

# Alopecia Areata: JAK Therapy and More



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# Do I utilize JAK inhibitors in children?

Absolutely yes

Think this is a population that is really affected by the disease

They tolerate treatment very well in my experience

# How I choose a Jak inhibitor for my patient with alopecia areata

Age

Comorbidities

Possibility of increasing dosage

Availability

# How I choose a Jak inhibitor for my patient with alopecia areata

## Age

Ritlecitinib is the only JAK FDA approved from age of 12 and up

Studies on children 6 -12 years are ongoing

# Possible advantages of selective JAK 3 inhibition

- 1 Reduced risk of systemic infections
- 2 Increased long-term safety
- 3 Reduced risk of lipid abnormalities
- 4 All of the above

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Ramírez-Marín HA, Tosti A. Evaluating the Therapeutic Potential of Ritlecitinib for the Treatment of Alopecia Areata. Drug Des Devel Ther. 2022

# Possible advantages of selective JAK 3 inhibition

## Efficacy and safety of ritlecitinib in adults and adolescents with alopecia areata: a randomised, double-blind, multicentre, phase 2b–3 trial



Brett King, Xingqi Zhang, Walter Gubelin Harcha, Jacek C Szepietowski, Jerry Shapiro, Charles Lynde, Natasha A Mesinkovska, Samuel H Zwillich, Lynne Napatalung, Dalia Wajsbrot, Rana Fayyad, Amy Freyman, Debanjali Mitra, Vivek Purohit, Rodney Sinclair, Robert Wolk

### Summary

**Background** Alopecia areata is characterised by non-scarring loss of scalp, face, or body hair. We investigated the efficacy and safety of ritlecitinib, an oral, selective dual JAK3/TEC family kinase inhibitor, in patients with alopecia areata.

**Methods** In this randomised, double-blind, multicentre, phase 2b–3 trial done at 118 sites in 18 countries, patients aged

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\*Affiliation at time of study  
Department of Dermatology

There were small, transient dose-dependent increases in total cholesterol, HDL cholesterol, and LDL cholesterol (relative to placebo), without a consistent pattern or association with dose up to week 48.

# How I choose a Jak inhibitor for my patient with alopecia areata

## Possible drug interactions

Ritlecitinib levels are affected by drugs affecting CYP3A4 activity

Purohit VS et al. Drug-drug interaction profile of ritlecitinib as perpetrator and victim through cytochrome P450. Br J Clin Pharmacol. 2025 Aug;91(8):2316-2326

# Drugs that increase ritlecitinib levels by reducing CYP3A4 activity

1. Amiodarone
2. Aprepitant
3. Cimetidine
4. Ciprofloxacin
5. Clarithromycin
6. Diltiazem
7. Erythromycin
8. Fluconazole
9. Grapefruit juice
10. Itraconazole
11. Ketoconazole
12. Posaconazole
13. Voriconazole
14. Verapamil

# Drugs that reduce ritlecitinib levels by increasing CYP3A4 activity

1. Barbiturates (Phenobarbital)
2. Carbamazepine
3. Corticosteroids
4. Phenytoin
5. Rifampicin
6. St. John's Wort

# How I choose a Jak inhibitor for my patient with alopecia areata

**Tofacitinib is not FDA approved for alopecia areata**

Tofacitinib has been largely utilized in children, even under the age of 6

Jerjen R et al Treatment of alopecia areata in pre-adolescent children with oral tofacitinib: A retrospective study. *Pediatr Dermatol.* 2021 Jan;38(1):103

Huang J et al Effectiveness of Tofacitinib in Pre-adolescent Alopecia Areata: A Retrospective Case Series and Literature Review. *Acta Derm Venereol.* 2023 Sep 20;103

Khan F et al Efficacy and Safety of Tofacitinib in Paediatric Alopecia Aerata - A Prospective Observational Study. *J Pharm Bioallied Sci.* 2025 Sep;17(Suppl 3):S2500-S2502.

# How I choose a Jak inhibitor for my patient with alopecia areata

Baricitinib and deuruxolitinib are NOT FDA approved

Baricitinib and deuruxolitinib are on clinical trials for 12 to 18 age group

# How I choose a Jak inhibitor for my patient with alopecia areata

**What's about patients under 12?**

Tofacitinib



# How I choose a Jak inhibitor for my patient with alopecia areata

## **Tofacitinib**

NOT FDA-approved for alopecia areata

FDA-approved for children aged 2 years and older with active polyarticular course juvenile idiopathic arthritis (pcJIA)

Grape-flavored liquid formulation available for young children

# How I choose a Jak inhibitor for my patient with alopecia areata

## Age

What's about patients under 12?

4-year old girl treated with tofacitinib 5mg day



### Tofacitinib Pediatric Dosing (pcJIA)

This document summarizes the pediatric dosing guidance for tofacitinib (Xeljanz Oral Solution, 1 mg/mL) in children, commonly used in the treatment of polyarticular-course juvenile idiopathic arthritis (pcJIA).

Body Weight	Dose (Twice Daily)
10 kg to < 20 kg	3.2 mg (3.2 mL solution)
20 kg to < 40 kg	4 mg (4 mL solution)
≥ 40 kg	5 mg (5 mL solution or tablet)

**Notes:** Dosing is based on fixed weight bands, not per kilogram, to ensure consistent drug exposure across pediatric patients. Applies to children aged 2 years and older with polyarticular-course juvenile idiopathic arthritis (pcJIA). Dose adjustments may be needed in renal or hepatic impairment (often reduced to once daily).

# How I choose a Jak inhibitor for my patient with alopecia areata

## **Comorbidities**

Atopic dermatitis

# Can JAK 1 inhibitors be effective?

Atopic dermatitis and alopecia areata

**Yes**

Case reports in the literature

Personal experience

Battilotti et al Efficacy of Upadacitinib in Treating Alopecia Areata, Atopic Dermatitis, and Th1 Comorbidities in Pediatric Patients: A Comprehensive Case Series and Literature Review. J Clin Med. 2025 May 30;14(11):3881.

# How I choose a Jak inhibitor for my patient with alopecia areata

## Atopic dermatitis and alopecia areata

Upadacitinib (15 mg or 30 mg once daily) FDA-approved for adolescents aged 12 years and older

Abrocitinib (100 mg or 200 mg once daily) FDA-approved for adolescents aged 12 years and older

# Can JAK 1 inhibitors be effective?



# Any role for associated treatments

**Oral minoxidil 2.5 mg to 5 mg day can help in inducing regrowth**

King BA, Craiglow BG. Janus kinase inhibitors for alopecia areata. J Am Acad Dermatol. 2023 Aug;89(2S):S29-S32

Kalil L et al . Systemic Therapies for Pediatric Alopecia Areata. Pediatr Dermatol. 2025 Mar;42 Suppl 1:36-42.

Is treatment effective to stop hair loss in patients with acute disease?

Not in my experience

Patients usually worsen before improving

# When the patient should expect first signs of regrowth?

The typical time to initial hair regrowth with ritlecitinib in pediatric patients (aged 12-17 years) is approximately 12-24 weeks, with response rates continuing to increase through 48 weeks and beyond.

Continued treatment beyond 24 weeks is important, as a substantial proportion of patients require extended treatment duration to achieve response

Hordinsky M, et al. Efficacy and safety of ritlecitinib in adolescents with alopecia areata: Results from the ALLEGRO phase 2b/3 randomized, double-blind, placebo-controlled trial. *Pediatr Dermatol*. 2023 Nov-Dec;40(6):1003-1009.

Piliang M, et al. Sustained hair regrowth with continued ritlecitinib treatment through week 48 in patients with alopecia areata with or without early target responses: Post hoc analysis of the ALLEGRO phase 2b/3 trial. *J Am Acad Dermatol*. 2025 Feb;92(2):276

# If relapses during treatment

1 Add Oral Cya

2 Add systemic steroids

3 None of above

4 All of the above

# If relapses during treatment

1 Add Oral Cya

2 Add systemic steroids

3 None of above

4 All of the above

# Can the treatment be discontinued?

1 Yes

2 Yes, but gradually

3 No

# Can the treatment be discontinued?

1 Yes

2 Yes, but gradually

3 No

# Can the treatment be discontinued?

Most pts relapse with discontinuation

Extrapolating from broader JAK inhibitor data in alopecia areata, discontinuation commonly leads to relapse.

A meta-analysis across JAK inhibitors (not specific to ritlecitinib) found pooled recurrence rates of 54% after withdrawal, suggesting that continuous treatment may be necessary to maintain efficacy.

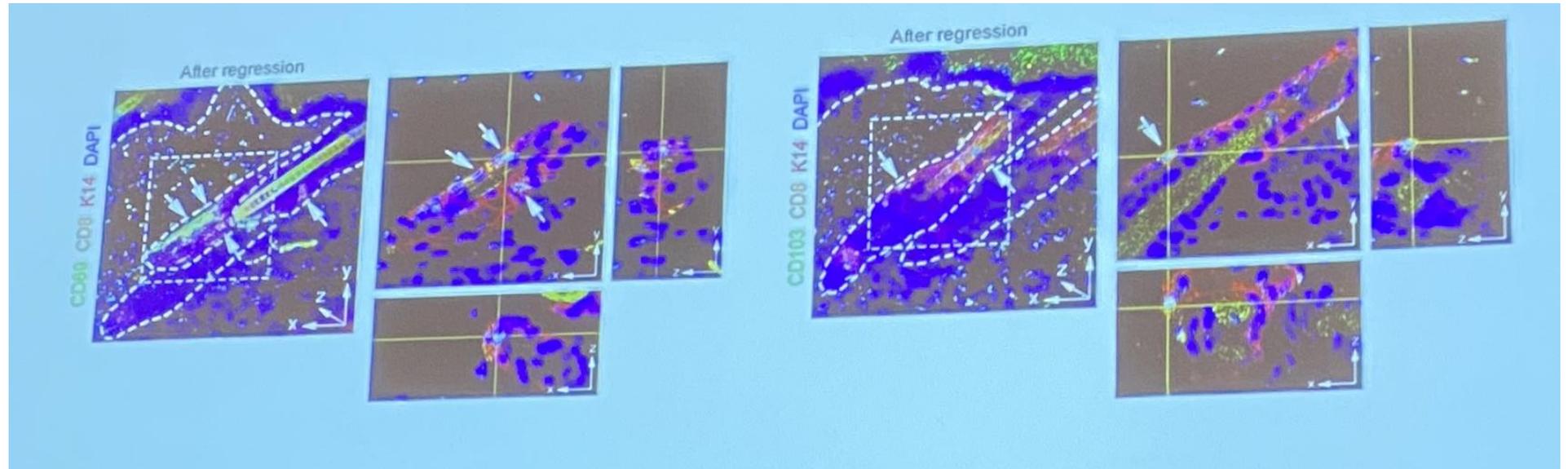
# Can the treatment be discontinued?

Relapse after discontinuation for 8 weeks



# Can the treatment be discontinued?

Tissue resident memory TRM cells play a crucial role in recurrences  
They remain within HF epithelial layers after remission



Angela Christiano Alopecia Areata Summit NY 2022

# Can the treatment be discontinued?

Patients with complete regrowth often show signs of disease activity at dermoscopy



# Can patients experience relapses during treatment?

YES

In the analysis of patients receiving ritlecitinib 50 mg through 24 months, 12.6% (24/191 patients) were classified as relapsers., This indicates that even with ongoing treatment, some patients experience loss of response.

King B, et al . Patterns of clinical response in patients with alopecia areata treated with ritlecitinib in the ALLEGRO clinical development programme. J Eur Acad Dermatol Venereol. 2025 Jun;39(6):1163-1173.

# Can the dose be reduced ?

Scarce information with tofacitinib

Reduction should be very gradual

Relapses are common with reduction in my experience

Rudnicka L et al. European expert consensus statement on the systemic treatment of alopecia areata. J Eur Acad Dermatol Venereol. 2024 Apr;38(4):687-694.

# Can non responders benefit from a different drug?

AA patients with a sub-optimal initial response to tofacitinib and patients who respond initially to tofacitinib, but who relapse whilst on tofacitinib maintenance therapy may benefit from in-class switching to baricitinib.

In contrast, total non-responders appear less likely to respond to a second JAK inhibitor

Journal of the American Academy of Dermatology  
In class switching of JAK inhibitors for alopecia areata- a retrospective analysis of 82 patients.  
--Manuscript Draft--

Manuscript Number:	JAAD-D-21-02190
Article Type:	Research Letter
Keywords:	alopecia areata; alopecia totalis; alopecia universalis; Janus kinase inhibitors; tofacitinib; baricitinib; class switching; hair loss; hair regrowth; autoimmunity

Can patient with total regrowth with tofacitinib be switched to ritlecitinib without risk of relapse?



# Can patient with total regrowth with tofacitinib be switched to ritlecitinib without risk of relapse?

There are some risks

Prior JAK inhibitor exposure reduces response to ritlecitinib.

Okazaki T et al A 24-Week Real-World Experience Contrasting JAK Inhibitor-Naïve and JAK Inhibitor-Experienced Patients. J Dermatol. 2025 Dec 25.

# Patient selection



## A Review on the Safety of Using JAK Inhibitors in Dermatology: Clinical and Laboratory Monitoring

Christeen Samuel · Hannah Comman · Anusha Kambala ·  
Shawn G. Kwatra

- Complete blood count with a differential
- Liver and kidney function tests
- Tuberculosis test
- Hepatitis B & C panel
- Baseline lipid panel
- Pregnancy test (if applicable)

# Monitoring

Check drug interactions

No vaccinations with live attenuated vaccines during treatment

Recommend zoster vaccine before starting

I stop in case of infections

# JAK inhibitors

Side effects : what it is common to see and how to deal?

Doctors are often scared of possible side effects

Medication is usually very well tolerated

Patients very rarely complain of side effects

# JAK inhibitors

## Side effects that I have seen

Upper respiratory infection

Urinary infections

Headache

Acne/acneiform eruptions

Increase in CK

Recurrent herpes simplex

Varicella zoster

Weight gain

Bruising

Upper respiratory infection  
Urinary infections

**I stop the medication for a few days in case of fever**

# Headache

**Transitory side effect in all my cases**  
**Anti-inflammatory medications**

Oral minoxidil can also cause headache  
I interrupt oral minoxidil until headache has resolved

# Acne

New onset acne

Worsening of acne

Iharthi S, Turkmani MG, AlJasser MI. Acne exacerbation after tofacitinib treatment for alopecia areata. *Dermatol Reports*. 2022 Jan 1;14(2):9396.

# Acne



# Acne



# Acne

## **Treatment**

Tetracyclines

Topicals

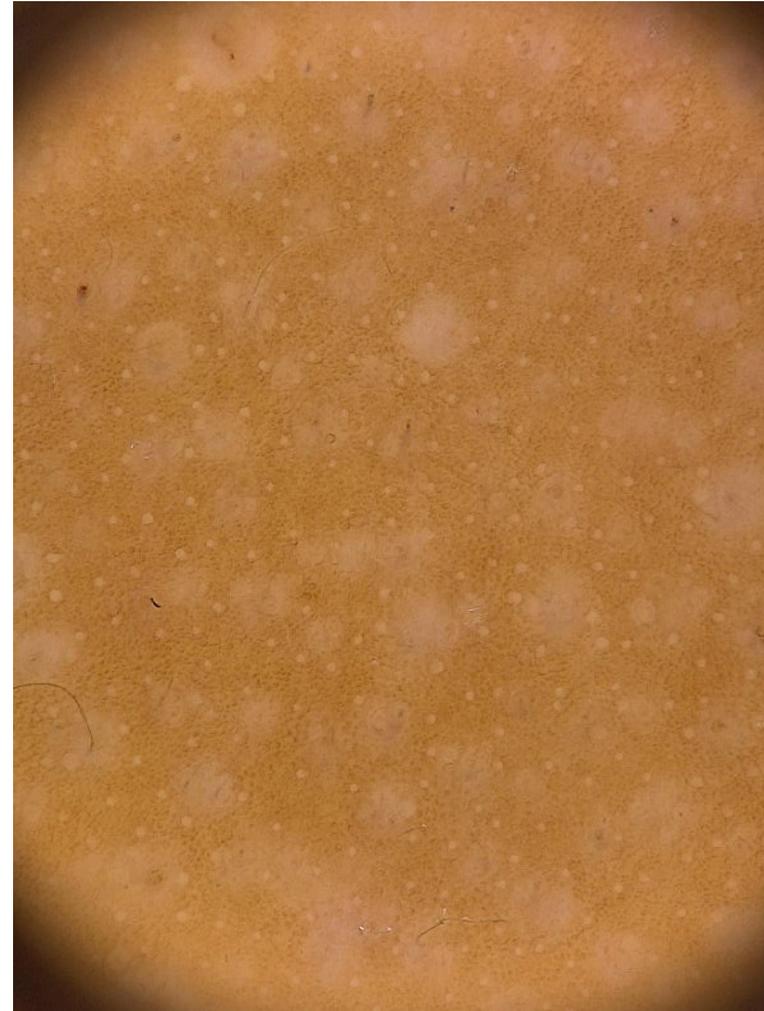
# Acneiform eruptions

Associated with initial regrowth



# Acneiform eruptions

Seen at beginning of treatment



After 1 month of treatment

# Acneiform reactions



After 4 months of treatment : papules resolved with regrowth

# Acneiform reaction

Acneiform reaction  
associated with increase of  
tofacitinib dose due to a relapse



Increase in CK : common in patients doing strong exercise

**I personally check CK**

**Patient should avoid strong exercise in the 2-3 days before a blood test**

# Varicella zoster

I recommend vaccination in all patients

**Shingrix can be given during treatment**

**Zostavax is a live vaccine and should not be given during treatments**



# Herpes simplex

Add valaciclovir prophylaxis  
for patient with recurrent  
episodes



# Molluscum contagiosum

Patient on ritlecitinib



# Warts



Resolved with traditional treatment without interrupting JAK treatment

# Bruising



Not reported in the literature, normal labs

# Weight gain

Reported with JAK1/JAK2 inhibitors but not with Ritlecitinib

Increase appetite due to blockage of leptin signaling

The screenshot shows the Blood journal website interface. At the top, there is a navigation bar with the 'blood' logo and menu items: ISSUES, FIRST EDITION, ABSTRACTS, COLLECTIONS, AUTHOR CENTER, and ABOUT. Below the navigation bar, the article title is 'Ruxolitinib can cause weight gain by blocking leptin signaling in the brain via JAK2/STAT3', dated MARCH 26, 2020. The authors listed are Nicole Mollé, Spencer Krichevsky, Pouneh Kermani, Richard T. Silver, Ellen Ritchie, and Joseph M. Scandura. The article is categorized as 'Clinical Trials & Observations'. A 'Check for updates' button is visible. The journal information is 'Volume 135, Issue 13, March 26 2020'. There are links for 'Previous Article' and 'Next Article'. An advertisement for the American Society of Hematology (ASH-SAP) is present, promoting the 'NEW 8TH EDITION ASH-SAP Self-Assessment Program'. At the bottom, there is a 'Sign in via your Institution' button. The 'Connected Content' section indicates a related article: 'Ruxolitinib: gaining more than intended'. The 'Subjects' section lists 'Clinical Trials and Observations, Myeloid Neoplasia'. The URL is 'https://doi.org/10.1182/blood.2019003050'.

# Stature

Can treatment prevent optimal stature growth?

NO

## Research Letter

### Pediatric JAK Inhibitor Use and Height in Common Inflammatory Diseases

Hannah L. Cole, AB<sup>1</sup>; Lisa Y. Shen, MD<sup>2</sup>; John S. Barbieri, MD, MBA<sup>3,4</sup>

[» Author Affiliations](#) | [Article Information](#)



JAMA Dermatol

Published Online: October 29, 2025

2026;162;(1):91-93.

doi:10.1001/jamadermatol.2025.3934

# What I do with contraceptives?

I recommend OCP

The FDA label explicitly states that "drug interactions with Litfulo (ritlecitinib) for oral contraceptives are not clinically significant". These modest reductions in exposure are not expected to compromise contraceptive efficacy

# What we know on treatment during pregnancy and lactation?

> J Am Acad Dermatol. 2025 May;92(5):1082-1084. doi: 10.1016/j.jaad.2024.10.108. Epub 2024 Dec 3.

## Current evidence on safety of Janus kinase inhibitors in pregnancy and lactation

Emily R Gordon <sup>1</sup>, Mitchell Hanson <sup>2</sup>, Tina Bhutani <sup>3</sup>, Natasha A Mesinkovska <sup>4</sup>

Affiliations + expand

PMID: 39631698 DOI: 10.1016/j.jaad.2024.10.108

Free article

No abstract available

Keywords: JAK inhibitors; Janus kinase inhibitor; alopecia areata; atopic dermatitis; baby; birth;

All case reports described favorable pregnancy outcomes.

Data from clinical trials demonstrated similar rates of spontaneous abortion and congenital malformation to those of the general population (21/256, 8%).

Unfavorable outcomes such as medical termination were primarily electively decided by patients (23/256, 9%).

Congenital malformations were present in cases where patients were taking other systemic agents (eg methotrexate, losartan, 2/256, 1%).

Only 4 studies assessed effects of JAKi in lactation, with some evidence of transmission in breast milk.

# Long term risk of cancer

Information for treatment of other disease: FDA warning

The available evidence suggests that the absolute cancer risk in adolescents treated with ritlecitinib for alopecia areata is very low, with no malignancies reported in the adolescent subgroup through 48 weeks and minimal events in the overall population through 24 months.

However, the lack of decades-long follow-up data means that very long-term cancer risk remains uncertain, warranting ongoing surveillance.

# Jak inhibitors reduce depression in AA



ORIGINAL ARTICLE

## Association of Janus kinase inhibitors with reduced depression in alopecia areata

[Chih-Yi Ho](#), [Hsiang-Ling Wu](#), [Ying-Xiu Dai](#), [Yi-Hsien Shih](#) , [Ying-Hsuan Tai](#) 

First published: 15 November 2025 | <https://doi.org/10.1111/jdv.70184> | [VIEW METRICS](#)

Yi-Hsien Shih and Ying-Hsuan Tai contributed equally to this work.

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Thank you!

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