Incyte Dermatology

Atopic Dermatitis

Understanding the Burden, Pathophysiology, Diagnosis, and Disease Management

MSL-DIS-US-0023 6/26

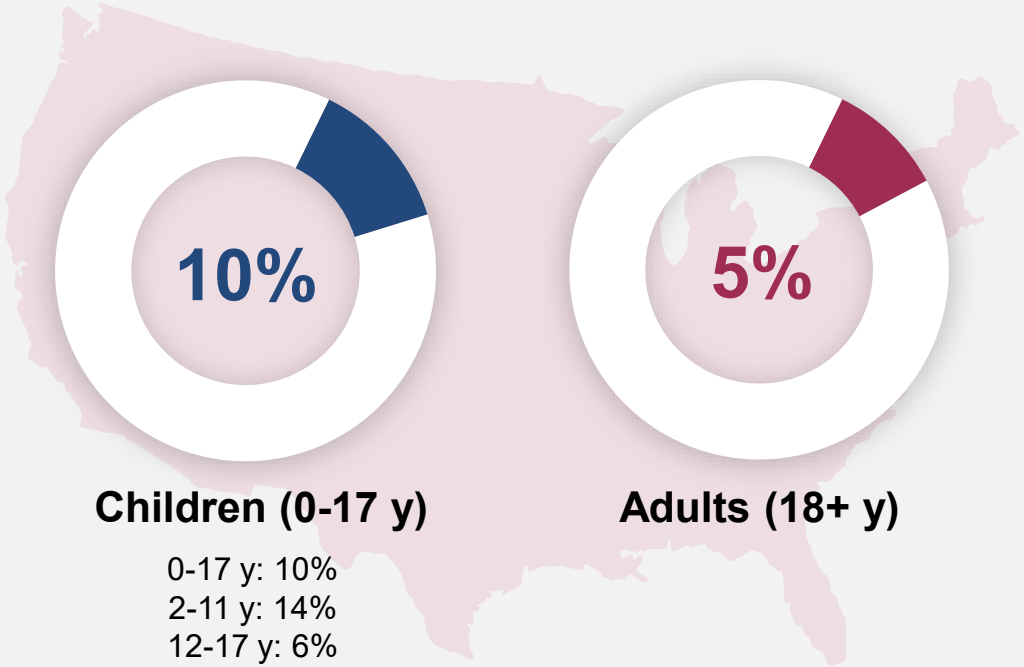
FOR MEDICAL INFORMATION PURPOSES ONLY

Burden of Disease

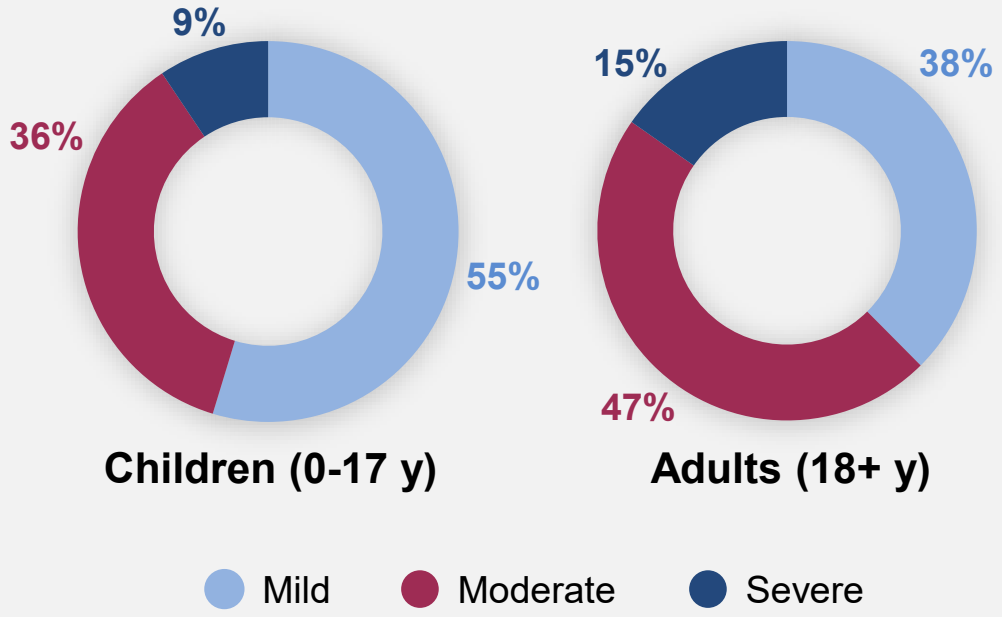
FOR MEDICAL INFORMATION PURPOSES ONLY

Atopic Dermatitis Is One of the Most Common Inflammatory Skin Diseases That Affects Children and Adults

US Overall Prevalence[a]



Disease Severity[a,b]



[a] Data shown here were derived from an analysis of data from the following sources: Barbarot S, et al. *Allergy*. 2018;73:1284-1293. Ferrari AJ, et al. *Lancet*. 2024;403:2133-2161. Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2021 (GBD 2021) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2022. Accessed Apr 2026. https://vizhub.healthdata.org/gbd-results/. Migliavaca CB, et al. *Dermatitis*. 2025;36:575-582. Silverberg JI, et al. *J Am Acad Dermatol*. 2023;89:519-528. Tian J, et al. *Br J Dermatol*. 2024;190:55-61. United Nations, Department of Economic and Social Affairs, Population Division (2024). *World Population Prospects 2024, Online Edition*. Accessed Apr 2026. https://population.un.org/wpp/downloads?folder=Standard%20Projections&group=Population. [b] Severity determined using the Patient-Oriented Eczema Measure. Data on file. Incyte Corporation.

FOR MEDICAL INFORMATION PURPOSES ONLY

The Clinical Phenotype of Atopic Dermatitis Differs by Age of Presentation

AD is a chronic, heterogeneous, highly pruritic, relapsing inflammatory skin disease characterized by pruritus, eczematous skin lesions, dry skin, lichenification, immune system dysregulation, and underlying skin barrier defects[1,2]

Signs and symptoms of AD often present in infancy and may persist into adulthood, although onset in adulthood may also occur[3-11]

Symptom Presentation by Age

Infants

- Acute, widely distributed lesions, often present on face, trunk (except the diaper area), and extensor surfaces of limbs[11]
- Characterized by severe erythema, edema, excoriations, and serous exudate manifesting as oozing and crusting[10]

Toddlers and children

- Lesions are localized and chronic with milder erythema and xerosis, and commonly impact flexor surfaces[10,11]

Adolescents and adults

- Lesions present with a diffuse pattern but may be localized, particularly impacting the hands, wrists, ankles, eyelids, and flexor surfaces[10,11]
- Xerosis and lichenification may be present
- Adults may have chronic hand or head and neck AD (often involves the upper trunk, shoulders, and scalp)[10,11]

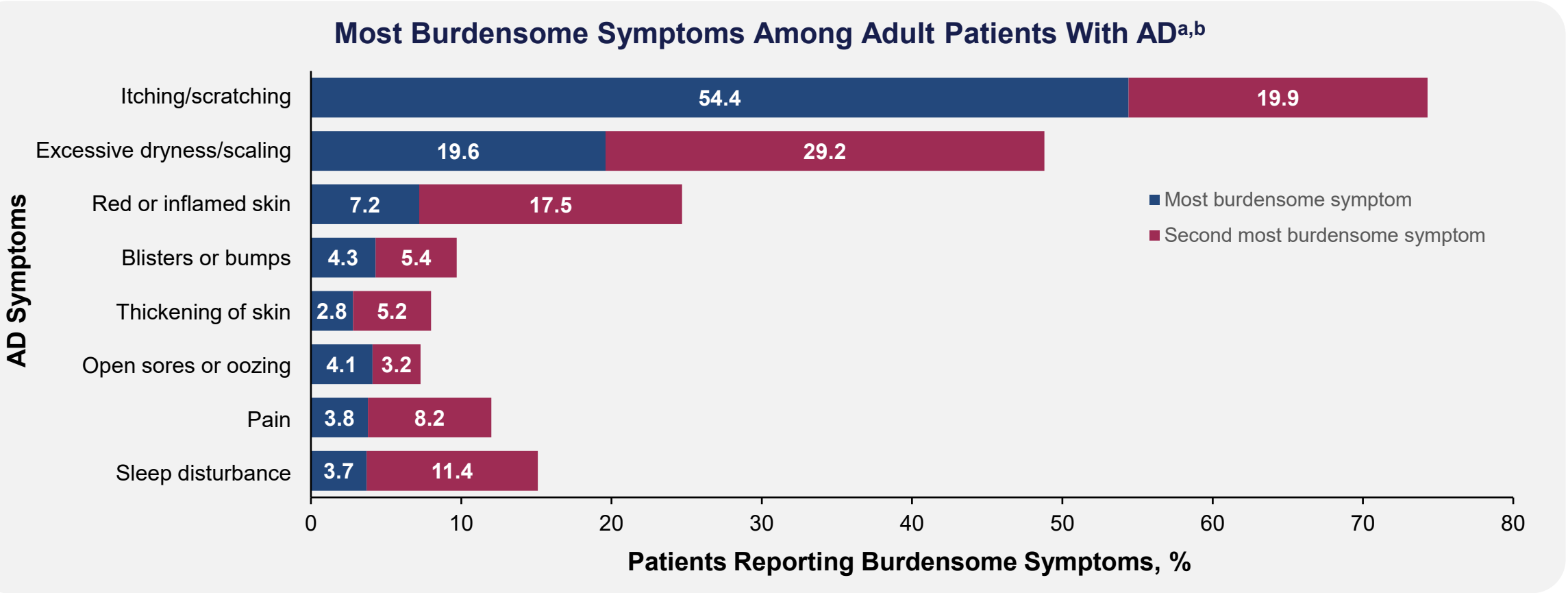
AD, atopic dermatits.

1. Eichenfield LF, et al. *J Am Acad Dermatol*. 2014;70:116-132. 2. Boguniewicz M, et al. *Ann Allergy Asthma Immunol*. 2018;120:10-22. 3. Silverberg JI. *Dermatol Clin*. 2017;35:283-289. 4. Lyons JJ, et al. *Immunol Allergy Clin North Am*. 2015;35:161-183. 5. Silverberg JI, et al. *Dermatitis*. 2014;25:107-114. 6. Shaw TE, et al. *J Invest Dermatol*. 2011;131:67-73. 7. Silverberg JI, et al. *Pediatr Allergy Immunol*. 2013:24:476-486. 8. Chiesa Fuxench ZC, et al. *J Invest Dermatol*. 2019;139:583-590. 9. Silverberg JI, et al. *J Allergy Clin Immunol*. 2013;1321132-1138. 10. Weidinger S, et al. *Nat Rev Dis Primers*. 2018;4:1. 11. Langan SM, et al. *Lancet*. 2020;396:345-360.

Images reprinted from DermNet (https://dermnetnz.org/) under a CC BY-NC-ND 3.0 NZ license (https://creativecommons.org/licenses/by-nc-nd/3.0/nz/legalcode.en).

FOR MEDICAL INFORMATION PURPOSES ONLY

Most Patients Report Itch as the Most Burdensome Symptom of Atopic Dermatitis



[a] Cross-sectional, population-based AD in America survey sampling the GfK panel. This cohort included adults with AD based on an adaptation of the UK working party criteria for AD which included having an itchy skin condition during the past 12 months and 3 or more of the following: [1] history of skin crease involvement; [2] personal history of asthma or hay fever; [3] history of general dry skin during the past year; [4] visible flexural eczema; or [5] onset before the age of 2 years. Limitations included all exposures and outcomes being assessed by self report and not verified by physical examination and may be subject to misclassifications. [b] The most and second most burdensome self-reported symptoms and signs of AD were examined.

AD, atopic dermatitis; GfK, Growth from Knowledge.

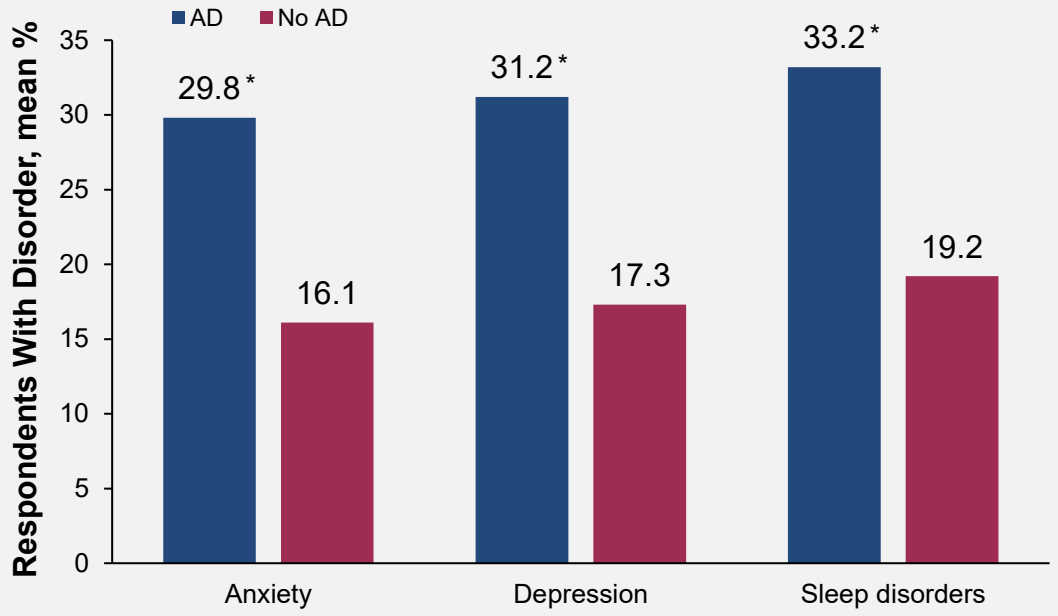
Silverberg JI, et al. *Ann Allergy Asthma Immunol*. 2018;121:340-347.

Adapted from Silverberg JI, et al. *Ann Allergy Asthma Immunol*. 2018;121:340-347. ©2018 under a CC BY-NC-ND 4.0 license (https://creativecommons.org/licenses/by-nc-nd/4.0/).

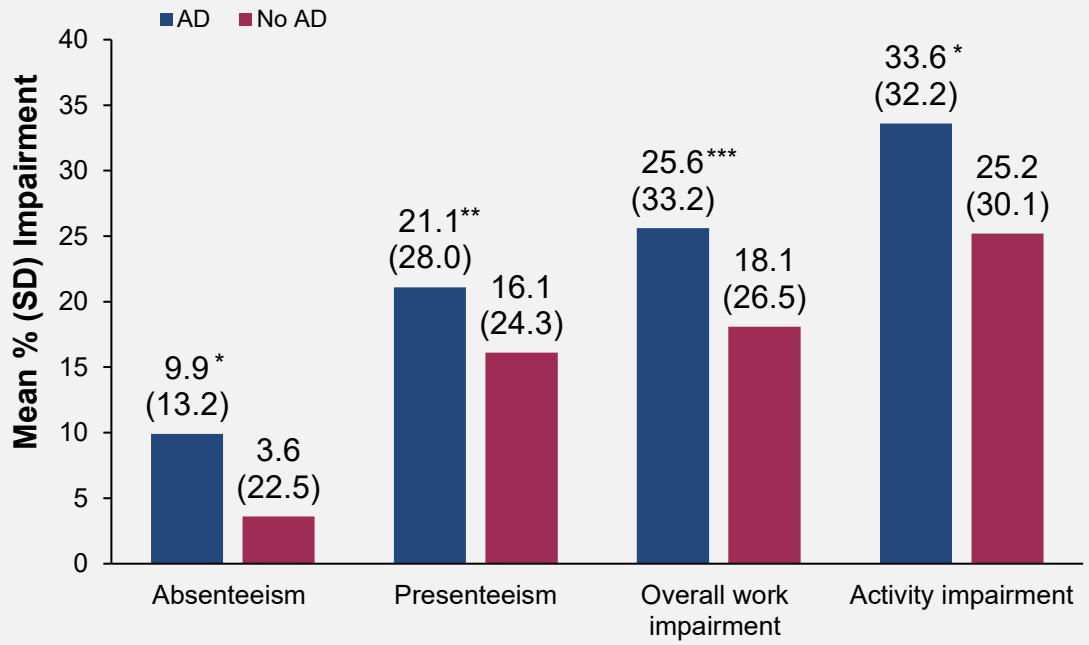
FOR MEDICAL INFORMATION PURPOSES ONLY

Atopic Dermatitis Can Significantly Impact Patients' Mood, Sleep, and Daily Activities

Mood and Sleep Disorders in Patients With AD



Productivity and Activity Impairment in Patients With AD



A significantly higher percentage of individuals with AD reported mood and sleep disorders, as well as reduced work productivity and activity impairment compared with individuals without AD

* *P*<0.001 vs No AD. ** *P*=0.027 vs No AD. *** *P*=0.004 vs No AD.

Cross-sectional study using the 2013 US National Health and Wellness Survey, assessing the burden of AD in adults. Respondents were defined as having AD if they responded yes to the question, "Which of the following conditions (dermatitis/eczema/AD) have you experienced in the past 12 months?'' If ''yes'' was chosen for AD, the following question was asked: ''Has your AD been diagnosed by a physician?'' The burden of AD on mental health was established using self-reported diagnoses of anxiety, depression, and/or sleep disorders based on a patient's response to separate questions for each disorder "Have you experienced anxiety/depression/sleep disorders in the past 12 months?" The WPAI was used to assess work productivity and activity impairment.

AD, atopic dermatitis; WPAI Work Productivity and Activity Impairment questionnaire.

Eckert L, et al. *J Am Acad Dermatol*. 2017;77:274-279.

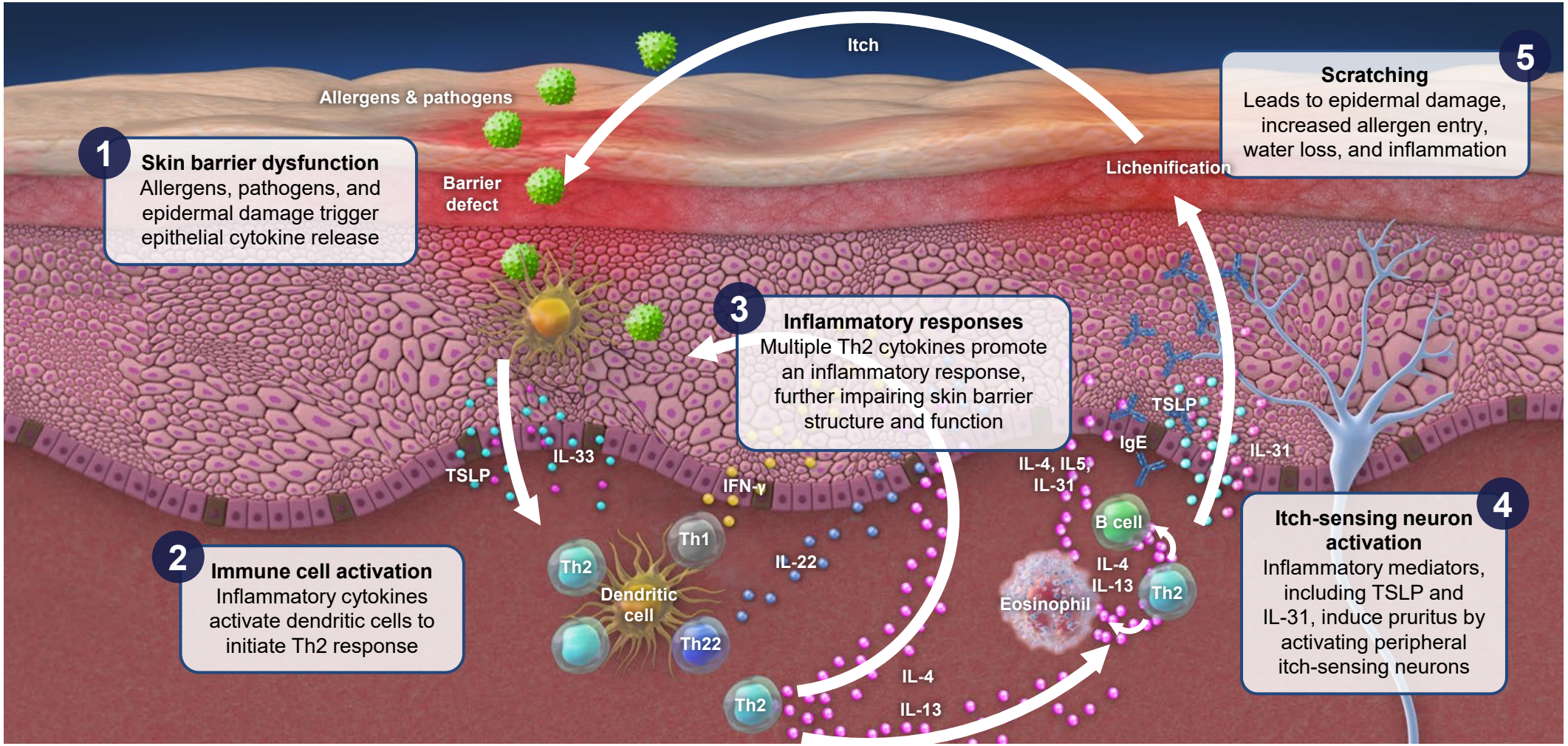
Adapted from Eckert L, et al. *J Am Acad Dermatol*. 2017;77:274-279. ©2017 under a CC BY-NC-ND 4.0 license (https://creativecommons.org/licenses/by-nc-nd/4.0/).

FOR MEDICAL INFORMATION PURPOSES ONLY

Pathophysiology of Atopic Dermatitis

FOR MEDICAL INFORMATION PURPOSES ONLY

The Pathophysiology of Atopic Dermatitis Is Mediated by Inflammatory Cytokines That Perpetuate and Exacerbate the Itch-Scratch Cycle[1-7]

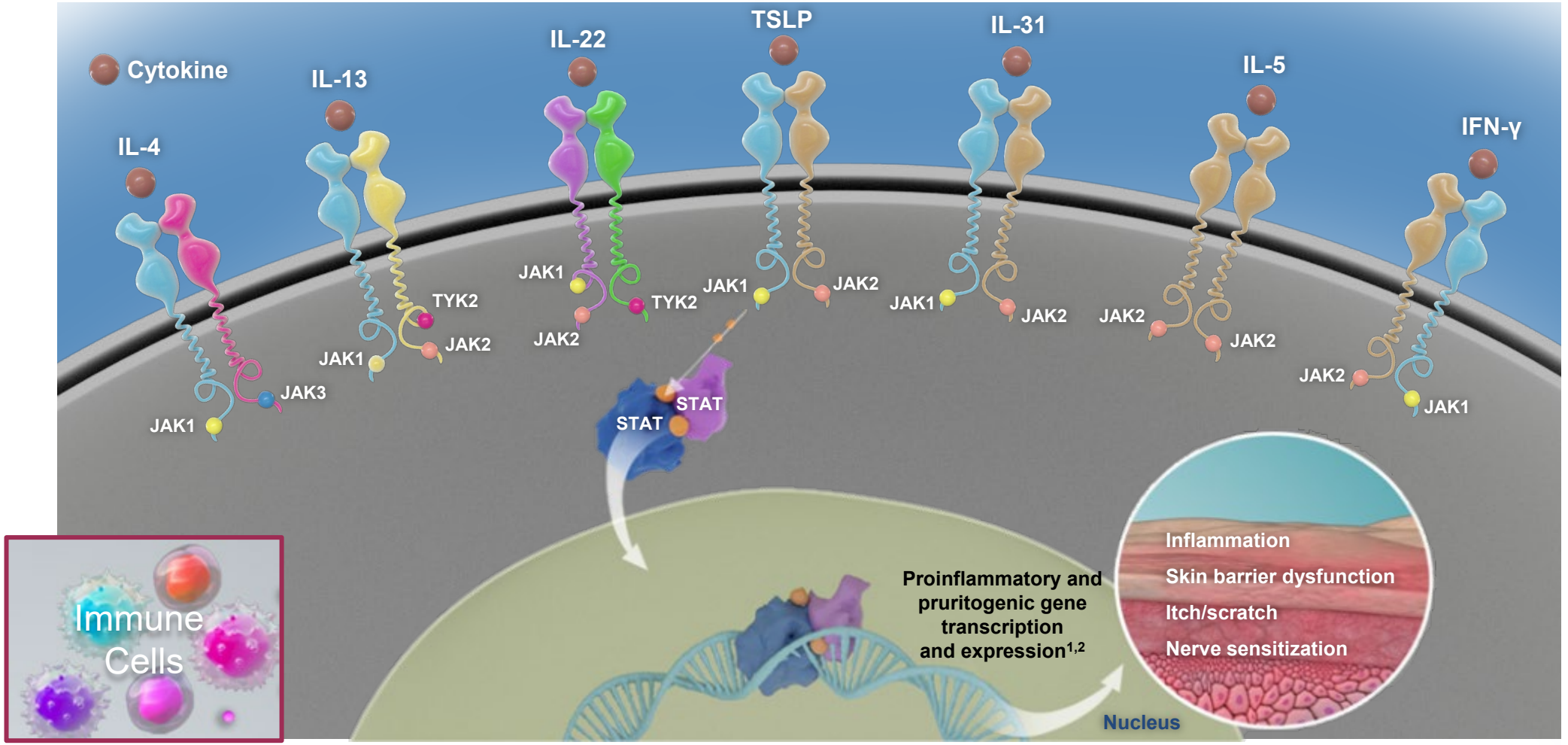


IFN-γ, interferon gamma; IgE, immunoglobulin E; IL interleukin; Th, T helper; TSLP, thymic stromal lymphopoietin.

1. Langan SM, et al. *Lancet.* 2020;396:345-360. 2. Savva M, et al. *Front Biosci*. 2024;29:84. 3. Howell MD, et al. *Ann Allergy Asthma Immunol*. 2018;120:367-375. 4. Soares GB, et al. *J Invest Dermatol.* 2024;144:978-988 5. Huang I-H, et al. *Front Immunol*. 2022;13:1068260. 6. Guttman-Yassky E, et al. *J Allergy Clin Immunol*. 2023;152:1394-1404. 7. Howell M, et al. *Front Immunol*. 2019;10:2342.

FOR MEDICAL INFORMATION PURPOSES ONLY

Multiple Cytokines Involved in Atopic Dermatitis Require the JAK-STAT Pathway to Mediate Inflammation and Transmit Itch Signals[1-6]



IFN-γ; interferon gamma; IL, interleukin; JAK, Janus kinase; STAT, signal transducer and activator of transcription; TYK2, tyrosine kinase 2.

1. Guttman-Yassky E, et al. *J Allergy Clin Immunol*. 2023;152:1394-1404. 2. Welsch K, et al. *Eur J Immunol.* 2017;47:1096-1107. 3. Howell M, et al. *Front Immunol*. 2019;10:2342. 4. Howell MD, et al. *Allergy*. 2015;70:887-896. 5. Schwartz DM, et al. *Nat Rev Drug Discov*. 2017;16:843-862. 6. Howell M, et al. *Ann Allergy Asthma Immunol*. 2018;120:367-375.

FOR MEDICAL INFORMATION PURPOSES ONLY

JAK-Mediated Signaling in Atopic Dermatitis

Cytokine		JAK Signaling	Itch	Inflammation	Skin Barrier Dysfunction
	IL-4[1-4]	JAK1/JAK3	✓	✓	✓
	IL-5[1-5]	JAK2	✓	✓	✓
	IL-13[1-4]	JAK1/JAK2/TYK2	✓	✓	✓
	IL-31[1-3,5,6]	JAK1/JAK2	✓	✓	✓
	IL-22[1-5,7]	JAK1/JAK2/TYK2	✓	✓	✓
	TSLP[1-3,5,8]	JAK1/JAK2	✓	✓	✓[a]
	IL-25[1,2,8,9]	JAK2		✓	✓
	IL-33[2,6,8]	JAK2	✓	✓	
	IFN-γ[1-4]	JAK1/JAK2		✓	

Th2 cytokines play a key role in AD pathogenesis by driving type 2 inflammation[1,2]

[a] TSLP indirectly affects skin barrier dysfunction through its role in initiating the inflammatory response and promoting itch.[1,2,5]

AD, atopic dermatitis; DC, dendritic cell; IFN-γ, interferon gamma; IL, interleukin; JAK, Janus kinase; Th, T helper; TSLP, thymic stromal lymphopoietin; TYK, tyrosine kinase.

1. Langan SM, et al. *Lancet*. 2020;396:345-360. 2. Guttman-Yassky E, et al. *J Allergy Clin Immunol*. 2023;152:1394-1404. 3. Howell MD, et al. *Front Immunol*. 2019;10:2342. 4. Schwartz DM, et al. *Nat Rev Drug Discov*. 2017;16:843-862. 5. Howell MD, et al. *Allergy*. 2015;70:887-896. 6. Gatmaitan JG, et al. *Int J Mol Sci*. 2023;24:11380. 7. Welsch K, et al. *Eur J Immunol*. 2017;47:1096-1107. 8. Howell M, et al. *Ann Allergy Asthma Immunol*. 2018;120:367-375. 9. Weidinger S, et al. *Nat Rev Dis Primers*. 2018;4:1.

FOR MEDICAL INFORMATION PURPOSES ONLY

Diagnosis and Management of Atopic Dermatitis

FOR MEDICAL INFORMATION PURPOSES ONLY

Diagnosis of Atopic Dermatitis Is Based on Essential, Important, and Associated Features

American Academy of Dermatology Diagnostic Features for AD

Essential Features *Required for AD diagnosis*	Important Features *Support AD diagnosis*	Associated Features *Suggest AD diagnosis but are nonspecific*
• Pruritus	• Early age of onset	• Atypical vascular responses
• Eczema (acute, subacute, chronic) – Typical morphology and age-specific patterns[a] – Chronic or relapsing history	• Atopy – Personal and/or family history – Immunoglobulin-E reactivity	• Keratosis pilaris / pityriasis alba / hyperlinear palms / ichthyosis • Ocular / periorbital changes • Other regional findings
	• Xerosis	• Perifollicular accentuation / lichenification / prurigo lesions

Exclusionary Conditions

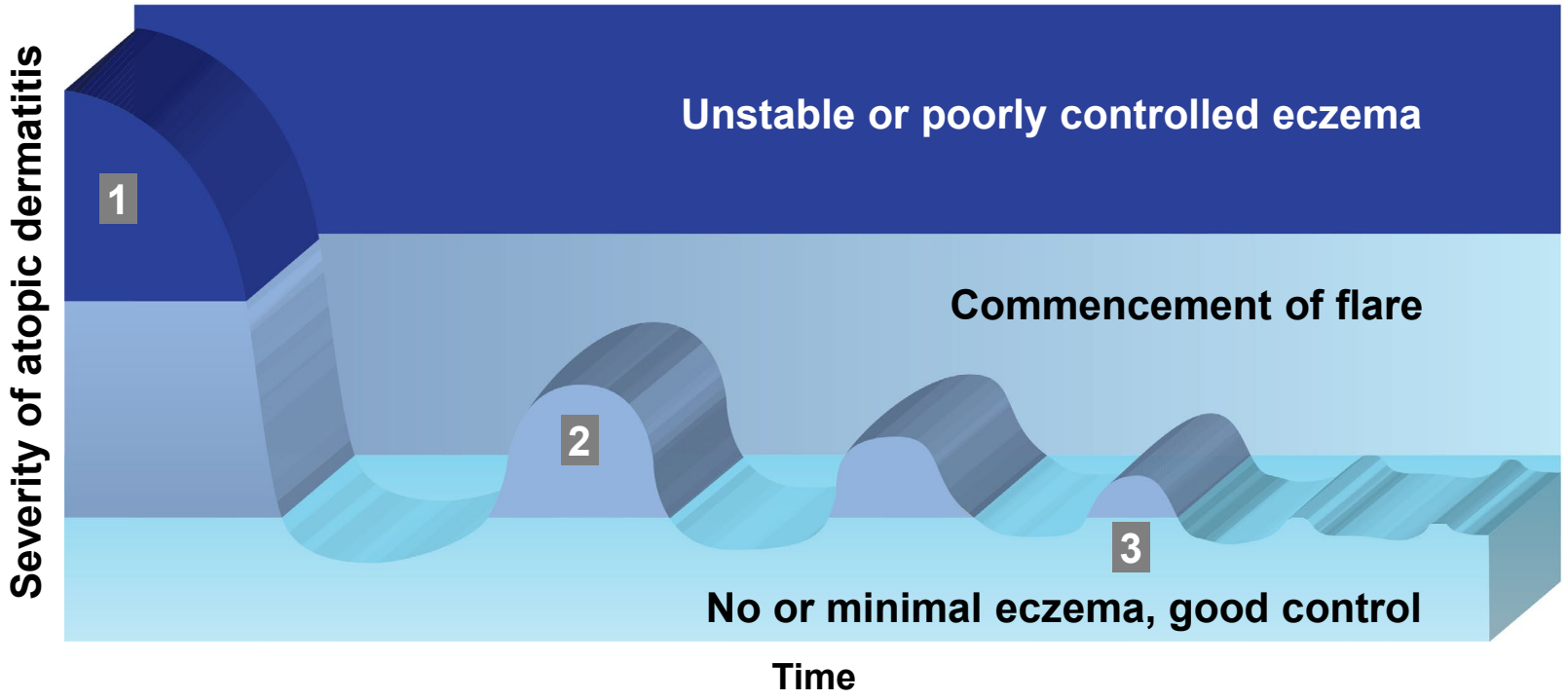
It should be noted that a diagnosis depends upon excluding conditions, such as:

• Scabies	• Ichthyoses	• Photosensitivity dermatoses
• Seborrheic dermatitis	• Cutaneous T-cell lymphoma	• Immune deficiency diseases
• Contact dermatitis (irritant or allergic)	• Psoriasis	• Erythroderma of other causes

[a] Patterns include facial, neck, and extensor involvement in infants and children; current or previous flexural lesions in any age group; sparing of the groin and axillary regions.
AD, atopic dermatitis.
Eichenfield LF, et al. *J Am Acad Dermatol*. 2014;70:338-351.

FOR MEDICAL INFORMATION PURPOSES ONLY

Goals of Treatment for Atopic Dermatitis[1-4]



1	Treatment of poorly controlled eczema
2	Treatment of flares
3	As-needed therapy for maintaining minimal or no eczema

Goals

- Reduce pruritus
- Achieve clear skin and maximize disease-free periods
- Reduce number and severity of flares
- Improve sleep and mental health
- Maintain normal activities of daily living
- Avoid/minimize treatment-related AEs
- Prevent infectious complications

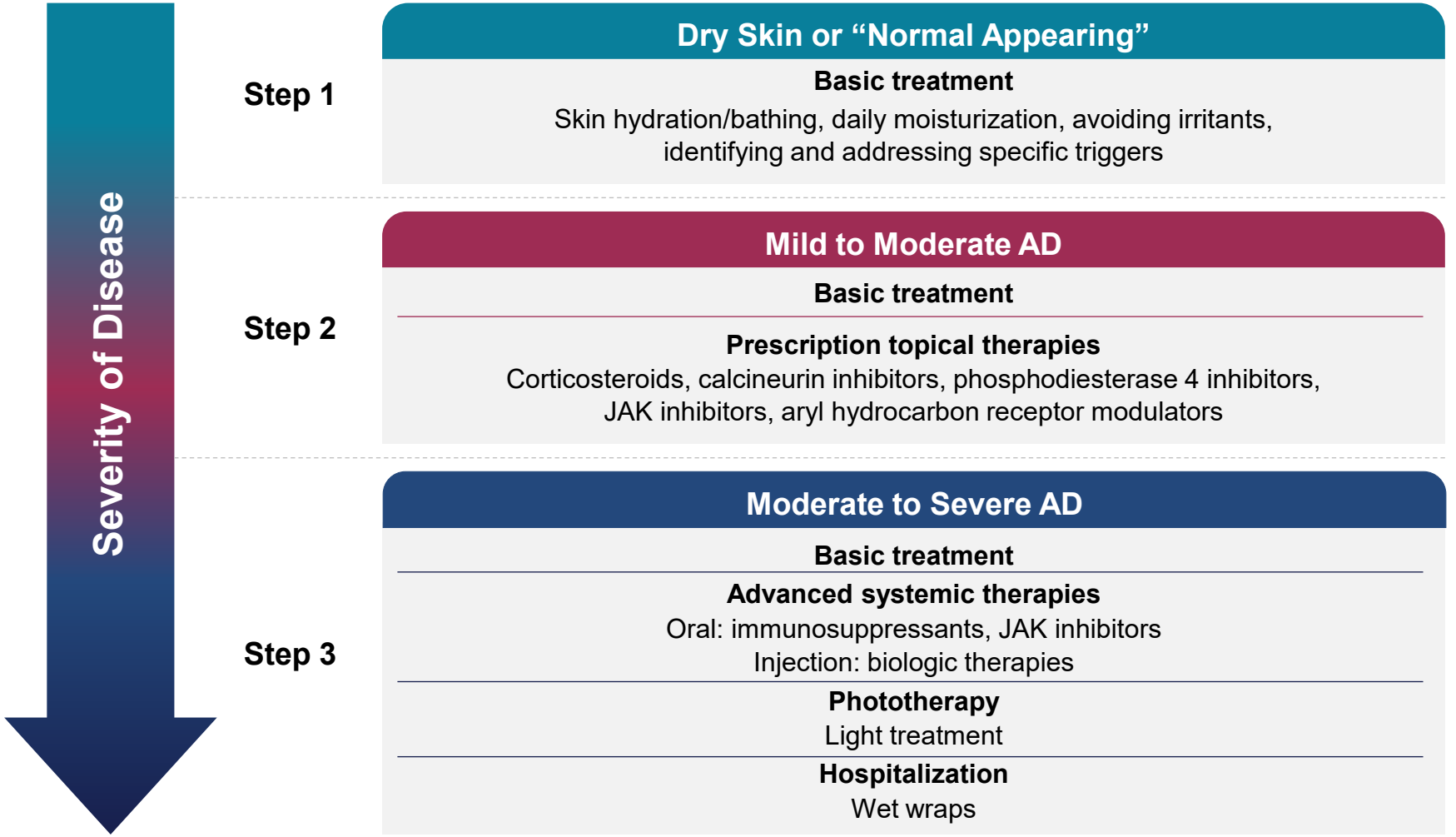
AE, adverse event.

1. Rubel D, et al. *J Dermatol.* 2013;40:160-171. 2. Weidinger S, et al. *Nat Rev Dis Primers.* 2018;4:1. 3. NIH. Atopic Dermatitis: Diagnosis, Treatment, and Steps to Take. Accessed Apr 2026. https://www.niams.nih.gov/health-topics/atopic-dermatitis/diagnosis-treatment-and-steps-to-take. 4. Diaz A, et al. *Exp Rev Clin Immunol.* 2019:15:369-382.

Figure adapted from Rubel D, et al. *J Dermatol.* 2013;40:160-171. Wiley-Blackwell Publishing Ltd.

FOR MEDICAL INFORMATION PURPOSES ONLY

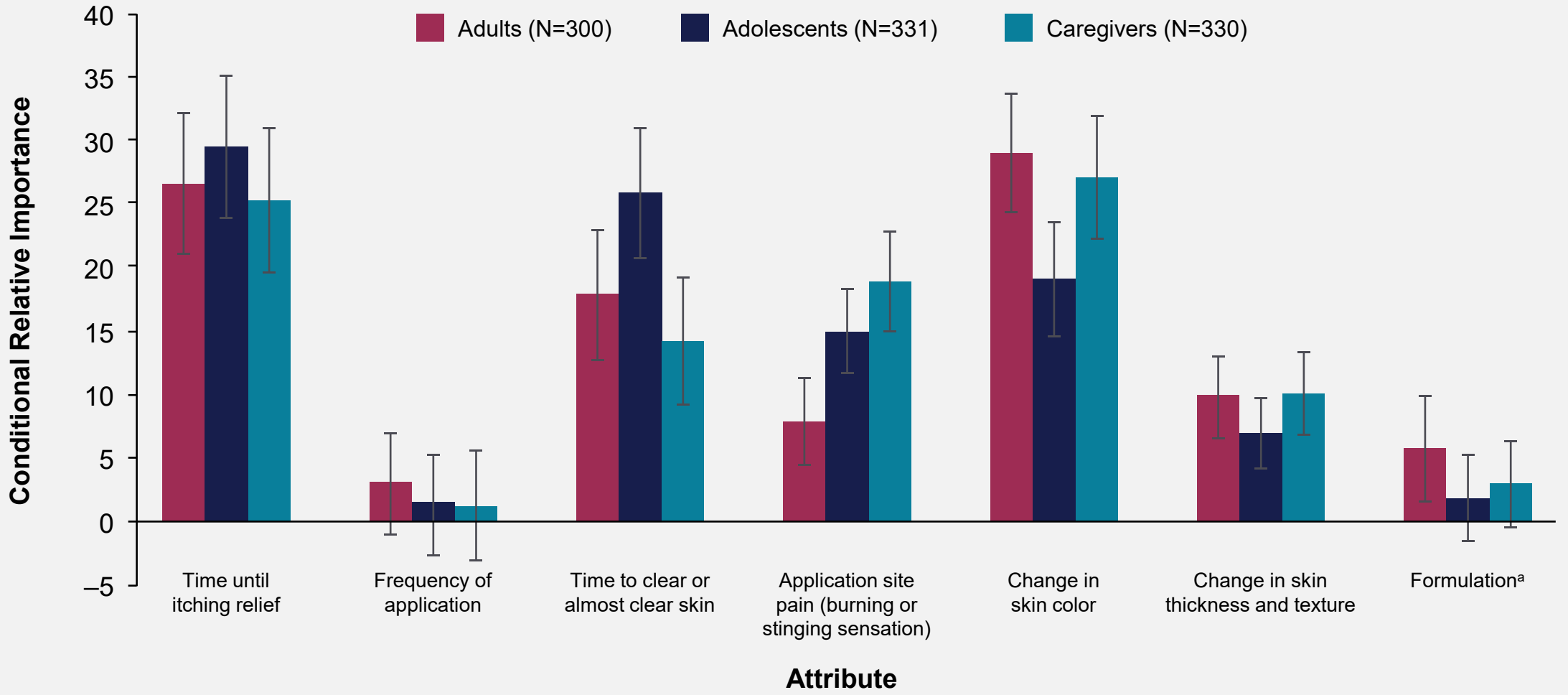
Treatment Algorithm for the Management of Atopic Dermatitis[a]



[a] Composite of US and international AD treatment recommendations and guidelines.
AD, atopic dermatitis; JAK, Janus kinase.
Chovatiya R, Herbert AA. *JAAD Reviews*. 2025;3:171-178.
Adapted from Chovatiya R, Herbert AA. *JAAD Reviews*. 2025;3:171-178. ©2025 under a CC BY-NC 4.0 license (http://creativecommons.org/licenses/by-nc/4.0/).

FOR MEDICAL INFORMATION PURPOSES ONLY

Patient and Caregiver Preferences for Topical Therapy by Attribute



[a] "Formulation" was described in patient-friendly language as "mode of administration" in the survey.

Feldman SR, et al. *J Dermatol Treat*. 2024;35:2304020.

Adapted from Feldman SR, et al. *J Dermatol Treat*. 2024;35:2304020. ©2024 under a CC BY-NC 4.0 license (https://creativecommons.org/licenses/by-nc/4.0/).

FOR MEDICAL INFORMATION PURPOSES ONLY

Summary

AD is a chronic, heterogeneous, highly pruritic, relapsing inflammatory skin disease that is associated with significant impact on QOL[1-4]

Itch is the most prominent, burdensome, and distressing symptom of AD, and is associated with significant impacts on mood, sleep, and daily activites[3,5]

The pathophysiology of AD is mediated by inflammatory cytokines that perpetuate and exacerbate the itch-scratch cycle[6]

- Multiple cytokines involved in AD require the JAK-STAT pathway to mediate inflammation and transmit itch signals[7]

Treatment for AD focuses on good skin practices, trigger avoidance, and pharmacologic management of inflammation and itch; however, many patients are inadequately controlled[2,4]

AD, atopic dermatitis; JAK, Janus kinase; QOL, quality of life; STAT, signal transducer and activator of transcription.

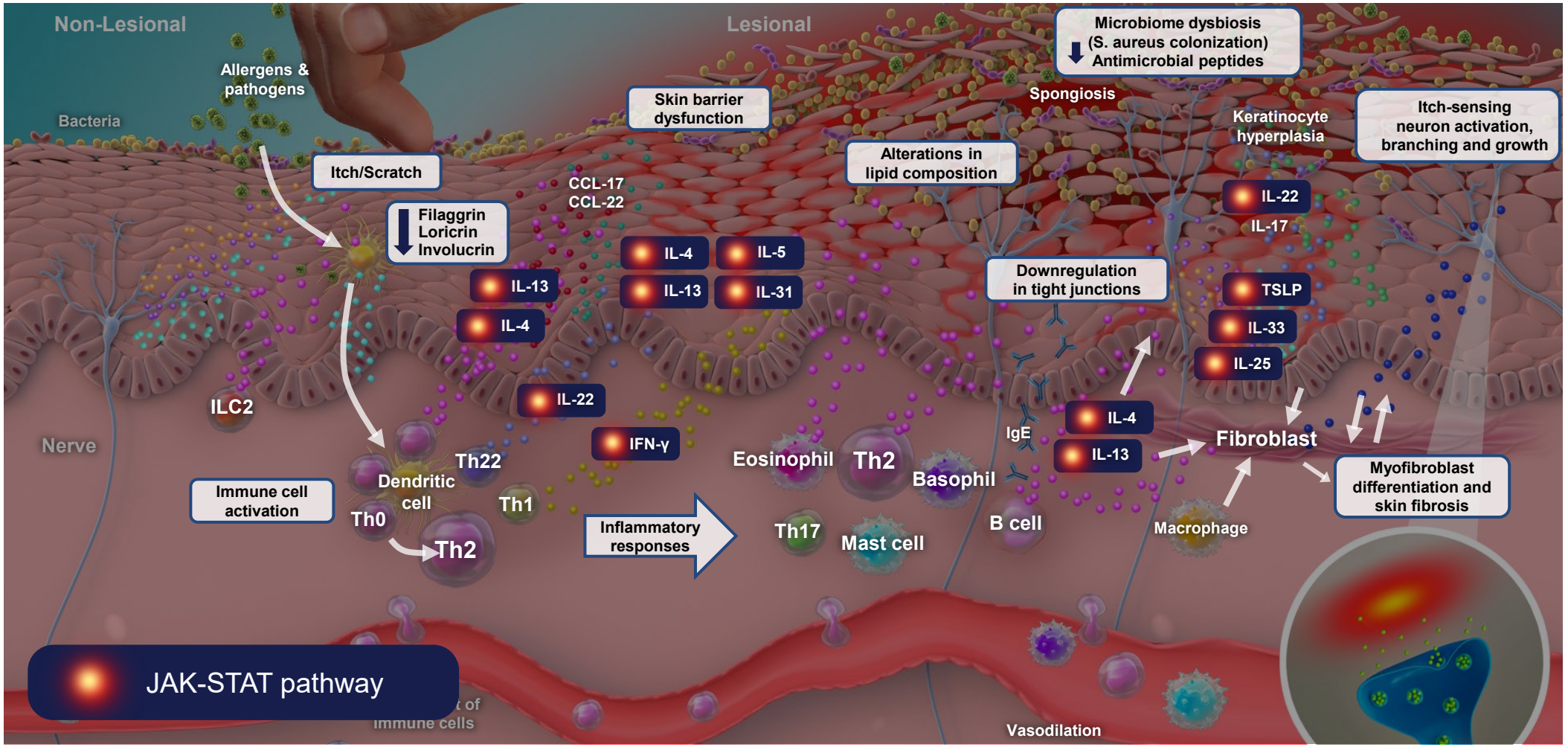
1. Eichenfield LF, et al. *J Am Acad Dermatol*. 2014;70:338-351. 2. Boguniewicz M, et al. *Ann Allergy Asthma Immunol*. 2018;120:10-22. 3. Silverberg JI, et al. *Ann Allergy Asthma Immunol.* 2018;121:340-347. 4. Silverberg JI, et al. *J Dermatol Treat*. 2016;27:568-586. 5. Eckert L, et al. *J Am Acad Dermatol.* 2017;77:274-279. 6. Langan SM, et al. *Lancet*. 2020;396:345-360. 7. Howell MD, et al. *Front Immunol.* 2019;10:2342.

FOR MEDICAL INFORMATION PURPOSES ONLY

Appendix

FOR MEDICAL INFORMATION PURPOSES ONLY

The Pathophysiology of Atopic Dermatitis Is Mediated by Inflammatory Cytokines That Perpetuate and Exacerbate the Itch-Scratch Cycle[1-7]

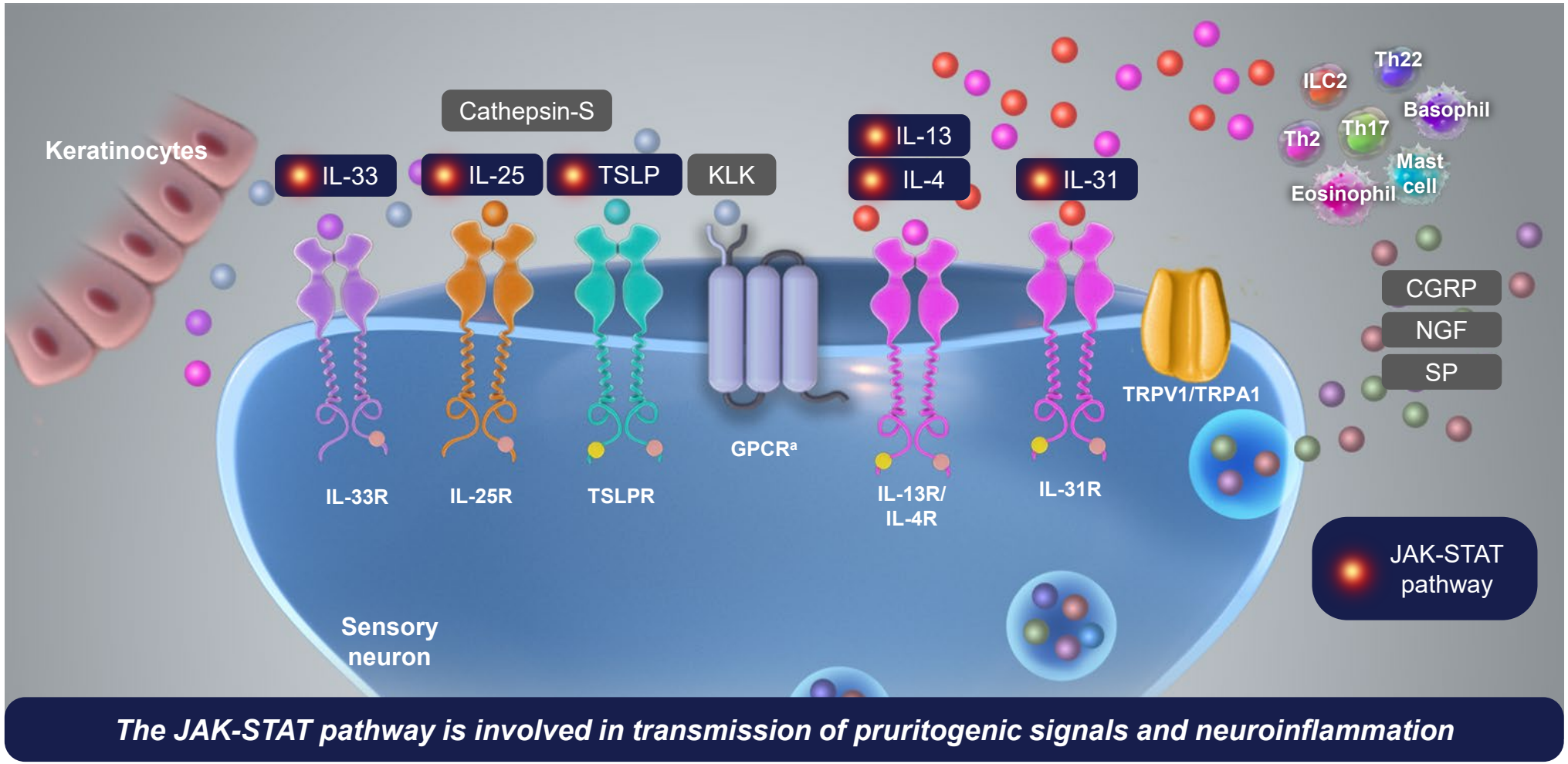


CCL, CC motif chemokine ligand; IgE, immunoglobulin E; IL, interleukin; ILC, innate lymphoid cell; JAK, Janus kinase; STAT, signal transducer and activator of transcription; Th, T helper; TSLP, thymic stromal lymphopoietin.

1. Pareek A, et al. *Cells*. 2024;13:425. 2. Weidinger S, et al. *Nat Rev Dis.* 2018;4:1. 3. Guttman-Yassky E, et al. *J Allergy Clin Immunol.* 2023;152:1394-1404. 4. Oh M-H, et al. *J Immunol.* 2011:186:7232-7242. 5. Imai Y. *Allergol Int.* 2023;72:201-206. 6. Howell MD, et al. *Front Immunol*. 2019;10:2342. 7. Howell MD, et al. *J Ann Allergy Asthma Immunol.* 2018;120:367-375.

FOR MEDICAL INFORMATION PURPOSES ONLY

Nonhistaminergic Pruritogenic Signaling and Neuro-Inflammation in Chronic Itch



[a] For example, MrgprC11, Par2.

AD, atopic dermatitis; CGRP, calcitonin gene−related peptide; GPCR, G protein-coupled receptor; IL, interleukin; JAK, Janus kinase; KLK, kallikrein; Mrgpr, Mas-related G protein-coupled receptor; NGF, nerve growth factor; Par, protease-activated receptor; R, receptor; SP, substance P; STAT, signal transducer and activator of transcription; Th, T helper; TRP, transient receptor potential; TSLPR, thymic stromal lymphopoietin receptor.

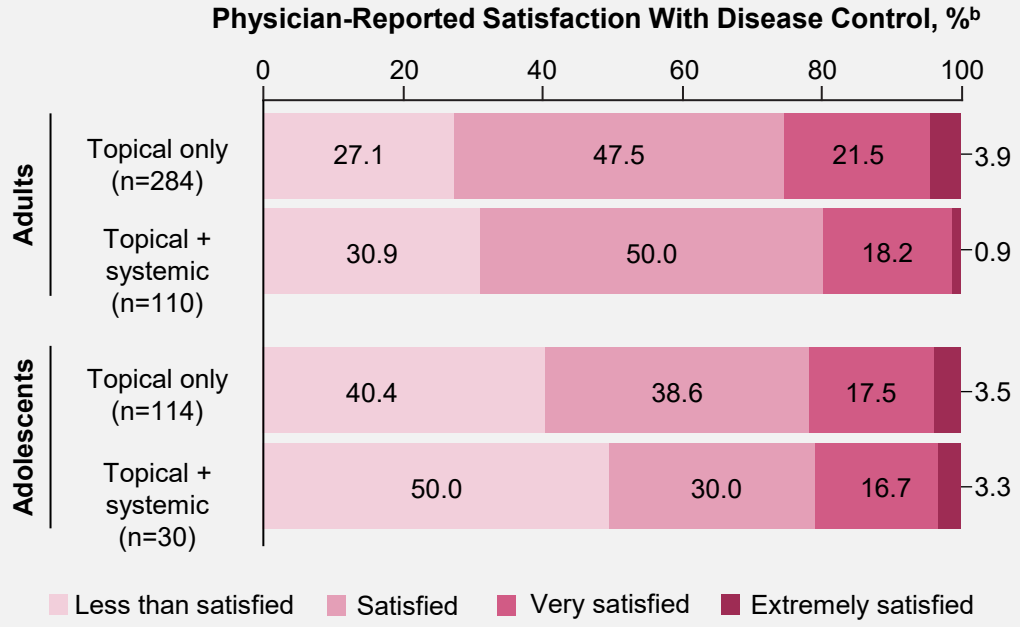
1. Marek-Jozefowicz L, et al. *Int J Mol Sci.* 2023;24:5001. 2. Haddad E-B, et al. *Dermatol Ther (Heidelb).* 2022;12:1501-1533. 3. Weidinger S, et al. *Nature Rev*. 2018;4:1-20. 4. Gatmaitan JC, et al. *Int J Mol Sci.* 2023;24:11380. 5. Guttman-Yassky E, et al. *J Allergy Clin Immunol*. 2023;152:1394-1404.

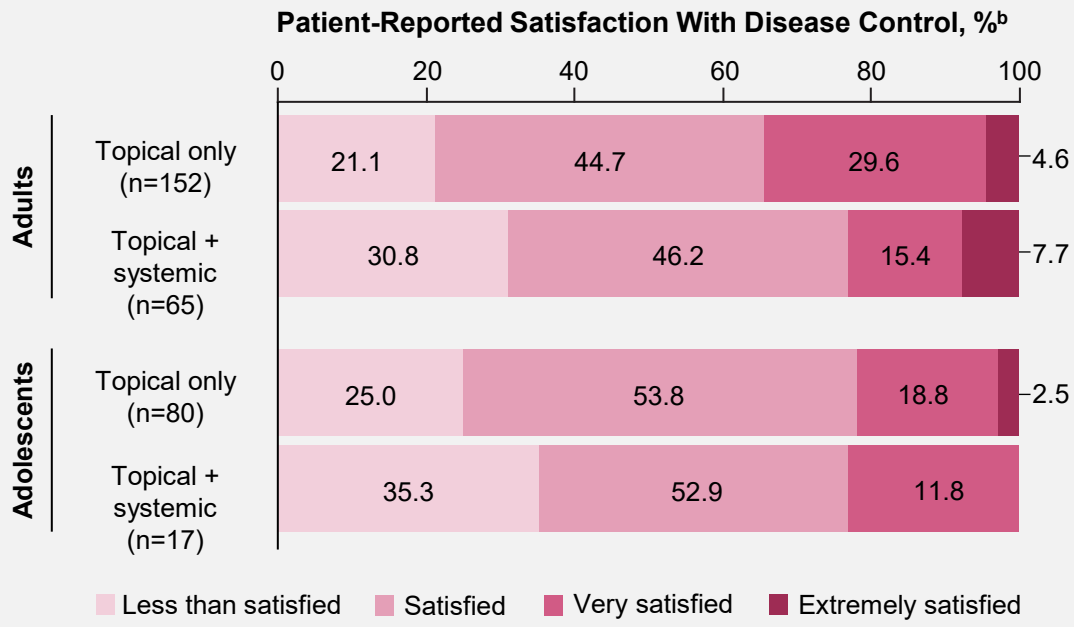
FOR MEDICAL INFORMATION PURPOSES ONLY

High Rates of Uncontrolled Atopic Dermatitis Have Been Reported[a]

Analyses assessing disease control and treatment satisfaction in adults and adolescents with moderate to severe AD showed:

- **Approximately 20 to 50%** of patients had *uncontrolled*[b] AD as assessed by their physician while using TCS, TCI, or crisaborole
- Up to **50% of physicians and 35% of patients** reported to be "less than satisfied" with the current level of disease control





[a] Analyses of disease control, physician and patient satisfaction, and patient-reported outcomes were conducted in the subpopulation of patients who were currently receiving topical therapy (TCS, TCI, or crisaborole) alone or in addition to systemic therapy (systemic corticosteroids, systemic immunosuppressants, or biologics); patients receiving systemic therapy alone were excluded. This was a retrospective, point-in-time, observational study of physician-completed records and matched patient surveys drawn from 2 Adelphi AD Disease Specific Programmes (DSPs) in the US in 2018 and 2019. Patients included in this analysis were adults (≥18 years) and adolescents (12-17 years) currently experiencing or with a history of moderate or severe AD who had been receiving current AD therapy for ≥1 month. [b] Controlled disease was defined as improving/stable; uncontrolled disease was defined as deteriorating/changing.

AD, atopic dermatitis; TCI, topical calcineurin inhibitor; TCS, topical corticosteroid.

Anderson P, et al. *Dermatol Ther (Heidelb)*. 2021;11:1571-1585.

Figure reproduced from Anderson P, et al. *Dermatol Ther (Heidelb)*. 2021;11:1571-1585. ©2021 under a CC BY-NC-ND 4.0 license (https://creativecommons.org/licenses/by-nc-nd/4.0/).

FOR MEDICAL INFORMATION PURPOSES ONLY

Incyte Dermatology

© 2026, Incyte.
Incyte and the Incyte logo are registered trademarks of Incyte.
Opzelura is a registered trademark of Incyte.

FOR MEDICAL INFORMATION PURPOSES ONLY