



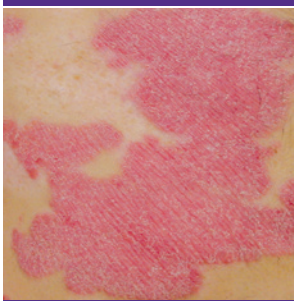






PSORIASIS

**IT IS MORE THAN JUST
A SKIN CONDITION**

What is psoriasis?

Psoriasis is a chronic autoimmune skin disease that speeds up the growth cycle of skin cells.¹

Types of psoriasis²

						
Plaque	Guttate	Inverse*	Pustular*	Erythrodermic*	Scalp	Nail
<ul style="list-style-type: none">• Most common form of psoriasis• Causes dry, raised, red skin lesions covered with silvery scales	<ul style="list-style-type: none">• More common in children and young adults• Usually triggered by a bacterial infection• Marked by small, reddish sores, mainly on the trunk, arms and legs	<ul style="list-style-type: none">• Causes smooth patches of red, inflamed skin primarily in the armpits, groin, under the breast and around genitals	<ul style="list-style-type: none">• Occurs in widespread patches or in smaller areas• Develops quickly with pus-filled blisters hours after the skin becomes red and tender	<ul style="list-style-type: none">• Very rare• Covers the entire body with red, peeling rash that can itch or burn intensely• Can be triggered by corticosteroids and other medications, sunburn or other types of psoriasis	<ul style="list-style-type: none">• Appears as red, itchy areas with silvery-white scales• Scaly patches may bleed when removed and extends up to the hairline	<ul style="list-style-type: none">• Nail psoriasis causes pitting, abnormal nail growth and discoloration• Nails may become loose and separate from the nail beds

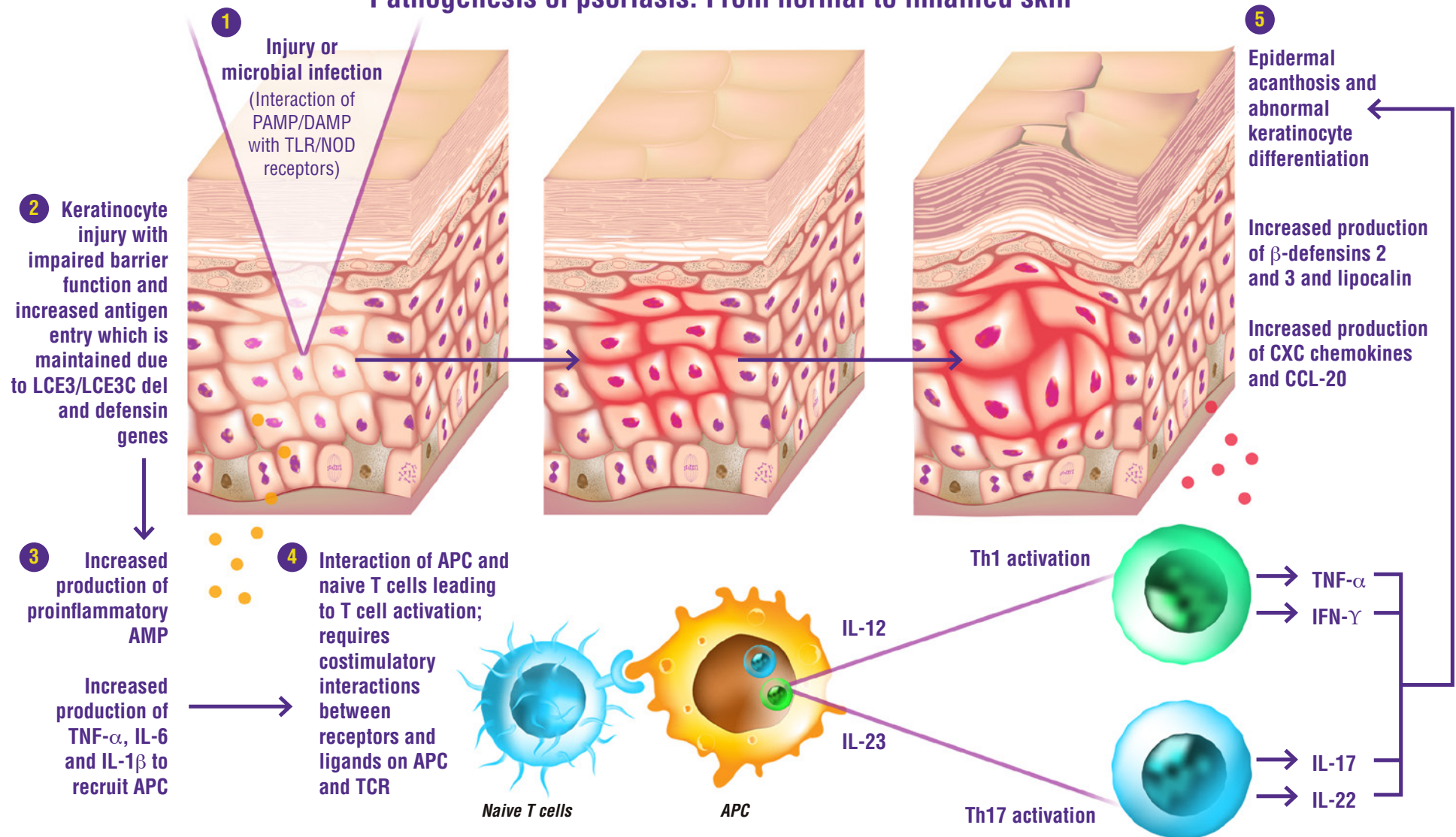
*Images adapted from Lima H. Psoriasis – Types, causes and medication. In: Zangeneh FZ, Shooshtary FS. Psoriasis — Types, Causes and Medication. Intech; 2013:3-37.

1. Psoriasis. Centers for Disease Control and Prevention resource page. Available at: <https://www.cdc.gov/psoriasis/>. Accessed 7 April 2017.

2. Types of psoriasis. Mayo Clinic resource page. Available at: <http://www.mayoclinic.org/diseases-conditions/psoriasis/multimedia/psoriasis-pictures/sls-20076486?s=1>. Accessed 7 April 2017.

What is happening inside the skin?

Pathogenesis of psoriasis: From normal to inflamed skin³



AMP - Adenosine Monophosphate; APC-Antigen Presenting Cells; CCL - Chemokine Ligands; CXC - Chemokines; DAMP - Danger-Associated Molecular Pattern; IFN- γ - Interferon-gamma; IL - Interleukin; LCE3 - Late Cornified Envelope; NOD - Nucleotide-binding Oligomerization Domain-like receptors; PAMP - Pathogen-Associated Molecular Pattern; TCR - T-Cell Receptor; TH - T-helper cells; TLR - Toll-Like Receptors; TNF- α - Tumor Necrosis Factor Alpha

3. Mahajan R, Handa S. Pathophysiology of psoriasis. *Indian J Dermatol Venereol Leprol* 2013;79(Suppl S1):1-9.

What are your treatment goals?

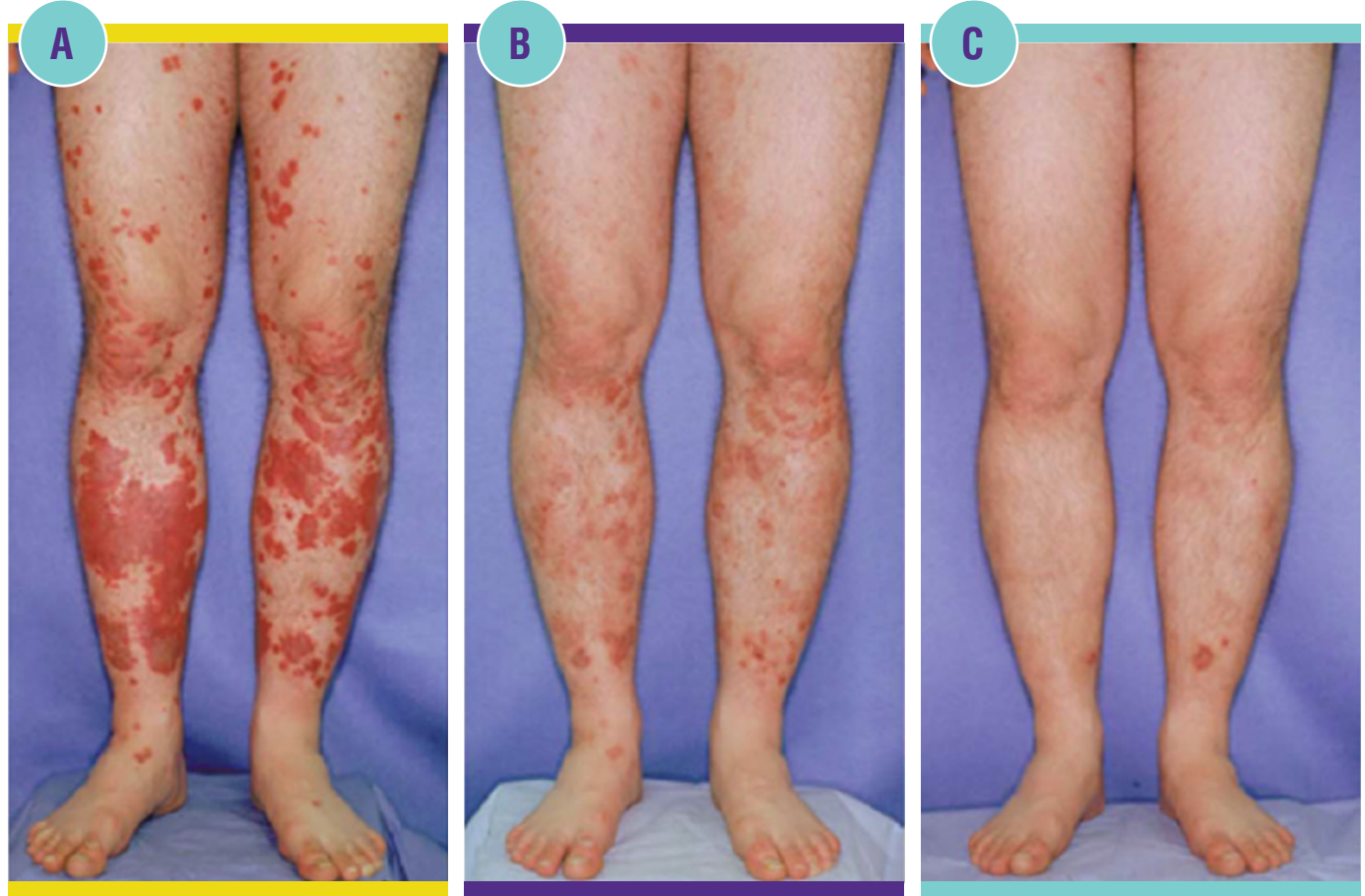
- **Your treatment goals**⁴

- Promote skin healing and quick skin improvement
- Boost confidence in therapy
- Develop control over the disease
- Provide clear diagnosis and therapy
- Prevent fear of worsening of the disease
- Improve quality of life

- **What is PASI?***

- It is a scoring system to measure the severity of psoriatic lesions.⁵
- PASI scores range from 0 (no disease) to 72 (maximal disease).
- PASI 50 or 75 (improvement of 50% or 75% from baseline score, respectively) is a standard measure of response to treatment.⁵
- PASI 90-100 indicates a significant improvement from baseline PASI score.⁶

Clinically meaningful improvements in the treatment of psoriasis⁵



*PASI – Psoriasis Area and Severity Index

4. Blome C, et al. Patient-relevant treatment goals in psoriasis. *Arch Dermatol Res* 2016;308:69–78. doi: 10.1007/s00403-015-1613-8. [Epub 19 Dec 2015]

5. Carlin C, et al. A 50% reduction in the Psoriasis Area and Severity Index (PASI 50) is a clinically significant endpoint in the assessment of psoriasis. *J Am Acad Dermatol* 2004;50:859–866.

6. Elewski BE, et al. Psoriasis patients with Psoriasis Area and Severity Index (PASI) 90 response achieve greater health-related quality-of-life improvements than those with PASI 75-89 response: Results from two phase 3 studies of secukinumab. *J Dermatolog Treat* 2017;28:492–499. doi: 10.1080/09546634.2017.1294727. [Epub 7 Mar 2017]

Lifestyle modifications: What can you do?



Eat a healthy diet⁷



Exercise regularly⁸



Manage your stress⁹



Control your chronic conditions¹⁰
(eg, diabetes, high cholesterol)



Avoid triggers²



Adhere to your medication regimen¹¹



Find a support group⁹

2. Types of psoriasis. Mayo Clinic resource page. Available at: <http://www.mayoclinic.org/diseases-conditions/psoriasis/multimedia/psoriasis-pictures/sls-20076486?s=1>. Accessed 7 April 2017.

7. Larsen MH. Educational and self-management interventions for patients with psoriasis in the context of climate/heliotherapy [Doctoral Thesis]. Oslo, Norway: University of Oslo, Norway; 2015.









8. Bernstein S. Exercise and Psoriasis. WedMD resource page. Available at: <https://www.webmd.com/skin-problems-and-treatments/psoriasis/features/exercise-and-psoriasis#1>. Accessed 6 April 2018.

9. Heller MM, Lee ES, Koo JY. Stress as an influencing factor in psoriasis. *Skin Therapy Lett* 2011;16:1–4.

10. Comorbidities associated with psoriatic disease. National Psoriasis Foundation resource page. Available at: <https://www.psoriasis.org/about-psoriasis/related-conditions>. Accessed 8 April 2018.

11. Bewley A, Page B. Maximizing patient adherence for optimal outcomes in psoriasis. *J Eur Acad Dermatol Venereol* 2011;25 Suppl 4:9–14.

Management: Creams, lotions and ointments

							
Topical corticosteroids ¹²	Vitamin D analogues ¹³	Anthralin ¹³	Topical retinoids ¹⁴	Calcineurin inhibitors ¹⁵	Salicylic acid ¹³	Coal tar ¹²	Moisturizers ¹³
<ul style="list-style-type: none"> Most frequently prescribed anti-inflammatory drugs for treating mild to moderate psoriasis Usually prescribed as ointments and medicated scalp solutions 	<ul style="list-style-type: none"> A synthetic form of vitamin D which slows down the growth of skin cells Usually prescribed in the form of creams 	<ul style="list-style-type: none"> Delays growth of skin cells Helps remove psoriatic scales, making the skin smoother 	<ul style="list-style-type: none"> Synthetic vitamin A derivatives taken orally or applied to the skin Oral retinoids used for stubborn or severe psoriasis, while topical retinoids used as first choice in treating plaque psoriasis 	<ul style="list-style-type: none"> Alternative treatment to corticosteroids for psoriasis in sensitive areas of the skin (face, groin or underarm) Disrupts the activation of T-cells which then, in turn, reduces inflammation and plaque build-up 	<ul style="list-style-type: none"> Promotes sloughing off of dead skin cells and reduces scaling Available as medicated shampoos and scalp solutions 	<ul style="list-style-type: none"> A thick, black by-product of petroleum products and coal that helps reduce scaling, itching, and inflammation Used for treating psoriasis in the limbs, trunk or scalp if other topical treatments are not effective 	<ul style="list-style-type: none"> Will not heal psoriasis but reduces itching and scaling, and can combat dryness Applied immediately after bath or shower to keep moisture in the skin

12. Psoriasis - Treatment options. National Health Service Choices resource page. Available at: <http://www.nhs.uk/Conditions/Psoriasis/Pages/treatmentoptions.aspx>. Accessed 7 April 2017.

13. Psoriasis. Mayo Clinic resource page. Available at: <http://www.mayoclinic.org/diseases-conditions/psoriasis/manage/ptc-20317613>. Accessed 2 October 2017.

14. Retinoids and Psoriasis. The Psoriasis and Psoriatic Arthritis Alliance resource page. Available at: <http://www.papaa.org/further-information/retinoids-and-psoriasis>. Accessed 8 April 2018.

15. Topical treatments for psoriasis. Informed Health Online [Internet]. Available at <https://www.ncbi.nlm.nih.gov/books/NBK435705/>. Accessed 8 April 2018.

Management: Systemic treatments

				
Methotrexate ^{12,13}	Cyclosporin A (CyA) ^{12,13}	Acitretin ¹²	UVB Phototherapy ^{12,13}	Psoralen plus Ultraviolet A (PUVA) ¹³
<ul style="list-style-type: none"> Slows down skin cell production and represses inflammation May cause severe liver damage; may affect production of blood cells and sperm cells; and harm developing fetus 	<ul style="list-style-type: none"> Immunosuppressant similar to methotrexate in efficacy Primarily used in preventing transplant rejection, but has been proven to be effective in the treatment of all types of psoriasis Associated with impaired renal function and higher relapse 	<ul style="list-style-type: none"> Oral retinoid used for treating severe psoriasis Decreases the speed at which new skin cells grow 	<ul style="list-style-type: none"> Uses artificial UVB light to treat single patches, widespread psoriasis and psoriasis not responsive to topical medications Mild to moderate symptoms treated using controlled doses of UVB by slowing down skin cell production 	<ul style="list-style-type: none"> Makes the skin more sensitive to light through exposure to UVA, which penetrates the skin more deeply than UVB light More aggressive treatment modality used in more severe cases of psoriasis Long-term use of this treatment is not encouraged due to increased risk of skin cancer

UVA, ultraviolet A; UVB, ultraviolet B

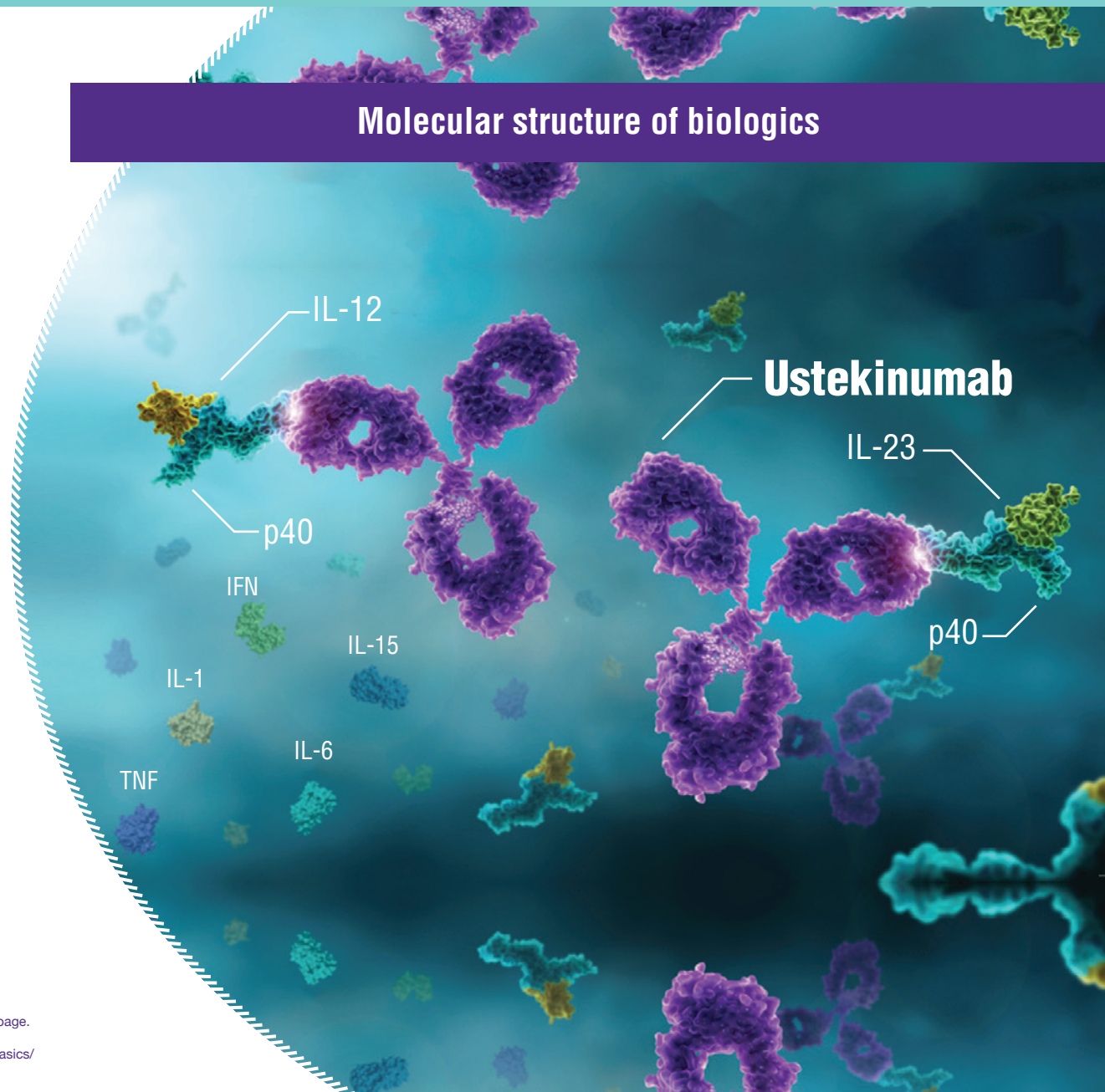
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13. Psoriasis. Mayo Clinic resource page. Available at: <http://www.mayoclinic.org/diseases-conditions/psoriasis/manage/ptc-20317613>. Accessed 2 October 2017.

What are biologics?

- **Biological products are protein-based drugs derived from living cells that inhibit specific components of the immune system which play a role in inflammation.**¹⁶
- **Biologics can block the action of T-cells or proteins such as**¹⁶:
 - Tumor necrosis factor-alpha (TNF- α)
 - Interleukins (12 or 23, 17-A)
- **Biological products include**¹⁷:
 - Vaccines
 - Blood and blood products for transfusion
 - Allergenic extracts
 - Human cells and tissues
 - Gene therapies
 - Cellular therapies

Molecular structure of biologics

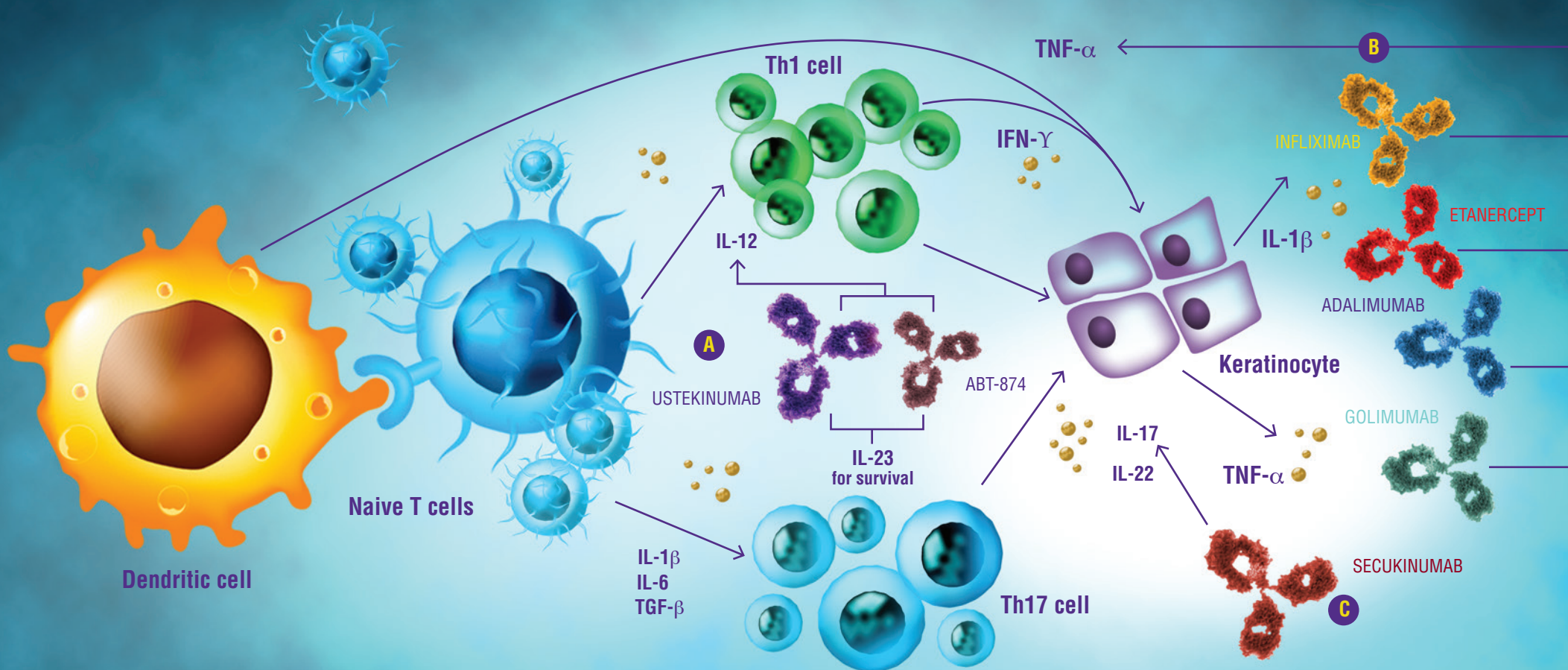


16. Moderate to Severe Psoriasis and Psoriatic Arthritis: Biologic Drugs. National Psoriasis Foundation resource page. Available at: <https://www.psoriasis.org/about-psoriasis/treatments/biologics>. Accessed 7 April 2017.

17. What is a biological product? FDA resource page. Available at: <https://www.fda.gov/aboutfda/transparency/basics/ucm194516.htm>. Accessed 7 April 2017.

How do biologics work?

Biologics in psoriasis and their mechanism¹⁸



A Ustekinumab works by selectively targeting IL-12 and IL-23, proteins associated with psoriatic inflammation.¹⁶

B Infliximab, etanercept, adalimumab and golimumab are monoclonal antibodies that work by blocking TNF-α, a protein causing inflammation.¹⁶

C Secukinumab is a fully human monoclonal antibody that works by neutralizing IL-17A, another protein involved in inflammation.⁶

IFN-γ - Interferon-gamma; IL - Interleukin; TH - T-Helper cells; TGF-β - Transforming Growth Factor Beta; TNF-α - Tumor Necrosis Factor Alpha

6. Elewski BE, Puig L, Mordin M, et al. Psoriasis patients with Psoriasis Area and Severity Index (PASI) 90 response achieve greater health-related quality-of-life improvements than those with PASI 75-89 response: Results from two phase 3 studies of secukinumab. *J Dermatolog Treat* 2017;28:492-499. doi: 10.1080/09546634.2017.1294727. [Epub 7 Mar 2017]

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18. Simavani R, et al. Biological therapy of psoriasis. *Indian J Dermatol* 2010;55:161-170. doi: 10.4103/0019-5154.62754. [Epub 22 Apr 2010]

What are the effects of biologics?

Clearance achieved with biologics¹⁹



- Target the specific harmful effects of the immune system on the skin¹⁸
- Longer periods of clearance
 - Up to PASI 90 for a period of 12 weeks¹⁹
- Indications for using biologics²⁰:
 - Other treatment options were unsuccessful
 - Side effects of other treatment options become unbearable or caused toxicity
 - The patient has history of congestive heart failure or liver disease that disallow use of other systemic therapies








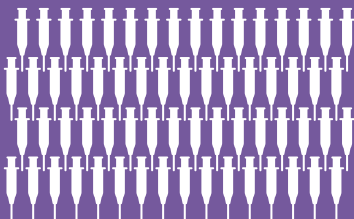


PASI – Psoriasis Area and Severity Index; PGA – Physician Global Assessment

18. Simavani R, et al. Biological therapy of psoriasis. *Indian J Dermatol* 2010;55:161–170. doi: 10.4103/0019-5154.62754. [Epub 22 Apr 2010]

19. Papp KA, et al. Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 52-week results from a randomised, double-blind, placebo-controlled trial (PHOENIX 2). *Lancet* 2008;371:1675–1684.

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Currently available biologics

				
Ustekinumab²¹	Infliximab²²	Etanercept²³	Secukinumab²⁴	Adalimumab²⁵
For adult patients with moderate-to-severe plaque psoriasis who are candidates for phototherapy or systemic therapy	For adult patients with severe plaque psoriasis who are candidates for systemic therapy and for patients with moderate psoriasis for whom phototherapy is inadequate or inappropriate	For chronic moderate-to-severe plaque psoriasis in children 4 years and older, and adults who may benefit from phototherapy or systemic therapy	For adult patients with moderate-to-severe plaque psoriasis involving large areas or many areas of the body and who may benefit from systemic therapy or phototherapy	For adult patients with moderate-to-severe chronic plaque psoriasis who are ready for systemic therapy, and are under the care of a doctor who will decide if other systemic therapies are less appropriate
Dosing				
First 52 weeks  6 SC injections (2 starter doses at weeks 0 and 4; then once every 12 weeks)	First 52 weeks  8 IV infusions (5 mg/kg at week 0, then repeat at 2 weeks and 6 weeks; then every 8 weeks)	First 52 weeks  64 SC Injections (First 3 months, 50 mg twice weekly; then reduce to 50 mg once weekly)	First 52 weeks  34 SC injections (Two injections per dose: 5 starter doses at weeks 0, 1, 2, 3 and 4; then every 4 weeks)	First 52 weeks  28 SC injections (80 mg at week 0, then 40 mg at week 1; then 40 mg every 2 weeks)

21. Stelara® [product monograph]. Toronto, Ontario: Janssen Inc.; 2008.

22. Remicade® [product monograph]. Toronto, Ontario: Janssen Inc.; 2018.

23. Enbrel® [product monograph]. Thousand Oaks, California: Immunex Corporation; 2017.

24. Cosentyx® [product monograph]. Dorval, Quebec: Novartis Pharmaceuticals Canada Inc.; 2015.

25. Humira® [product monograph]. St-Laurent, Quebec: AbbVie Corporation; 2004.

IV, intravenous; SC, subcutaneous

What tests need to be done for patients with moderate-to-severe psoriasis?

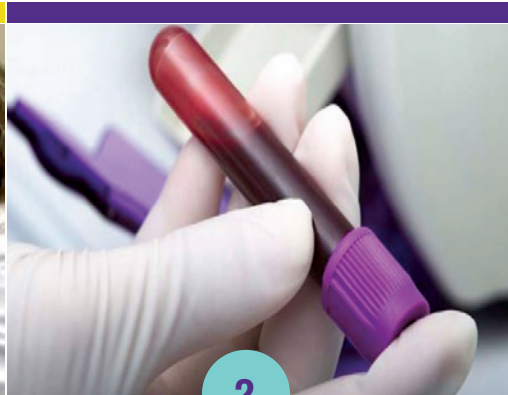
Key points in monitoring patients on or before biological therapies



1

Complete medical history and physical examination²⁶

- Review of systems
- Past medical history (infectious diseases, malignancy, organ diseases)
- Social history



2

Baseline laboratory studies²⁶

- Complete blood count
- Blood urea nitrogen
- Creatinine
- Liver function tests
- TB screening
- Pregnancy test



3

Skin biopsy²⁷

- Basal cell hyperplasia
- Proliferation of subepidermal vasculature
- Absence of normal cell maturation
- Keratinization



4

Histopathology²⁷

- Regular acanthosis of the epidermis
- Parakeratosis
- Kogoj spongiotic pustules
- Munro microabscesses

Taking medications that suppress the immune system increases the risk of having an infection. Your doctor will continue to monitor your condition during and after treatment with biologics.²⁶


26. Emer J, Frankel A, Zeichner J. A practical approach to monitoring patients on biological agents for the treatment of psoriasis. *J Clin Aesthetic Dermatol* 2010;3:20–26.

27. Habashy J. Psoriasis workup. Medscape resource page. Available at: http://emedicine.medscape.com/article/1943419-workup?src=refgatesrc1&src=ogm_ret_dsk_push&pl=1#showall. Accessed 2 Oct 2017.

Summary of references

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2. Types of psoriasis. Mayo Clinic resource page. Available at: <http://www.mayoclinic.org/diseases-conditions/psoriasis/multimedia/psoriasis-pictures/sls-20076486?s=1>. Accessed 7 April 2017.
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Patient must seek medical attention immediately at the first sign of any adverse drug reaction. For suspected adverse drug reaction, report to the FDA: www.fda.gov.ph.

 CAUTION: Foods, Drugs, Devices & Cosmetics Act prohibits dispensing without prescription.
Full prescribing information available upon request.

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