculated the difference in the NMF index between samples by subtracting the lesional NMF index from the non-lesional. We calculated the overall difference in NMF using the corresponding group-level values. A paired t-test was used to compare NMF values between matched samples and clinical severity was assessed using EASI scores and correlated with NMF levels. The overall percentage reduction of NMF across all lesional samples was 11.6%, consistent with a reduction of NMF in skin with active disease (paired t-test $p = 0.001$) A statistically significant inverse correlation was seen between NMF and EASI scores($r = -0.28$, $p = 0.03$) NMF levels were significantly lower in lesional skin and inversely correlated with disease severity. These findings demonstrate an association between NMF depletion, epidermal barrier impairment and greater disease severity, supporting NMF as a potential biomarker of disease severity.

***DP#2377***

## COMPARISON OF TWO EYE DROPS FOR KERATOCONJUNCTIVITIS PREVENTION IN ATOPIC DERMATITIS PATIENTS TREATED WITH BIOLOGICS

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Atopic dermatitis (AD) is frequently associated with ocular complications, including keratoconjunctivitis, which may also occur as an adverse event of biologic therapies such as dupilumab. At our center, artificial tears are routinely recommended as primary prevention when biologic treatment is initiated. To investigate whether the concentration and molecular weight of sodium hyaluronate influence the prevention and management of ocular complications, 52 patients with severe AD initiating dupilumab were enrolled and assigned to receive either preservative-free sodium hyaluronate 0.1% eye drops or preservative-free sodium hyaluronate 0.4% eye drops containing high-molecular-weight sodium hyaluronate. The incidence of conjunctivitis during the first 3 months of treatment and the need for ophthalmological assessment for conjunctivitis or dry-eye symptoms were recorded. At 3 months, ocular symptoms were assessed using the OSDI questionnaire. Conjunctivitis occurred in 30.7% of patients receiving sodium hyaluronate 0.1% versus 19.2% receiving 0.4% sodium hyaluronate ($p=0.262$). Ophthalmological visits for conjunctivitis occurred in 32% versus 20% of patients, respectively ($p=0.260$), while visits for dry-eye symptoms were similar (28% vs 29.2%; $p=0.589$). OSDI scores indicated milder ocular symptoms with 0.4% sodium hyaluronate, although no comparison reached statistical significance. In patients with severe AD initiating dupilumab, prophylactic use of preservative-free 0.4% sodium hyaluronate was associated with a lower incidence of conjunctivitis and fewer ophthalmological visits for conjunctivitis, together with milder ocular symptoms, compared with 0.1% sodium hyaluronate. Larger studies with longer follow-up are warranted to confirm these findings.

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