



**Practical Updates
in Primary Care**

Cracking the Psoriasis Code: What Primary Care Providers Need to Know Now

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Disclosures

- **Joel M. Gelfand, MD, MSCE:** Consultant – AbbVie, Artax (DSMB), BMS, Boehringer Ingelheim, Celldex (DSMB), FIDE (sponsored by multiple pharmaceutical companies), GSK, Inmagene (DSMB), Janssen Biologics, LEO, Moonlake (DSMB), Neuroderm (DSMB), Novartis, UCB (DSMB); Research Grants (to the Trustees of the University of Pennsylvania) – Amgen, BMS, Pfizer; Co-Patent Holder – Resiquimod (for treatment of cutaneous T-cell lymphoma); Deputy Editor – Journal of Investigative Dermatology (receiving honoraria); Chief Medical Editor – Healio Dermatology (receiving honoraria); Board of Directors – International Psoriasis Council, Medical Dermatology Society
- **Annie Truss, MD** has nothing to disclose in relation to this activity



Learning Objectives

- Apply strategies to improve the early identification and diagnosis of PsO in primary care, accounting for heterogeneity, risk factors, and comorbidities
- Assess the mechanisms that contribute to disease pathogenesis and the role of inflammatory signaling in PsO development and progression
- Evaluate current and emerging therapies for PsO, with a focus on IL-23 inhibitors, their MOA, and the latest safety and efficacy data
- Implement strategies for personalized management of PsO in the primary care setting that include collaborative care approaches and referral pathways





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Overview of PsO, Pathophysiology, and Current and Emerging Agents

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- 25-year-old female presented with psoriasis on 50% BSA in 2007 post-history of scalp disease
- Failed UVB, adalimumab, certolizumab pegol, partial response to infliximab
- Developed PsA, NASH, HTN, DM during her illness
- Sudden death age 33



BSA = body surface area; UVB = ultraviolet B; PsA = psoriatic arthritis; NASH = non-alcoholic steatohepatitis; HTN = hypertension; DM = diabetes mellitus.



Psoriasis Epidemiology and Burden

- Chronic inflammatory disease with red thick patches that crack, bleed, and itch on scalp, trunk, extremities, genitals, and nails
- Prevalence
 - Affects 2-4% of adult population
 - Common (about 1.5%), more severe in African Americans
 - 10% have psoriatic arthritis
 - 20% have moderate to severe disease
 - >8 million in US, 600,000 to 3,600,000 have “undiagnosed psoriasis”
 - >125 million worldwide
- Remains a highly stigmatized disease
 - 33% of US laypersons think psoriasis is contagious, not a serious disease, only affects the skin



QoL and Psoriasis – Descriptive Studies

- “We almost never talk about it, so I feel alone with my disease and all that it entails”
- “The only thing you think of is scratching, bathing, and putting on ointment...24 hours a day”
- On remission: “I suddenly found myself singing for joy. It was like getting out of prison. You were free. There was nothing holding you back anymore.”



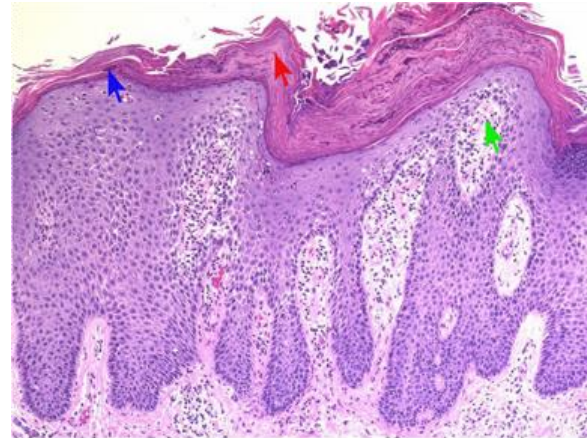
Psoriasis Natural History

- Chronic disease with typical onset in 20s to 30s, but incidence continues to rise until the 60s
- Any part of skin can be affected, including face, scalp, nails, genitals
- Approximately 10% of patients experience spontaneous remission
- Associated with several cardiometabolic co-morbidities and an inflammatory arthritis (psoriatic arthritis)



Psoriasis Pathophysiology

- Localized and systemic inflammation
 - Defects in T regs
 - Upregulation of Th1 and Th17 cells, APCs, and cytokines
 - Associated with increased CRP and other markers of inflammation
- Epidermal hyper-proliferation
 - Clinically appreciated as scaling, cracking
 - Associated with elevated uric acid, and oxidative stress
- Angiogenesis
 - Clinically appreciated as “Auspitz” sign
 - Associated with increased circulating VEG-F
- Genes



Genetic Counseling

- Complex genetic trait resulting from interplay of multiple genetic and environmental factors
 - 40% have + family history, heritability estimated at 60-90%
 - HLA-Cw6 most commonly implicated in plaque psoriasis
 - IL-23 and TYK2 are genes associated with psoriasis that are targeted by treatments
 - IL-36RN (PSORS14, chromosome 2q13) implicated in generalized and palmoplantar pustular psoriasis
 - >100 genes implicated

	Neither Parent Has PsO	One Parent Has PsO	Both Parents Have PsO
Estimated lifetime risk	0.04	0.28	0.65
One child already affected	0.24	0.51	0.83

Well-Established Comorbidities of Psoriasis

- Heart attack, stroke, CV death
- Metabolic syndrome (obesity, insulin resistance, cholesterol abnormalities, hypertension)
- Diabetes
- Psoriatic arthritis
- Mood disorders (anxiety, depression, suicide)
- Crohn's disease
- T-cell lymphoma (rare)

Gelfand JM, et al. *JAMA*. 2006;296(14):1735-1741. Gelfand JM, et al. *J Invest Dermatol*. 2006;126(10):2194-2201. Langan SM, et al. *J Invest Dermatol*. 2012;132(3 Pt 1):556-562. Kurd SK, et al. *Arch Dermatol*. 2010;146(8):891-895. Armstrong AW, et al. *J Hypertens*. 2013;31(3):433-442. Ma C, et al. *Br J Dermatol*. 2013;168(3):486-495. Azfar RS, et al. *Arch Dermatol*. 2012;148(9):995-1000. Li W, et al. *Am J Epidemiol*. 2012;175(5):402-413. Yeung H, et al. *JAMA Dermatol*. 2013;149(10):1173-1179. Mehta NN, et al. *Eur Heart J*. 2010;31(8):1000-1006. Najarian DJ, Gottlieb AB. *J Am Acad Dermatol*. 2003;48(6):805-821.



Obesity Is A Root Cause of Psoriasis and Is Associated with Worse Psoriasis Outcomes

- A “dose response” is established between obesity and onset of psoriasis and psoriasis severity
- Mendelian randomization studies suggest BMI is a causal risk factor for psoriasis
- In people with psoriasis, obesity is associated with
 - Increased psoriasis severity
 - Reduced treatment response
 - Loss of response to biologics
 - An increased risk of PsA
- The mean BMI of patients with PsO in a recent large pragmatic study was 30 kg/m²

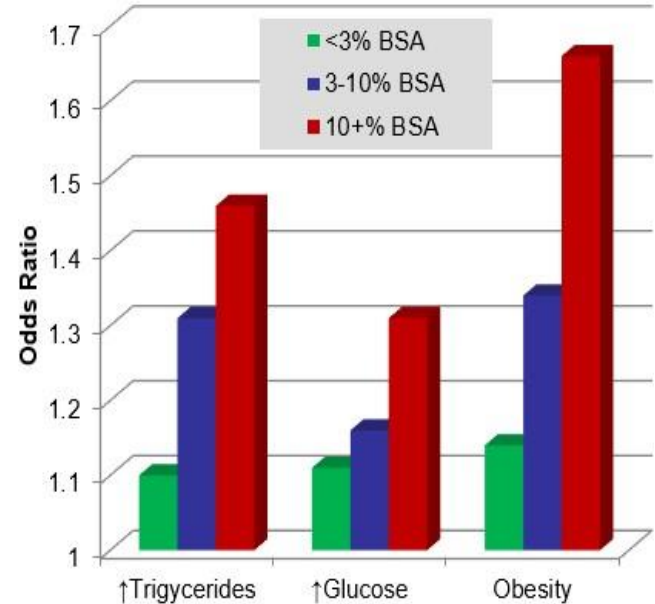


Figure adapted from:
Langan SM, et al. *J Invest Dermatol.* 2012;132(3 Pt 1):556-562.

BMI = body mass index.

Setty AR, et al. *Arch Intern Med.* 2007;167(15):1670-1675. Neimann AL, et al. *J Am Acad Dermatol.* 2006;55(5):829-835.

Gelfand JM, et al *JAMA Dermatol.* 2024;160(12):1320-1328. Budu-Aggrey A, et al. *PLoS Med.* 2019;16(1):e1002739.

Ogdie A, et al. *Rheumatology (Oxford).* 2022;61(5):1877-1884. Gelfand JM. *J Invest Dermatol.* 2025 [Epub ahead of print].

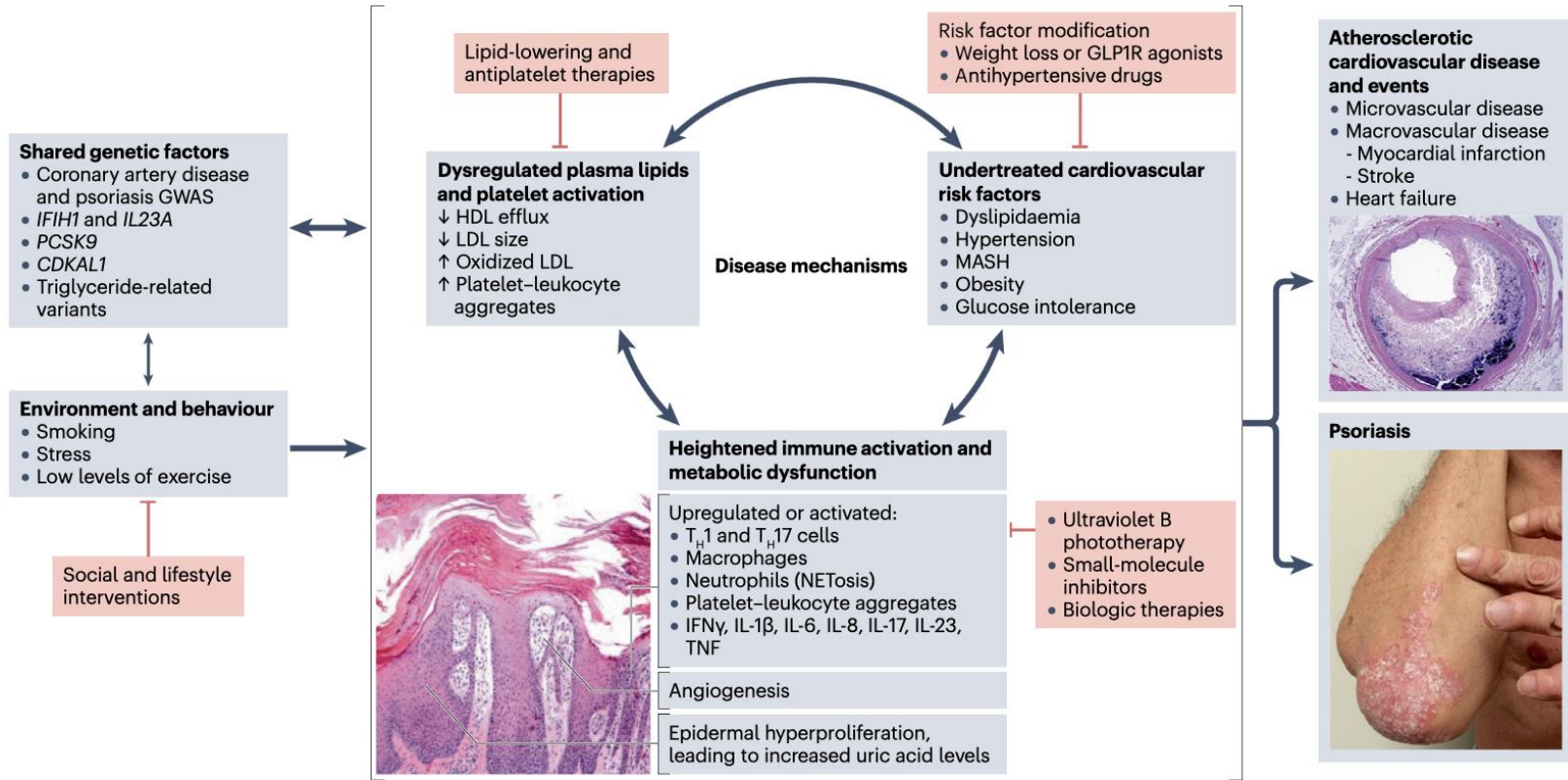


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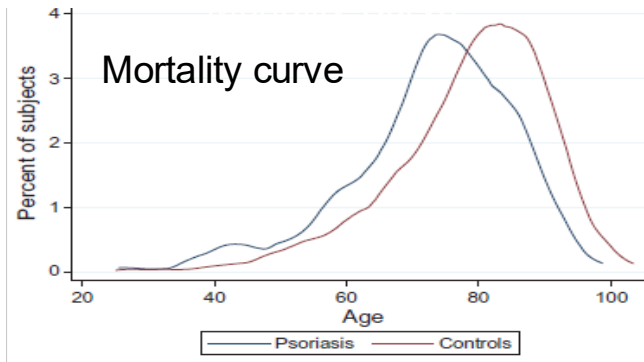
- PsA affects 10-30% of patients with psoriasis, may be progressive, and can cause permanent joint damage
- CRP and # of joints involved are markers of progression
- Identify symptoms/signs of PsA
 - Morning joint stiffness
 - Joint pain that improves with activity
 - Swollen, tender joints, dactylitis, enthesitis
 - Check X-rays of affected joints (hands, feet)
 - Labs: CRP, ESR, RF, CCP, uric acid



Psoriasis and CV Disease: Bi-Directional Relationship



Risk of Cardiometabolic Disease in Psoriasis: Retrospective Studies



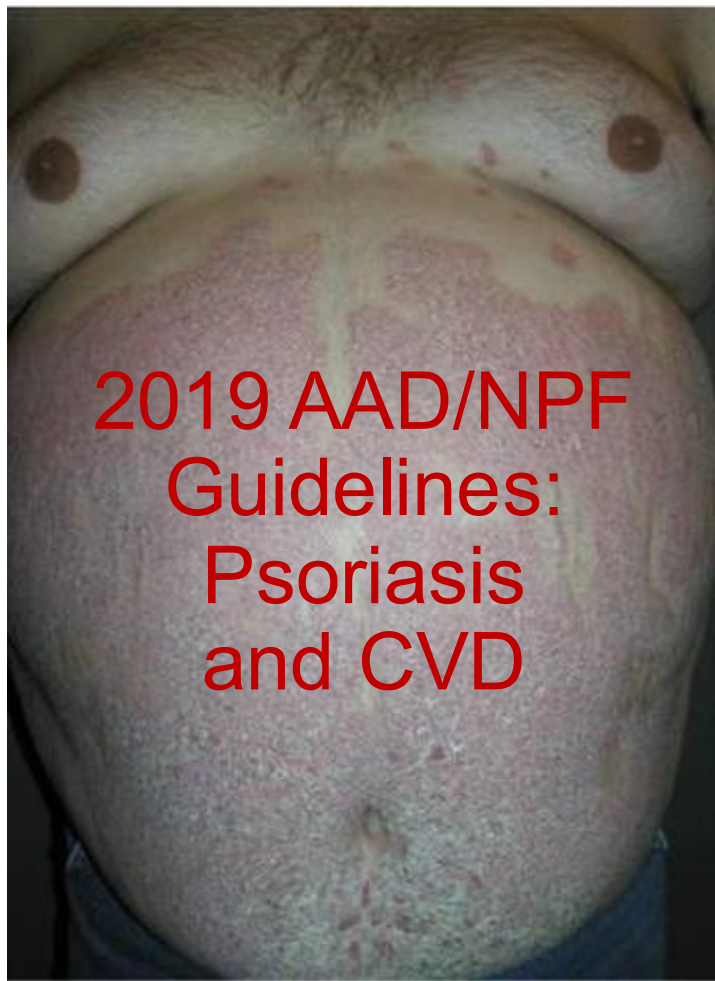
Clinical significance

- Increased risk of MACE, CV death, chronic kidney disease, and diabetes
- Dose response: More severe psoriasis = higher CV risk
- 5 years of life lost; CV mortality is the #1 leading excess cause of death in psoriasis
- Patients treated for moderate to severe psoriasis are 30X more likely to experience MACE (attributable to psoriasis) than to develop a melanoma

Outcome	Adj. RR Mild	Adj. RR Severe
MI	1.05	1.5
Stroke	1.06	1.4
CV death	Not done	1.6
Chronic kidney dz	0.99	1.9
Diabetes	1.11	1.5

RR = risk ratio; MI = myocardial infarction; CV = cardiovascular; MACE = major adverse cardiovascular event.
 Abuabara K, et al. *Br J Dermatol.* 2010;163(3):586-592. Gelfand JM, et al. *JAMA.* 2006;296(14):1735-1741.
 Gelfand, JM, et al. *J Invest Derm.* 2009;129(10):2411-2418. Mehta NN, et al. *Eur Heart J.* 2010;31(8):1000-1006.
 Wan J, et al. *BMJ.* 2013;347:f5961. Azfar RS, et al. *Arch Dermatol.* 2012;148(9):995-1000.





2019 AAD/NPF Guidelines: Psoriasis and CVD

#	Recommendation	Strength
2.1	CV risk assessment (screening for HTN, DM, and hyperlipidemia) with national guidelines is recommended for all patients with psoriasis.	B
2.2	Consider early and more frequent screening for HTN, DM, and hyperlipidemia in candidates for systemic or phototherapy or who have psoriasis involving >10% BSA.	B
2.3	Risk score models should be adapted by introducing a 1.5 multiplication factor when the patient meets either: <ul style="list-style-type: none"> •Disease severity of BSA >10% •Candidate for systemic or phototherapy 	C
2.4	<ul style="list-style-type: none"> • CV risk management for HTN and dyslipidemia should be carried out according to national guidelines. • Target blood pressure and lipid levels are based on risk calculated for psoriasis. • Antihypertensives and statins may be used as in the general population. • CV risk management should be performed by either a primary care physician or other health care provider experienced in CV risk management or the dermatologist. 	C



CV Risk Screening and Management: Case Example from My Practice

- 54-year-old male with 15-year history of psoriasis that failed treatment with apremilast
- BSA 6%, PGA 3-4
- PMH + treated HTN (132/84), BMI 36, FH CVD in mother
- Labs
 - HgA1c 6.1
 - Lipids: T chol 185, HDL 40, LDL 113
- 10-year risk ASCVD: 6.8%



What should be done per guidelines?

PGA = Physician's Global Assessment; PMH = past medical history; FH = family history; CVD = CV disease; HDL = high-density lipoprotein; LDL = low-density lipoprotein; ASCVD = atherosclerotic CV disease.

American College of Cardiology (ACC) and American Heart Association (AHA) ASCVD Risk Estimator:

https://tools.acc.org/ldl/ascvd_risk_estimator/index.html#!/calculate/estimator/

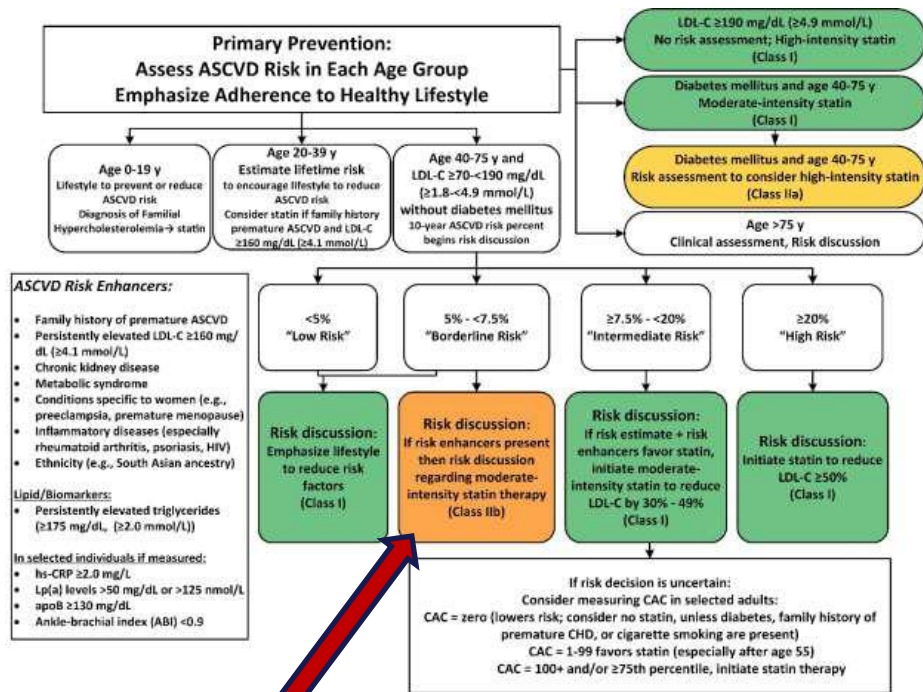


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ACC/AHA Statin Recommendations for ASCVD Primary Prevention

Borderline 10-year risk:
5% to <7.5%

- Risk enhancers present: FH CVD, CKD, metabolic syndrome, psoriasis, RA, HIV, ethnicity
- Discuss moderate-intensity statin



CV Risk Screening and Management: Case Example from My Practice

- Coronary artery calcium score 75th percentile
- Action: added rosuvastatin



Clinical Manifestations of Psoriasis



Plaque psoriasis



Guttate psoriasis



Inverse psoriasis



Pustular psoriasis



Palmoplantar psoriasis

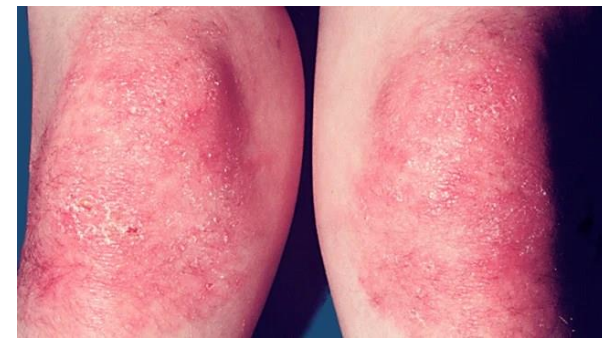
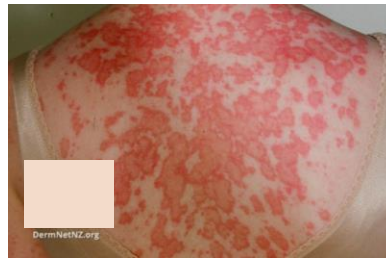


Nail psoriasis



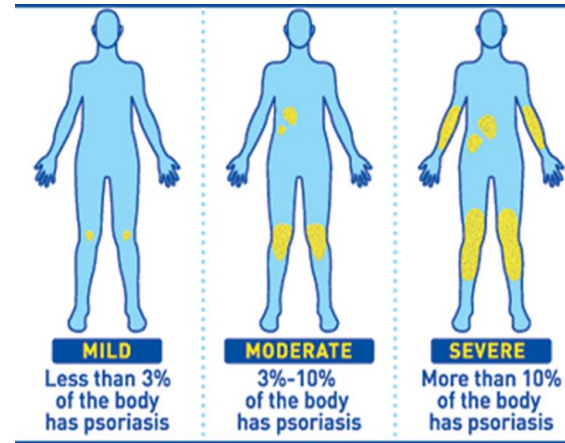
Differential Diagnosis of Psoriasis

- Autoimmune diseases
 - SCLER, dermatomyositis
- Cancer
 - Mycosis fungoides, SCC, BCC
- Infection
 - Tinea, scabies, syphilis, necrolytic acral erythema (hep C)
- Other skin dz
 - Eczema, PRP, lichen planus
- Drug reaction



Psoriasis Assessment

1. Determine subjective impact
2. Detailed patient history
3. Physical exam
4. Lab work-up
5. Consultation when indicated
6. Discussion of patient preferences



4. PGA: Physician's Global Assessment (Averaged over all lesions)		
Induration (I) or Pustulation	Erythema (E)	Scaling (S)
0 = no plaque elevation	0 = no erythema or hyperpigmentation is present	0 = no evidence of scaling
1 = minimal elevation, 0.25mm	1 = faint erythema	1 = minimal; fine scale on < 5% of lesion
2 = mild elevation, 0.5mm	2 = light red coloration	2 = mild; fine scale predominates
3 = moderate elevation, 0.75mm	3 = moderate red coloration	3 = moderate; coarse scale predominates
4 = marked elevation, 1mm	4 = bright red coloration	4 = marked; thick, nontenacious scale predominates
5 = severe elevation, >1.25mm	5 = dusky to deep red coloration	5 = severe; very thick tenacious scale predominates
I =	E =	S =
Physician's Static Global Assessment based upon above total average [(I + E + S) / 3]		
0 = Clear; except for residual discoloration		
1 = Minimal; majority of lesions have individual scores for (I+E+S)/3 that average 1		
2 = Mild; majority of lesions have individual scores for (I+E+S)/3 that average 2		
3 = Moderate; majority of lesions have individual scores for (I+E+S)/3 that average 3		
4 = Marked; majority of lesions have individual scores for (I+E+S)/3 that average 4		
5 = Severe; majority of lesions have individual scores for (I+E+S)/3 that average 5		



Determine Subjective Impact

- DLQI asks about symptoms and feelings, daily activities, leisure, work/school, relationships, treatment
- Global assessment

Thinking about how severe your psoriasis physical symptoms have been over the past week (such as itching, flaking, burning, pain), how severe has it been on a scale of 0-10, 10 being the worst and 0 being no symptoms?

Similarly, thinking about how severe your psoriasis emotional symptoms have been over the past week (such as embarrassment, frustration, and depression), how severe has it been on a scale of 0-10, 10 being the worst and 0 being no symptoms?

The aim of this questionnaire is to measure how much your skin problem has affected your life OVER THE LAST WEEK. Please tick one box for each question.

- | | | | | | |
|-----|--|------------------------------------|-----------------------------------|---------------------------------------|---|
| 1. | Over the last week, how itchy, sore, painful or stinging has your skin been? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> |
| 2. | Over the last week, how embarrassed or self conscious have you been because of your skin? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> |
| 3. | Over the last week, how much has your skin interfered with you going shopping or looking after your home or garden? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 4. | Over the last week, how much has your skin influenced the clothes you wear? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 5. | Over the last week, how much has your skin affected any social or leisure activities? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 6. | Over the last week, how much has your skin made it difficult for you to do any sport? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 7. | Over the last week, has your skin prevented you from working or studying? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not relevant <input type="checkbox"/> | |
| | If "No", over the last week how much has your skin been a problem at work or studying? | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> | |
| 8. | Over the last week, how much has your skin created problems with your partner or any of your close friends or relatives? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 9. | Over the last week, how much has your skin caused any sexual difficulties? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |
| 10. | Over the last week, how much of a problem has the treatment for your skin been, for example by making your home messy, or by taking up time? | Very much <input type="checkbox"/> | A lot <input type="checkbox"/> | A little <input type="checkbox"/> | Not at all <input type="checkbox"/> Not relevant <input type="checkbox"/> |

Please check you have answered EVERY question. Thank you.

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Detailed Patient History

- Disease duration, prior treatment, natural history
- PMH
 - Comorbidity: Cardiovascular, cancer, serious infections and TB, demyelination, IBD
 - Cancer screening and vaccinations
 - Health behaviors
- Complete ROS, including joint swelling, tenderness, stiffness



What Is the PGA?

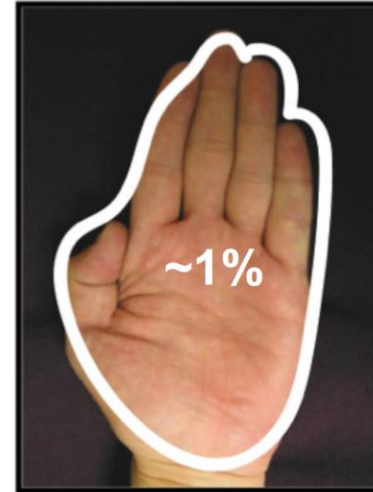
The PGA, or Physician Global Assessment, is a scoring system used to rate the severity of psoriasis.



Measurement of Body Surface Area

We recommend using the handprint method

The patient's full HANDPRINT
(includes area of palm and all
5 digits) = **1% BSA**



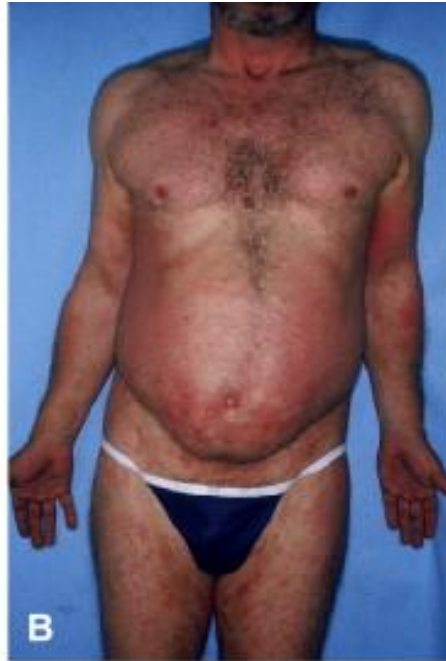
PASI Endpoints

Baseline (25.2)



Baseline

PASI 75 (5.9)



Week 4

PASI 90 (1.2)

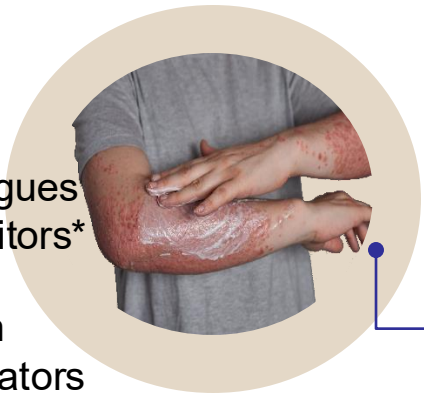


Week 16



Topicals:

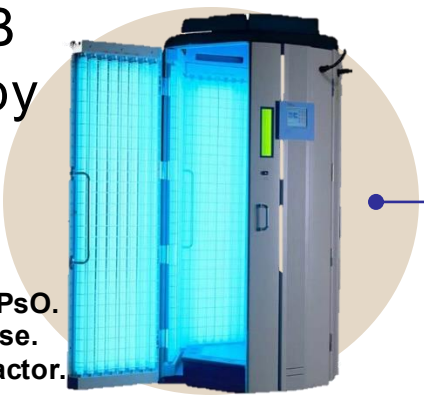
- Steroids
- Vit D, vit A analogues
- Calcineurin inhibitors*
- PDE4 inhibitors
- Aryl hydrocarbon reductase modulators
- Combo products



- Acitretin
- Apremilast
- Cyclosporine
- Deucravacitinib
- Methotrexate

2025 Psoriasis Treatment Strategies

- Ultraviolet B phototherapy
- PUVA
- Laser



- TNF (n=4)
- IL-12/23 (n=1)
- IL-17 (n=4)
- IL-23 (n=3)

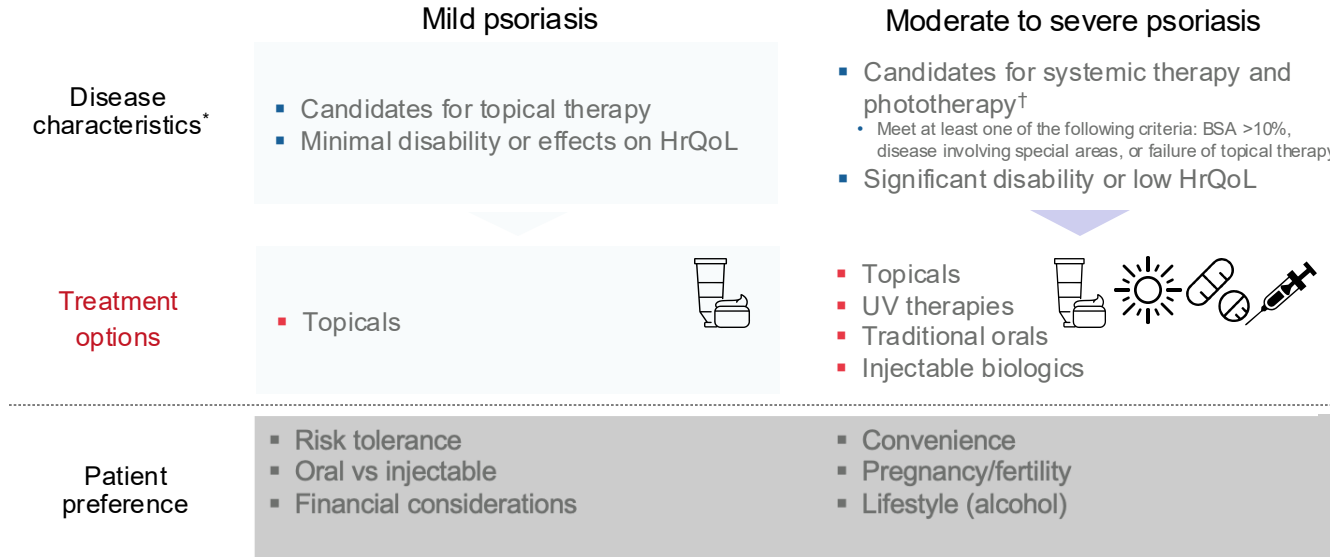
*Not FDA-approved for PsO.
PDE = phosphodiesterase.
TNF = tumor necrosis factor.

Patient Preferences

- Risk tolerance
- Topical vs photo vs oral vs injectable
- Financial considerations
- Convenience/accessibility
- Fertility/pregnancy
- Lifestyle (EtOH)



Psoriasis Treatment Paradigm



*Definitions of psoriasis severity vary among guidelines and consensus statements. 2019 AAD/NPF guideline defines mild psoriasis as <3% BSA. IPC favors using a combination of a basic standard criteria (eg, BSA), involvement of special body areas, and patient's response to topical therapy when classifying the disease severity; [†]Systemic therapies include both biologics and non-biologic treatments, such as phototherapy and older systemic agents.

HrQoL = health-related QoL; IPC = International Psoriasis Council.

Menter A, et al. *J Am Acad Dermatol*. 2019;80(4):1029-1072. World Health Organization (WHO) 2016. *Global Report on Psoriasis*.

<https://iris.who.int/handle/10665/204417>. Strober B, et al. *J Am Acad Dermatol*. 2020;82(1):117-122. Globari NM, et al. *Cutis*.

2018;101(3S):10-12. Elmets CA, et al. *J Am Acad Dermatol*. 2019;80(4):1073-1113. Schaarschmidt ML, et al. *Arch Dermatol*.

2011;147(11):1285-1294. Gottlieb AB, et al. *Int J Womens Dermatol*. 2019;5(3):141-150.



Principals of Topical Therapy

1. General principal
 - 4 g covers 1% BSA BID x one week (60 g tube = about 4% BSA/month)
 - Choose appropriate vehicle for body site and potency
2. Topical steroids
 - ↑ potency = ↑ efficacy (about 70% achieve PGA 0/1), but also ↑ risk of AEs
 - Limit high potency use to 2-4 weeks; low potency for face, breasts, axillae, groin, genitals
3. Vitamin D analogues (eg, calcipotriene, calcitriol)
 - Most useful as a steroid-sparing adjuvant; not to exceed 100 g per week (risk of hypercalcemia)
4. Topical retinoids (tazarotene)
 - Most useful as a steroid-sparing adjuvant category X
5. Tars – messy, classified as a carcinogen (studies in humans have failed to observe an association with cancer risk)
6. Calcineurin inhibitors (tacrolimus, pimecrolimus): useful for facial and intertriginous psoriasis
 - Black box warning re: malignancy; not FDA-approved for psoriasis
7. Tapinarof (aryl hydrocarbon receptor modulator)
8. Roflumilast (PDE4)

AEs = adverse events.

Elmets CA, et al. *J Am Acad Dermatol.* 2021;84(2):432-470.



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Tapinarof Cream qd: Aryl Hydrocarbon Receptor Agonist

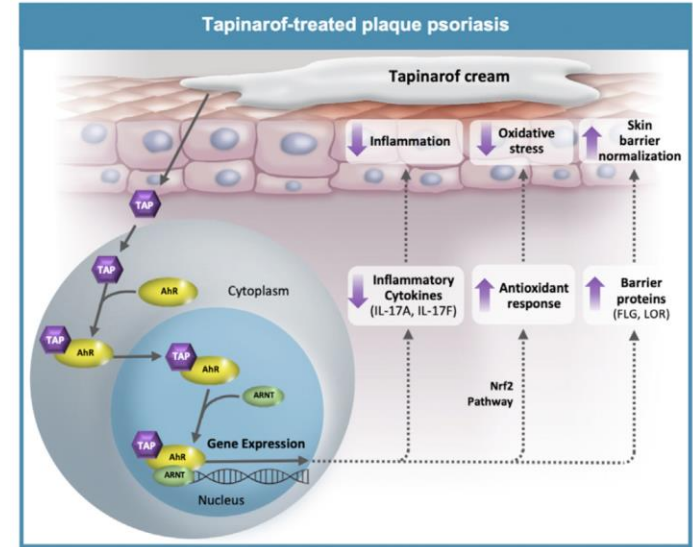
Table 2: Clinical Response at Week 12 in PSOARING 1 and PSOARING 2 in Adults with Plaque Psoriasis (Intent-to-Treat; Multiple Imputation)

Clinical Response	PSOARING 1		PSOARING 2	
	Tapinarof cream N=340	Vehicle cream N=170	Tapinarof cream N=343	Vehicle cream N=172
PGA Treatment Success ^a	36%	6%	40%	6%
Difference (95% CI)	29% (22%, 36%)		34% (27%, 41%)	

^a Treatment success was defined as a PGA score of “Clear” or “Almost Clear” and at least a 2-grade improvement from baseline.

Table 1: Adverse Reactions Occurring in ≥1% of the Subjects in the 12-week PSOARING 1 and PSOARING 2 Clinical Trials

Adverse Reaction	Tapinarof cream N=683 n (%)	Vehicle cream N=342 n (%)
Folliculitis	140 (20)	3 (1)
Nasopharyngitis ¹	73 (11)	31 (9)
Contact dermatitis ¹	45 (7)	2 (1)
Headache	26 (4)	5 (1)

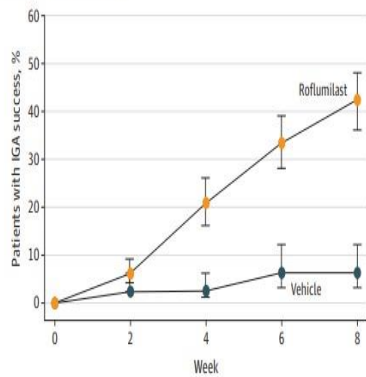


- Low bioavailability
- Remittive effects
- 40% achieve clear skin with long-term use
- Remission x 115 days in those who achieve PGA 0

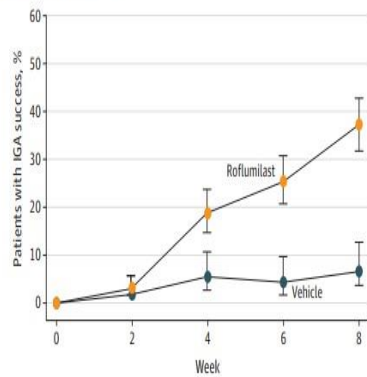


Roflumilast Cream: PDE4 Inhibitor

A DERMIS-1 IGA success rate



B DERMIS-2 IGA success rate



No. of patients	Week 0	Week 2	Week 4	Week 6	Week 8
Roflumilast	286	269	262	252	255
Vehicle	153	143	132	131	132

No. of patients	Week 0	Week 2	Week 4	Week 6	Week 8
Roflumilast	290	274	267	258	264
Vehicle	152	145	139	129	131

The primary end point for both studies was success on the Investigator Global Assessment (IGA) scale, defined as achievement of clear or almost clear status plus ≥ 2 -grade improvement from baseline at 8 weeks.⁷ $P < .001$ for the difference at 8 weeks for both studies. Patients who completed the IGA at week 8 (± 7 days) were considered completers. The percentage of patients who

completed the 8-week study was 88.4% in DERMIS-1 and 89.4% in DERMIS-2. Observed percentages are presented. P values are based on analysis with imputation of missing data and stratification by pooled study sites, baseline IGA, and baseline intertriginous IGA. Whiskers represent 95% CIs.

Table 3. Adverse Events

Adverse events	No. (%)			
	DERMIS-1 trial		DERMIS-2 trial	
	Roflumilast (n = 286)	Vehicle (n = 153)	Roflumilast (n = 290)	Vehicle (n = 152)
Patients with any treatment-emergent adverse event ^a	72 (25.2)	36 (23.5)	75 (25.9)	28 (18.4)
Patients with any treatment-related treatment-emergent adverse event ^b	7 (2.4)	3 (2.0)	16 (5.5)	8 (5.3)
Patients with any serious adverse event ^c	2 (0.7)	1 (0.7)	0	1 (0.7)
Patients who discontinued study due to adverse event	5 (1.7)	2 (1.3)	1 (0.3)	2 (1.3)
Most common treatment-emergent adverse event ($\geq 2\%$ in any treatment group)				
Diarrhea	10 (3.5)	0	8 (2.8)	0
Headache	3 (1.0)	2 (1.3)	11 (3.8)	1 (0.7)
Hypertension ^d	5 (1.7)	6 (3.9)	4 (1.4)	0
Nasopharyngitis	5 (1.7)	3 (2.0)	1 (0.3)	1 (0.7)
Psoriasis ^e	0	3 (2.0)	1 (0.3)	0

^a A treatment-emergent adverse event is defined as an adverse event that emerges during treatment, having been absent pretreatment, or that worsens relative to the pretreatment state.

^b A treatment-related treatment-emergent adverse event was assessed by the principal investigator for each treatment-emergent adverse event. Adverse events with a relationship of possibly, probably, likely, or missing were considered treatment related.

^c A serious adverse event was any adverse event that, in the view of either the investigator or sponsor, resulted in death, a life-threatening adverse event, inpatient hospitalization or prolongation of existing hospitalization, persistent

or significant incapacity or substantial disruption of the ability to conduct normal life functions, or a congenital anomaly/birth defect. All serious adverse events were considered not related to study drug. Serious adverse events were concussion (DERMIS-1, roflumilast group), foot fracture (DERMIS-1, roflumilast group), deformity thorax (DERMIS-1, roflumilast group), pneumothorax (DERMIS-1, roflumilast group), plasma cell myeloma (DERMIS-1, vehicle group), and cervical radiculopathy (DERMIS-2, vehicle group).

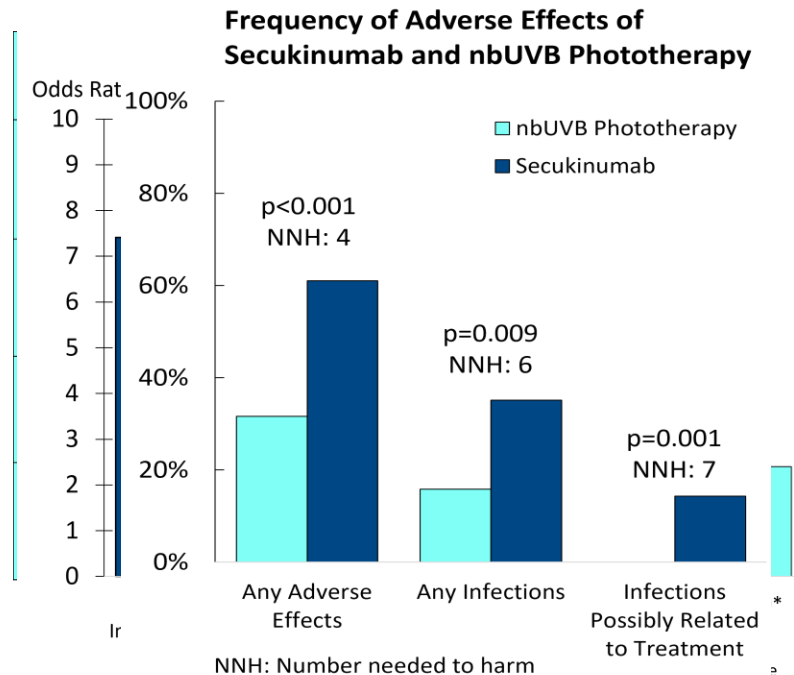
^d Hypertension included synonymous terms (eg, blood pressure increased).

^e Progression of psoriasis that was out of proportion to the natural history of psoriasis.



Phototherapy Is Cost-effective, Has Excellent Efficacy, Safety, and Improves Cardiovascular Biomarkers

- Office phototherapy is 10-100 times less expensive than biologics for psoriasis
- Office phototherapy is as efficacious as adalimumab, but achieves better patient-reported outcomes (RCT data)
- Phototherapy may have cardiovascular benefits (reduces IL-6, improves HDL-P) (RCT data)
- Office phototherapy has no infections compared to secukinumab (14% vs 0%, $P=0.001$) (RCT data)



RCT = randomized controlled trial; HDL-P = HDL particle.

McCoy T, et al. *Int J Dermatol*. 2023;62(8):986-999. Click J, et al. *Photodermatol Photoimmunol Photomed*. 2017;33(6):345-346. Mehta NN, et al. *Circ Cardiovasc Imaging*. 2018;11(6):e007394. Noe MH, et al. *J Am Acad Dermatol*. 2019;81(4):923-930. Boonpethkaew S, et al. *Sci Rep*. 2023;13(1):4384. Iversen L, et al. *J Eur Acad Dermatol Venereol*. 2023;37(5):1004-1016.



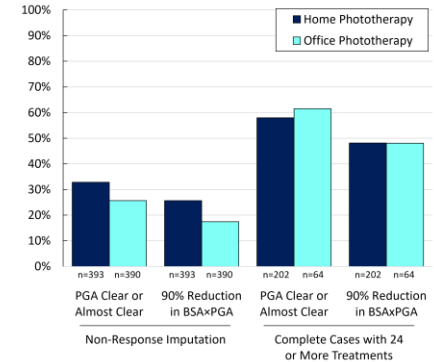
Home Phototherapy Is Non-Inferior to Office-Based Phototherapy across All Skin Types and for Both Physician and Patient-Reported Outcomes: Results from the LITE Study



783 patients
Average age: 48
52% women
25% non-White
58% cardiometabolic dz
17% PsA

Moderate-severe disease
Average BSA: 12.2%
Average global severity: 3
Average DLQI: 12.2
40% prior systemics/biologics
12% on systemics/biologics

Physician-Reported Outcomes



What's New? TYK2! Deucravacitinib

Week 16

■ Placebo
■ Deucravacitinib 6 mg QD
■ Apremilast 30 mg BID

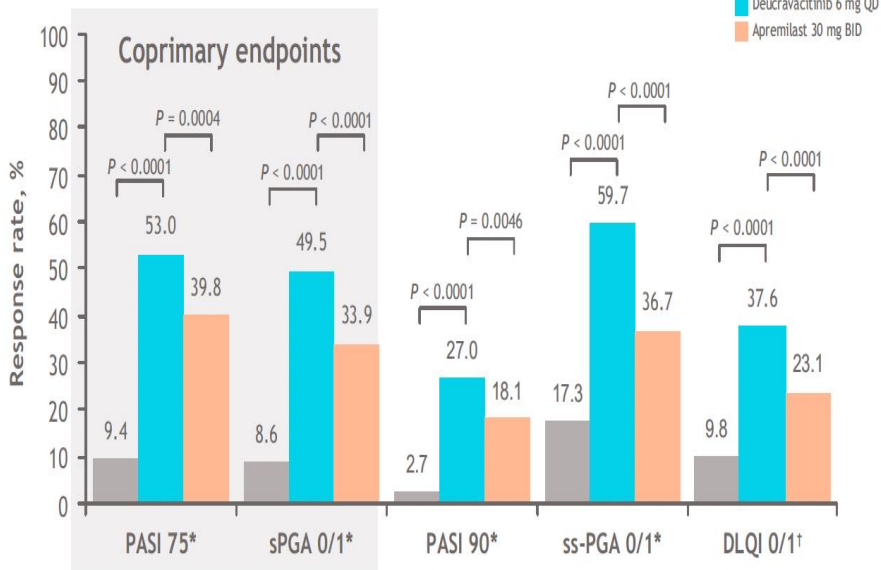


Table II. Overall safety summary

AE category	Weeks 0-16		
	Placebo (n = 254), n (%)	Deucravacitinib (n = 510), n (%)	Apremilast (n = 254), n (%)
Any AEs	138 (54.3)	293 (57.5)	150 (59.1)
Serious AEs	3 (1.2)	8 (1.6)	1 (0.4)
Treatment-related AEs	45 (17.7)	99 (19.4)	73 (28.7)
AEs leading to discontinuation	9 (3.5)	14 (2.7)	12 (4.7)
Deaths	0	1 (0.2)*	1 (0.4)
Most common AEs			
Nasopharyngitis	29 (11.4)	55 (10.8)	23 (9.1)
Upper respiratory tract infection	11 (4.3)	25 (4.9)	14 (5.5)
Headache	14 (5.5)	22 (4.3)	28 (11.0)
Diarrhea	19 (7.5)	24 (4.7)	33 (13.0)
Nausea	3 (1.2)	7 (1.4)	23 (9.1)

*End point was included in the statistical hierarchy as presented in Supplementary Table I, available via Mendeley at: <https://data.mendeley.com/datasets/vcfxdvhw3>; †End point was included in the ex-US hierarchy only. Missing data were imputed with non-responder imputation, with the exception of Psoriasis Symptoms and Signs Diary (PSSD), in which missing data were imputed using the modified baseline observation carried forward method. Strober B, et al. *J Am Acad Dermatol.* 2023;88(1):40-51.



Practical Updates
in Primary Care

Deucravacitinib: What I Tell Patients

- Deucravacitinib is an oral medication taken once daily (6-mg pill) that is used to treat moderate to severe psoriasis. It works by blocking the effects of a molecule called tyrosine kinase 2 (TYK2), which is important for the function of immune cells. About 50% of patients taking deucravacitinib for psoriasis achieved clear or almost clear skin after 4 months of treatment.
- The most common side effects of deucravacitinib are upper respiratory tract infections, cold sores (herpes simplex), canker sores of mouth (including the insides of the lips, gums, tongue, or roof of the mouth), inflamed hair follicles (folliculitis), and acne. Deucravacitinib may cause serious side effects, including allergic reactions, infections (including pneumonia, tuberculosis, and COVID-19), cancer (including lymphoma), and muscle problems such as muscle pain or weakness (rhabdomyolysis).
- Blood tests may be required before and during deucravacitinib treatment. Changes in triglycerides (a type of fat in the blood which can cause heart problems), liver function, and a muscle protein (creatinine phosphokinase) have occurred.



What's Even Newer? Icotrokinra: Oral Peptide That Blocks IL-23 Receptor (Not FDA-Approved)

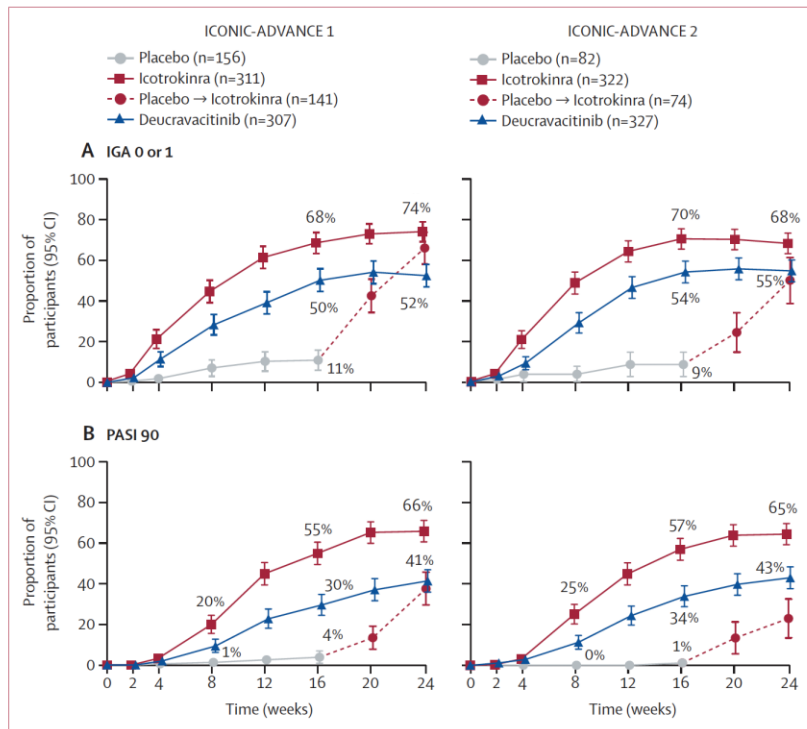


Figure 2: Proportions of participants achieving the coprimary endpoints of IGA 0 or 1 and PASI 90 by treatment group over time¹

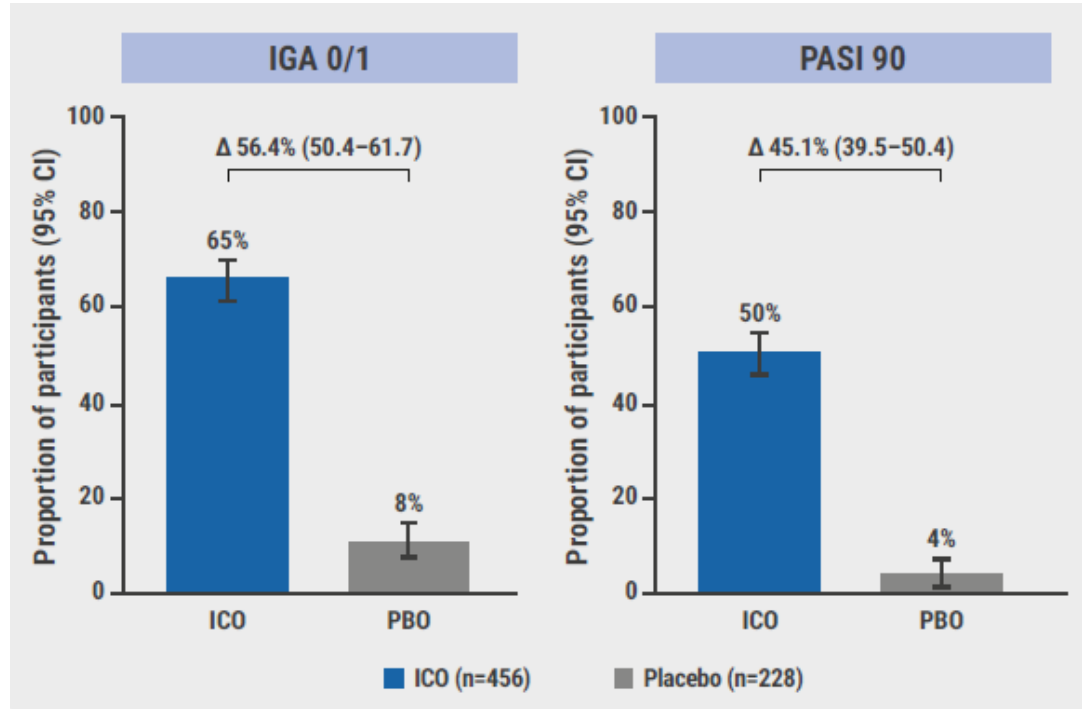
	Placebo-controlled (weeks 0-16)			Active-comparator controlled (weeks 0-24)		Crossover (weeks 16-24)
	Icotrokinra	Placebo	Deucravacitinib	Icotrokinra	Deucravacitinib	Placebo→icotrokinra
Number of participants	632	237	634	632	634	215
Mean weeks of follow-up (SD)	15.9 (1.88)	15.5 (2.69)	15.8 (2.25)	23.5 (3.26)	23.3 (3.94)	8.1 (0.58)
≥1 adverse event	303 (48%)	136 (57%)	360 (57%)	359 (57%)	411 (65%)	60 (28%)
Adverse events occurring in ≥5% of participants [†]						
Headache	26 (4%)	11 (5%)	19 (3%)	28 (4%)	20 (3%)	3 (1%)
Nasopharyngitis	37 (6%)	13 (5%)	58 (9%)	56 (9%)	77 (12%)	8 (4%)
Upper respiratory tract infection	23 (4%)	8 (3%)	33 (5%)	32 (5%)	49 (8%)	7 (3%)
Serious adverse event	14 (2%)	4 (2%)	14 (2%)	18 (3%)	20 (3%)	3 (1%)
Serious infection [‡]	1 (<1%)	1 (<1%)	4 (1%)	3 (<1%)	4 (1%)	0
Adverse event resulting in discontinuation	13 (2%)	12 (5%)	14 (2%)	15 (2%)	17 (3%)	0
Gastrointestinal adverse event	45 (7%)	15 (6%)	63 (10%)	55 (9%)	80 (13%)	5 (2%)
Malignancy [§]	3 (<1%)	1 (<1%)	1 (<1%)	3 (<1%)	2 (<1%)	0
Active tuberculosis	0	0	0	0	0	0

Values are n (%) unless otherwise noted. [†]The safety analysis set included all randomly assigned and treated participants. [‡]In any treatment group. [§]Serious infections included bacterial arthritis (placebo group), campylobacter colitis (deucravacitinib group), viral infection (deucravacitinib group), infection exacerbated by chronic obstructive airways disease (icotrokinra group), lower respiratory tract infection (deucravacitinib group), viral upper respiratory tract infection (deucravacitinib group), and pneumonia (icotrokinra group). [§]Details on malignancies reported through week 24 of both studies are provided in the appendix (pp 2-3).

Table 2: Combined adverse events from the ICONIC-ADVANCE 1 and ICONIC-ADVANCE 2 safety analysis sets^{*}



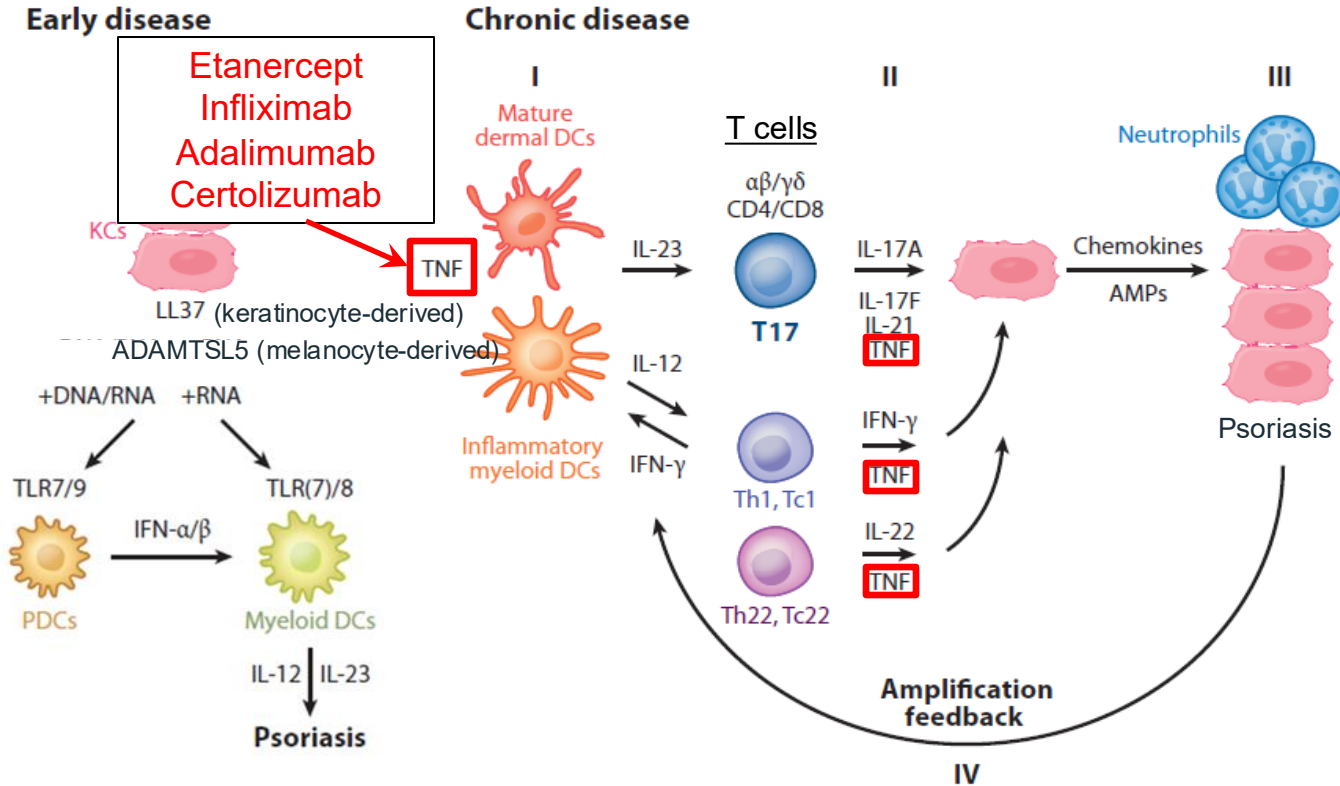
Icotrokinra: Phase 3 ICONIC-LEAD Trial Results at Week 16



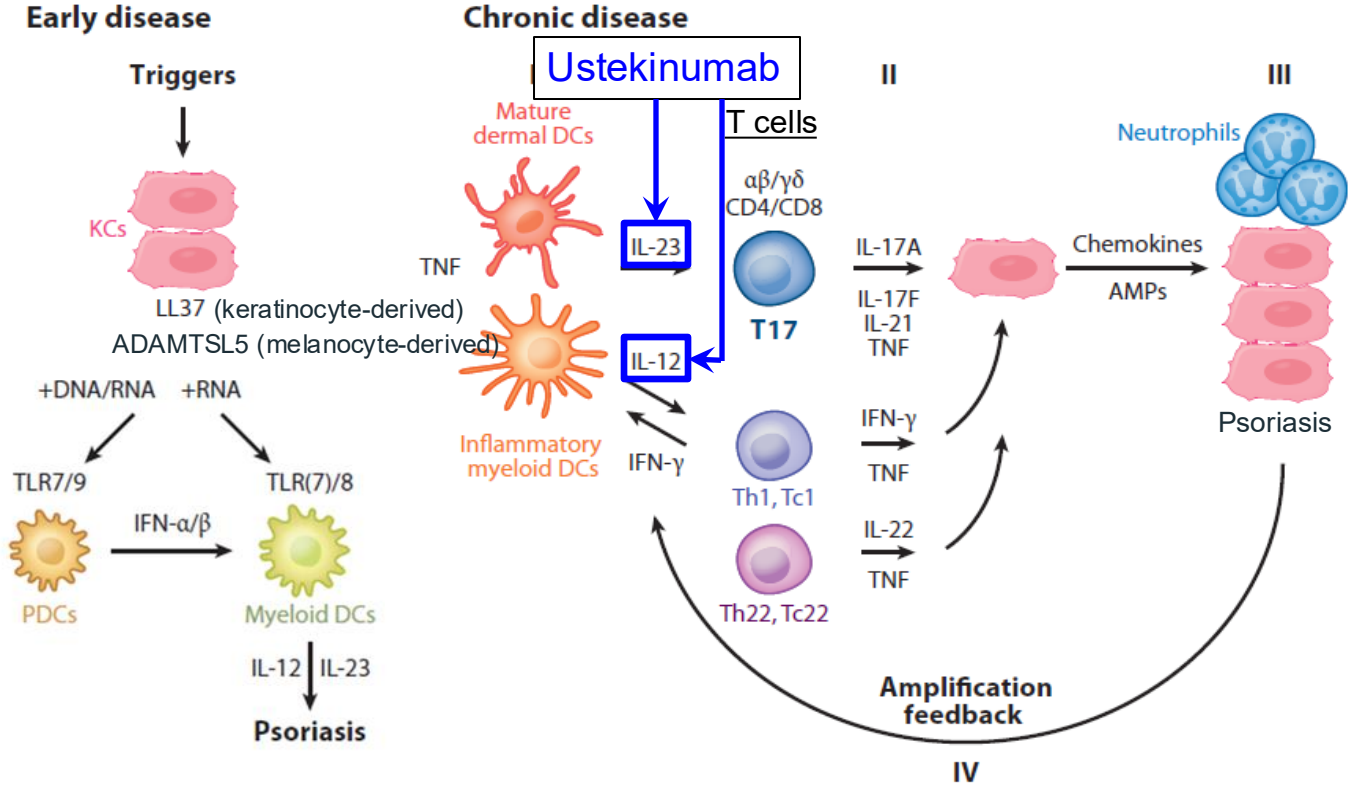
CI = confidence interval; ICO = icotrokinra; IGA = Investigator Global Assessment; PBO = placebo.
Bissonnette R, et al. Presented at: AAD Annual Meeting; March 7-11, 2025; Orlando, FL. Abstract 66708.



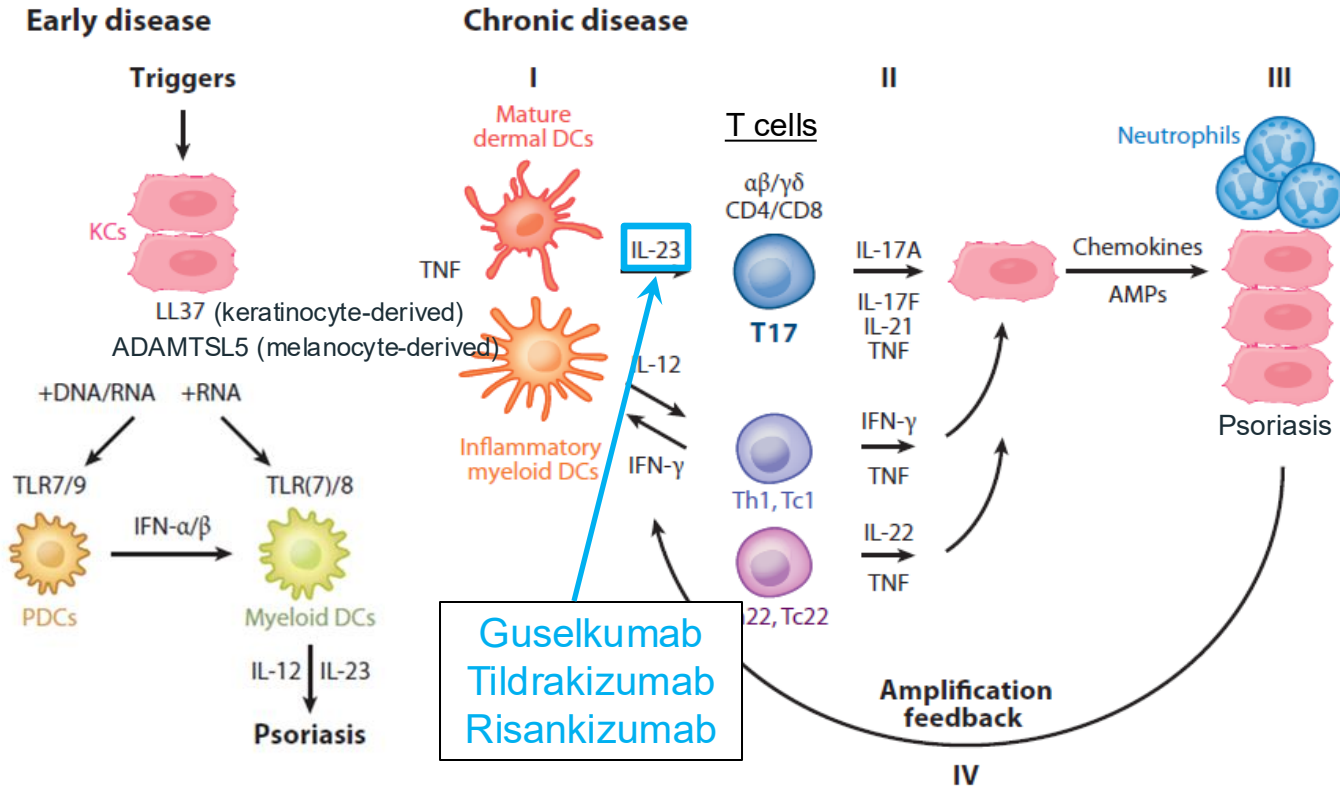
Therapeutic Targets in Treatment of PsO



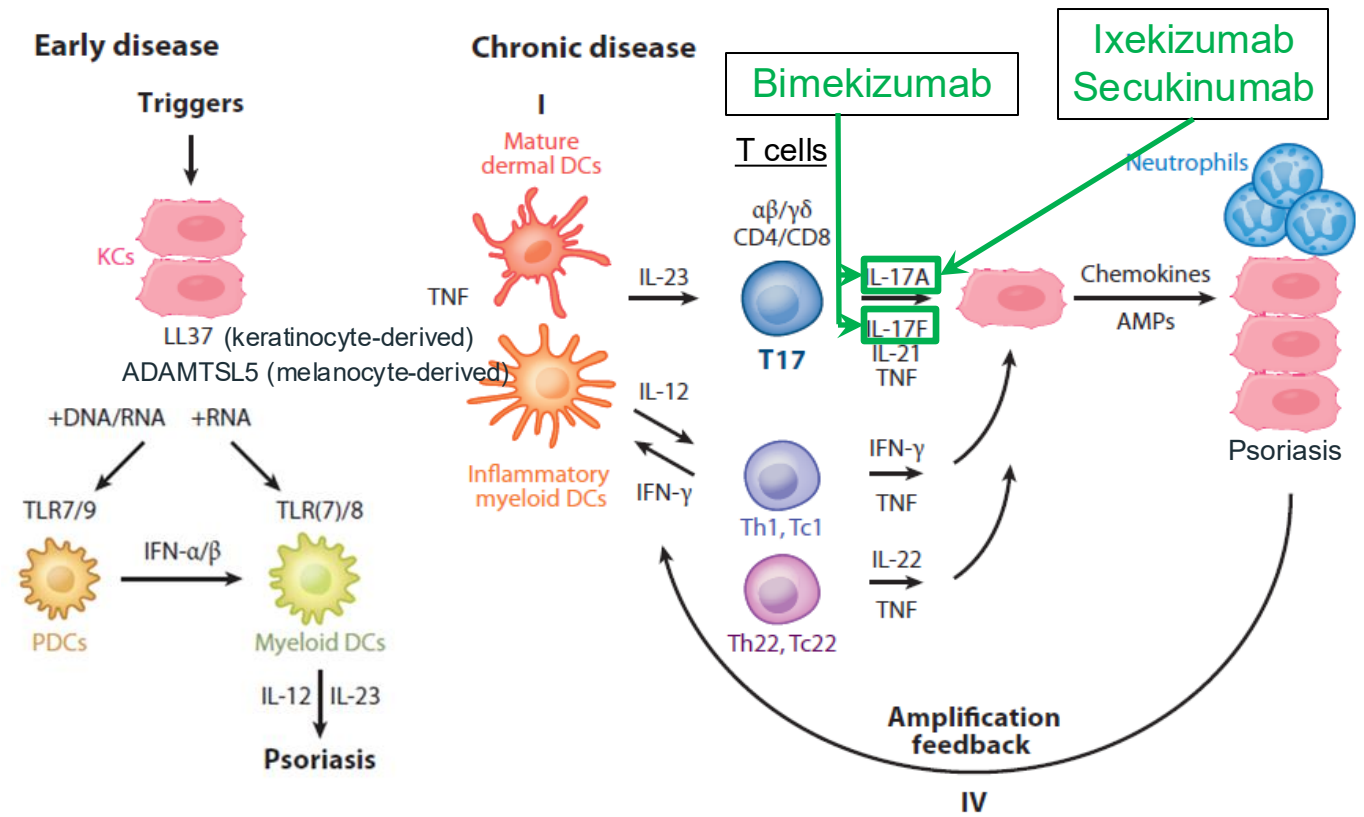
Therapeutic Targets in Treatment of PsO



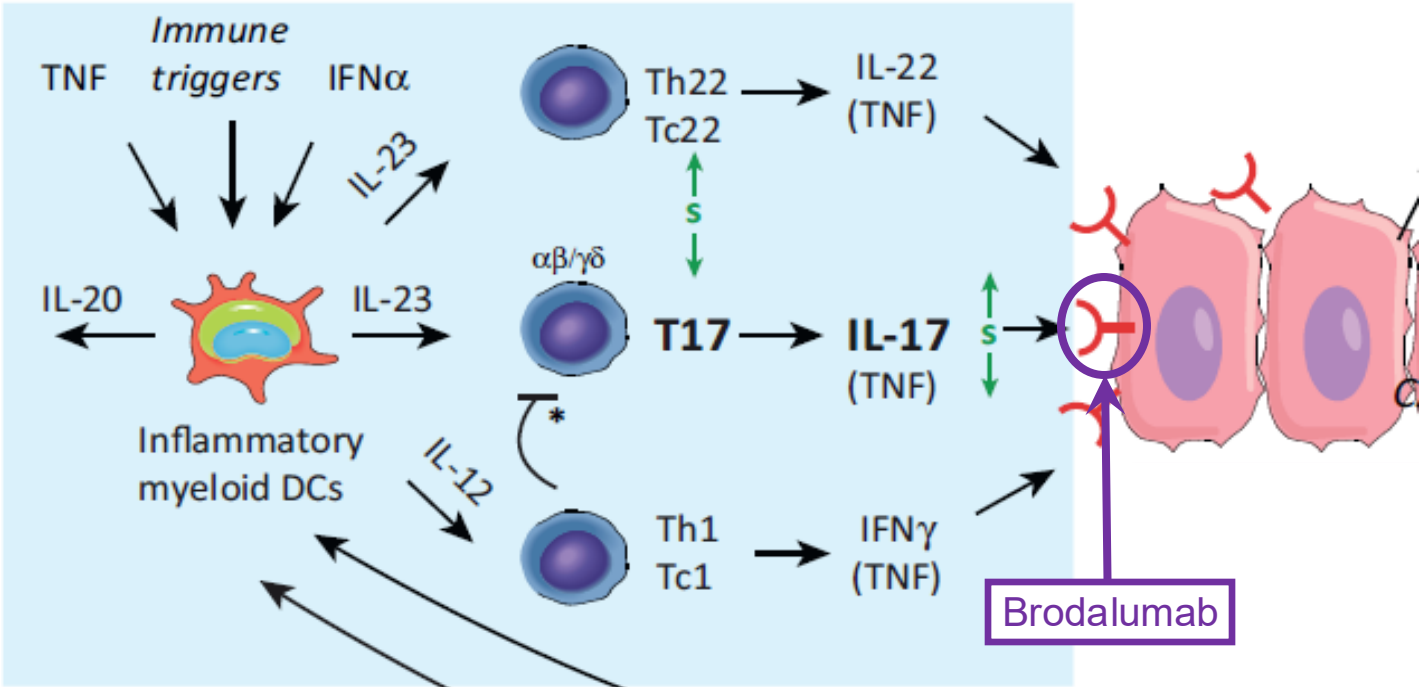
Therapeutic Targets in Treatment of PsO



Therapeutic Targets in Treatment of PsO

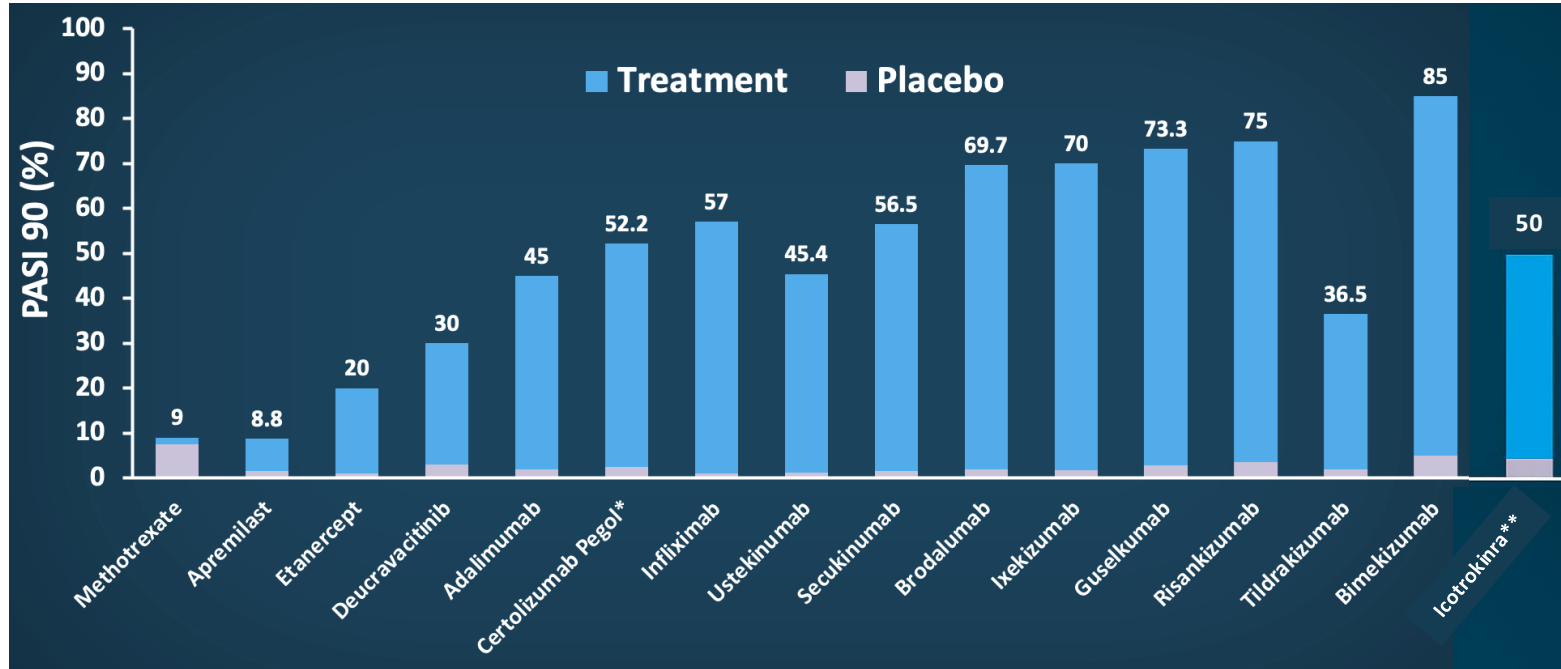


Therapeutic Targets in Treatment of PsO



Adapted from Lowes MA, et al. *Trends Immunol.* 2013;34(4):174-181.

Biologics and Commonly Used Oral Treatments: PASI 90 Response



*400-mg dose every 2 weeks; **Not FDA-approved.

Data derived from respective product labels. Saurat JH, et al. *Br J Dermatol*. 2008;158(3):558-566. Blauvelt A, et al. *J Am Acad Dermatol*. 2017;76(3):405-417. Reich K, et al. *Lancet*. 2017;390(10091):276-288. Farahnik B, et al. *Dermatol Ther (Heidelb)*. 2016;6(2):111-124. Woolacott N, et al. *Health Technol Assess*. 2006;10(46):1-233. Reich K, et al. *Lancet*. 2005;366(9494):1367-1374. PR Newswire. October 26, 2017. Accessed October 21, 2025. www.prnewswire.com/news-releases/risankizumab-meets-all-co-primary-and-ranked-secondary-endpoints-achieving-significantly-greater-efficacy-versus-standard-biologic-therapies-in-three-pivotal-phase-3-psoriasis-studies-300543919.html. Menter A, et al. *J Am Acad Dermatol*. 2008;58(1):106-115. Reich K, et al. *Lancet*. 2021;397(10273):487-498. Bissonnette R, et al. Presented at: AAD Annual Meeting; March 7-11, 2025; Orlando, FL. Abstract 66708.



Head-to-Head Trials of Biologics for Psoriasis

Week	12		16		48	
	PASI 75		PASI 90		PASI 90	
FIXTURE	secukinumab*	77%	CLEAR	secukinumab* 79%	VOYAGE1	guselkumab† 76.3%
	etanercept**	44%		ustekinumab‡ 58%		adalimumab** 47.9%
reSURFACE2	tildrakizumab†	61%	UltIMMa-1	risankizumab† 75%	ECLIPSE	guselkumab† 84%
	etanercept**	48%		ustekinumab‡ 42%		secukinumab* 70%
			IMMvent	risankizumab† 72%		
	PASI 90			adalimumab** 47%		
IXORA-S	ixekizumab*	75%		risankizumab† 74%		
	ustekinumab‡	42%		secukinumab* 66%		
UNCOVER	ixekizumab*	70%				
	etanercept**	22%				
	PASI 100					
IXORA-R	ixekizumab*	41%				
	guselkumab†	25%				
AMAGINE2	brodalumab*	44%				
	ustekinumab‡	22%				
AMAGINE3	brodalumab*	37%				
	ustekinumab‡	19%				

*IL-17i; **TNF-i; †IL-23i; ‡IL-23i/L-12i.

Key points

- IL-17 likely fastest
- IL-23 likely best at 1 year, most persistent
- Important differences in safety/efficacy within and between classes

Gordon KB, et al. *Lancet*. 2018;392(10148):650-661. Langley RG, et al. *N Engl J Med*. 2014;371(4):326-338. Reich K, et al. *Lancet*. 2017;390(10091):276-288. Blauvelt A, et al. *J Am Acad Dermatol*. 2017;76(3):405-417. Reich K, et al. *Br J Dermatol*. 2017;177(4):1014-1023. Griffiths CEM, et al. *Lancet*. 2015;386(9993):541-551. Blauvelt A, et al. *Br J Dermatol*. 2020;182(6):1348-1358. Lebwohl M, et al. *N Engl J Med*. 2015;373(14):1318-1328. Papp KA, et al. *Br J Dermatol*. 2016;175(2):273-286. Thaçi D, et al. *J Am Acad Dermatol*. 2015;73(3):400-409. Reich K, et al. *Lancet*. 2019;394(10198):576-586. Reich K, et al. *Lancet*. 2019;394(10201):831-839. PR Newswire. January 14, 2020. Accessed October 21, 2025. <https://www.prnewswire.com/news-releases/new-head-to-head-phase-3-data-show-skyrizi-risankizumab-superior-to-cosentyx-secukinumab-across-primary-and-all-ranked-secondary-endpoints-in-adults-with-moderate-to-severe-plaque-psoriasis-at-52-weeks-300986617.html>.



FDA-Approved Biologics Maintenance Regimens

	Weekly	Q2W	Q4W	Q8W	Q12W
Etanercept	50 mg SC				
Adalimumab		40 mg SC			
Infliximab				5 mg/kg IV	
Certolizumab		200 mg SC			
Ustekinumab					45 mg (≤ 100 kg), 90 mg (> 100 kg) SC
Guselkumab				100 mg SC	
Tildrakizumab					100 mg SC
Risankizumab					150 mg SC
Secukinumab			300 or 150 mg SC		
Ixekizumab			80 mg SC		
Brodalumab		210 mg SC			
Bimekizumab				320 mg SC	



Considerations for Selecting Treatment for Patients with Psoriasis

Comorbidities							
	PsA	CD	Obesity	CV	CHF	MS	Lupus
TNF inhibitor	++	Mostly ++	Mostly +	++	-/+	X	+/-
Anti-IL-23/12	+	++	++	+	++	+	+
Anti-IL-23	+ (gus, risa)	+ (risa)	++	?	++	?/+	?/+
Anti-IL-17	Mostly ++	-	++	?	++	+	?/+
Orals: apremilast and MTX	+	+	Apremilast: ++	Apremilast: ?	++	Apremilast: ?/+	+
			MTX: X	MTX: ++		MTX: +	
Anti-TYK2	+	?	?	?	?	?	+

Key: ++ = preferred agent; + = can be used; +/- = can be used but is controversial; ?/+ = not enough data but safe to use; -/+ = not preferred but can be used; ? = not enough data; - = use is controversial because not enough data; x = contraindicated

CD = Crohn's disease; CHF = congestive heart failure; MS = multiple sclerosis; MTX = methotrexate.
 Modified from Kaushik SB, Lebwohl MG. *J Am Acad Dermatol.* 2019;80(1):27-40. Morand E, et al.
Arthritis Rheumatol. 2023;75(2):242-252.





**Practical Updates
in Primary Care**

The Role of PCPs in the Early Identification and Diagnosis of PsO, and Patient-Directed Care

Annie Truss, MD

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Department of Family Medicine and Community Health
Rutgers Robert Wood Johnson Medical School

PCPs in the Early Identification and Diagnosis of PsO

Most patients with skin concerns will contact their primary care provider, often before seeing a specialist

Access to specialty care may be challenging and patient may have weeks to months before they can be seen by a dermatologist



Psoriasis

- Inflammatory skin and systemic disorder
- Various subtypes, including
 - Plaque (90%)
 - Guttate
 - Erythrodermic
 - Pustular
 - Inverse
- Primary care providers are well-equipped to diagnose and initiate treatment for psoriasis, specifically plaque psoriasis



Plaque Psoriasis Morphology

Psoriasis can have a variety of appearances, depending on skin type

Primary lesion type – plaques

- Well-demarcated erythematous, salmon pink, (Fitzpatrick I-III) violaceous, red or bluish (Fitzpatrick IV-VI) papules and plaques

Secondary lesion type – scale

- Overlying silvery white scale

Distribution – extensor surfaces

- Knees, elbows, low back, scalp, umbilicus



Fitzpatrick Skin Type (Phototype)

How to classify skin by its reaction to sun exposure



Plaque Psoriasis



Plaque Psoriasis



Guttate Psoriasis



- Acute eruption of many small, erythematous papules and plaques
- Often preceded by streptococcal infection



Inverse Psoriasis



- Located within skin folds
- Pink to purple-ish, brown, or darker than the surrounding skin
- Typically, smooth and shiny
- Well-defined borders



Plaque Psoriasis Clues

Plaques may exhibit

- **Auspitz sign** – bleeding after removal of scale
- **Koebner phenomenon** – lesions induced by trauma



PsO-Associated Conditions

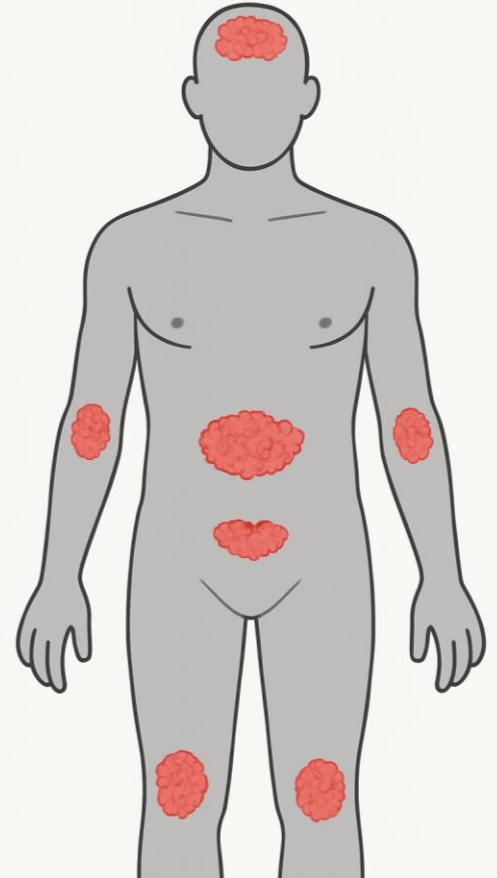
- Increased prevalence of **metabolic syndrome** and **obesity**
- **Cardiovascular outcomes are worsened** in more severe psoriatic disease
- Guidelines now suggest incorporating a psoriasis diagnosis into CV risk prediction and prevention strategies
- Patients have a **1.7-1.75x increased risk** of developing **Crohn's and ulcerative colitis**
- Individuals with psoriasis are **50% more likely to have depressive symptoms** and a **higher prevalence of anxiety**



Key Points

- Erythematous/pink/violaceous well-demarcated plaques
- Silvery scale
- Annular configuration
- Typical distribution

PLAQUE PSORIASIS



Patient- Directed Care

- Importance of **shared decision-making** in treatment selection to optimize adherence and outcomes
 - Consider
 - *Frequency of use*
 - *Physical limitations*
 - *Are they open to systemic medications?*
- One treatment does not FIT all
 - Control first, then maintain
 - Higher-potency steroid → lower-potency steroid for maintenance



Patient- Directed Care

Consider referral to dermatology if

1. Patient does not respond to initial treatment
2. Unsure of diagnosis
3. Patient will benefit from systemic therapy
 - BSA >3-5%
 - Symptoms are refractory to topical therapy
 - Sensitive areas
 - Gluteal fold
 - Scalp
 - Systemic symptoms such as joint pain



Patient- Directed Care

- Meet your local dermatologist
- Use your EMR (photo, chat)
- Start the initial therapy prior to referral
- Consider “teeing up” the patient for systemic therapy
 - CBC, CMP, TB screening, hepatitis screening, HIV



Patient- Directed Care

- Discussing novel therapies with patients
 - Medications that work throughout the entire body
 - Psoriasis is due to inflammation; these medicines target the immune system
 - Safe and effective, can expect near-complete clearance
- Managing expectations with treatment response
 - Remission vs cure





Key Learning Points: Counseling as a PCP

Psoriasis is **chronic**, but can be **controlled**

Treatment is **ongoing** and can range from topical to systemic

Consider **quality of life** and be aggressive if impaired

Remember comorbidities → screen and treat

