

Risankizumab-rzaa (SKYRIZI) in Psoriatic Arthritis National Drug Monograph Addendum August 2022

VA Pharmacy Benefits Management Services, Medical Advisory Panel, and VISN Pharmacist Executives

The purpose of VA PBM Services drug monographs is to provide a focused drug review for making formulary decisions. Updates will be made if new clinical data warrant additional formulary discussion. The Product Information or other resources should be consulted for detailed and most current drug information.

FDA Approval Information

Description / Mechanism of Action

- Risankizumab-rzaa is the second interleukin (IL)-23 inhibitor approved for the treatment of active psoriatic arthritis (PsA).
- It is the first IL-23 inhibitor approved for the treatment of moderately to severely active Crohn's disease in adults.

Indication Under Review in This Document

- Treatment of active PsA in adults.¹

Dosage Regimen and Dosage Form(s) Under Review

- 150 mg subcutaneously at Weeks 0 and 4, then every 12 weeks, alone or in combination with nonbiologic immunomodulators.
- 150 mg/mL single-dose pen or prefilled single (each in a pack of 1); 75 mg/0.83 mL single-dose prefilled syringe (pack of 2).

Clinical Evidence Summary

Efficacy Considerations

- There are no active-controlled RCTs to inform the place in therapy of risankizumab-rzaa in the treatment of active PsA.
- The FDA approval of risankizumab-rzaa for the treatment of active PsA was mainly based on two phase 3, placebo-controlled randomized clinical trials (RCTs). The KEEPSAKE 1 trial involved biologic-naïve patients who had a previous inadequate response or intolerance to conventional synthetic immunomodulators (csIMMs),^{2,3} and KEEPSAKE 2 involved a mixed population of patients who had previous inadequate

response or intolerance to ≥ 1 conventional synthetic immunomodulators (csIMMs) and / or ≤ 2 biologics.⁴

- Data for up to 24 weeks of therapy for each trial have been published.

Randomized Clinical Trials

- The design of the KEEPsAKE 1 and 2 trials are summarized in Table 1.

Table 1 Methods of Phase 3 RCTs

Topic	KEEPsAKE 1	KEEPsAKE 2
Study Design	24-week MN DB PC RCT Randomization was stratified by baseline psoriasis involvement ($\geq 3\%$ / $< 3\%$ BSA), presence of dactylitis, presence of enthesitis, and current csIMM use. 11 ranked secondary outcomes were controlled for multiplicity.	24-week MN DB PC RCT Randomization was stratified by baseline psoriasis involvement ($\geq 3\%$ / $< 3\%$ BSA), current csIMM use, and number of prior biologics 6 ranked secondary outcomes were controlled for multiplicity
Major Entry Criteria	Adult (≥ 18 years) Active PsA (symptom onset ≥ 6 months, met classification criteria for PsA, TJC ≥ 5 of 68, SJC ≥ 5 of 66, ≥ 1 erosion in hands and/or feet or high-sensitivity C reactive protein (hsCRP) ≥ 3.0 mg/L and active PsO (≥ 1 plaque ≥ 2 cm diameter or nail psoriasis). Inadequate response, intolerance or contraindication to ≥ 1 csIMM.	Same as KEEPsAKE 1 except patients had to have csIMM and/or biologic inadequate response after ≥ 12 weeks of therapy, intolerance or contraindication.
Interventions	RIS 150 mg SC vs PBO at Weeks 0, 4 and 16 Concomitant therapies (≤ 2 csIMMs at protocolled doses) could be added or modified in patients who had not achieved $\geq 20\%$ improvement in SJC and/or TJC at both Weeks 12 and 16.	RIS 150 mg SC vs PBO at Weeks 0, 4 and 16 Concomitant therapies could include continuation of ≤ 2 csIMMs (stable doses), NSAIDs, oral CS (≤ 10 mg/d prednisone equivalent), and other analgesics.
Maintenance Phase or Long-term Extension	204-week open-label period	Open-label RIS Q12W through Week 208
Primary Efficacy Measure	ACR20 response at Week 24	ACR20 response at Week 24
Baseline Patient Characteristics	Median age 52 years (range, 20–85), White 94%, male 50.4% Mean PGA-disease activity 58 (100-mm VAS) Enthesitis 61%, Dactylitis 31%, Nail psoriasis 67% Prior csIMM: One agent 67%; two 25%, three or more 7%, mainly MTX 89.9%, sulfasalazine 21.5% and leflunomide 12.8%. (Inadequate response 85.2%, intolerance 14.4%, contraindication 0.4%.) Concomitant medications: Mainly MTX 65% and NSAIDs 63%	Median age 53 years (range, 23–84), White 96%, male 45% Mean PGA disease activity 62 Enthesitis 69%, Dactylitis 22%, Nail psoriasis not reported Prior csIMM: One agent 38%, two 27%, three or more 29% Prior biologic: None 60%, one 31%, two or more 9%; TNFI 46% Concomitant medications: Mainly MTX 47% and NSAIDs 64%

SJC, Swollen joint count; TJC, Tender joint count

Results

- Efficacy data are summarized in Table 2.

Table 2 Efficacy results at Week 24 from phase 3 trials

Outcome	KEEP-sAKE Trial	RIS	PBO	Relative Risk (95% CI)	Difference (95% CI)	Q
Primary and Ranked Secondary Outcomes						
ACR20, n/N (%)	1	277/483 (57.3)	161/481 (33.5)	1.7 (1.5, 2.0)	24.0 (18.0, 30.0)*	H
	2	115/224 (51.3)	58/219 (26.5)	1.9 (1.5, 2.5)	24.5 (15.9, 33.0)*	H
MDA, n/N (%)	1	121/483 (25.0)	49/481 (10.2)	2.5 (1.8, 3.3)	14.8 (10.2, 19.4)*	H
	2	57/224 (25.6)	25/219 (25.3)	2.2 (1.4, 3.4)	22.6 (13.9, 31.2)*	H
No radiographic progression	1	423/458 (92.4)	401/457 (87.7)	1.1 (1.0, 1.1)	4.6 (0.9, 8.4)	L ^{αβ}
CFB in PsA-mTSS, mean (95% CI)	1	0.23 (0.02, 0.44)	0.32 (0.11, 0.53)	—	-0.09 (-0.4, 0.2)	M ^α
CFB in mNAPSI, mean (95% CI) / N	1	-9.8 (-11.0, -8.6) / 309	-5.6 (-6.7, -4.4) / 338	—	-4.2 (-5.7, -2.7)*	M ^γ
CFB in HAQ-DI, mean (95% CI)	1	-0.31 (-0.36, -0.27)	-0.11 (-0.16, -0.06)	—	-0.20 (-0.26, 0.14)*	H
	2	-0.22 (-0.28, -0.15)	-0.05 (-0.12, 0.02)	—	-0.16 (-0.26, 0.07)*	H
CFB in SF-36 PCS, mean (95% CI)	1	6.5 (5.8, 7.2)	3.2 (2.5, 3.9)	—	3.3 (2.4, 4.2)	H
	2	5.9 (4.9, 6.9)	2.0 (0.9, 3.1)	—	3.9 (2.4, 5.3)*	H
Prespecified Pooled Analyses						
LEI 0, n/N (%)	1 + 2	215/444 (48.4)	156/448 (34.8)	1.4 (1.2, 1.6)	13.9 (7.6, 20.2)*	M ^γ
LDI 0, n/N (%)	1 + 2	128/188 (68.1)	104/204 (51.0)	1.3 (1.1, 1.6)	16.9 (7.5, 26.4)*	L ^{βγ}
Non-ranked Secondary Outcomes						
ACR70, n/N (%)	1	74/483 (15.3)	23/481 (4.7)	3.2 (2.0, 5.0)	10.5 (6.9, 14.2)	M ^δ
	2	27/224 (12.0)	13/219 (5.9)	2.0 (1.1, 3.8)	6.0 (0.8, 11.3)	M ^δ

Sources: AMCP Dossier⁵; FDA Multi-discipline Review⁶

Bold blue text indicates differences for which the confidence intervals exclude the value 0 or relative risks for which the confidence intervals exclude the value 1.0.

CFB, Change from baseline; HAQ-DI, Health Assessment Questionnaire-Disability Index (MCIC ≥ 0.35); LDI, Leeds Dactylitis Index; LEI, Leeds Enthesitis Index; MCIC, Minimal clinically important change; MDA, Minimal disease activity; mNAPSI, Modified Nail Psoriasis Severity Index; PBO, Placebo; Q, GRADE quality of evidence (H = High, M = Moderate, L = Low, VL = Very low); PsA-mTSS, Psoriatic arthritis-modified Total Sharp Score; RIS, Risankizumab-rzaa 150 mg; SF-36 PCS, 36-item Short-Form Health Survey Physical Component Summary (MCIC ≥ 3)⁷

* Statistically significant (p < 0.001) under overall type I error control

^α Downgraded for inconsistency^β Downgraded for imprecision (optimal information size not met)^γ Downgraded for risk of bias due to subgroup analysis without stratified randomization^δ Downgraded for risk of bias due to multiplicity

- The absolute effects for achieving ACR20 are presented in Table 3.

Table 3 Absolute Effects for Achieving ACR20 at Week 24, Risankizumab-rzaa vs Placebo

KEEPsAKE Trial	AAE, per 1000 pts (95% CI)	NNT (95% CI)
1	234 (167, 335) more	5 (4, 6)
2	238 (132, 397) more	5 (3, 7)

AAE, Anticipated absolute effect for achieving the outcome; NNT, Number needed to treat for one additional patient to benefit

- Secondary efficacy results
 - Risankizumab-rzaa showed significant benefit in all other secondary efficacy measures in both phase 3 trials, including PASI90 and ACR50 responses and percentage of patients who achieved minimal clinically important changes in HAQ-DI (CFB \geq 0.35).
- Subgroup Analyses
 - In KEEPsAKE 1, Week-24 ACR20 response rates were higher with risankizumab-rzaa than placebo regardless of baseline patient or disease characteristics and regardless of whether risankizumab-rzaa was given with concomitant csIMM therapy (57.9% vs 35.9%) or as monotherapy (55.5% vs 26.2%).²
 - Similar subgroup results were seen In KEEPsAKE 2. Better ACR20 responses were seen in patients treated with risankizumab-rzaa vs placebo when analyzed by concomitant csIMM or risankizumab-rzaa monotherapy as well as by csIMM inadequate responders (56.3% vs 36.6%, respectively) or biologic inadequate responders (45.7% vs 14.9%, respectively), where inadequate responder referred to patients who had an inadequate response, intolerance or contraindication to therapy.⁴ However, ACR20 response rates with risankizumab-rzaa seemed to be lower in the biologic inadequate responders than in the csIMM inadequate responders (45.7% and 56.3%, respectively).

Onset of Treatment Benefit and Duration of an Adequate Therapeutic Trial

- Onset of effects (earliest significant treatment difference) and duration of an adequate therapeutic trial are summarized by outcome measure in Table 4.

Table 4 Onset of Benefit and Adequate Therapeutic Trial

Outcome Measure	Trial	Onset of Significant Treatment Benefit (Wks)	Duration of an Adequate Therapeutic Trial (Wks)
ACR20 / ACR50 / ACR70	KEEPsAKE 1	4 / 4 / 8	16 / \geq 24 / \geq 24
	KEEPsAKE 2	4 / 8 / 8	16 / \geq 24 / 24

Durability of Response

- No published data.

Evidence Gaps

- Patient Satisfaction
- Efficacy in magnetic resonance imaging (MRI)-identified axial PsA

Network Meta-analyses

- No network meta-analyses reviewing risankizumab-rzaa trials in PsA were found.

Safety Considerations

- The safety profile of risankizumab-rzaa in PsA was generally consistent with that in plaque psoriasis.¹

Other Therapeutic Options

- The FDA approved indication for risankizumab-rzaa in active PsA does not require trials of any prior therapies.
- The general steps in systemic drug therapy of moderate to severe AD are shown in Table 5.

Table 5 Systemic Pharmacotherapies for PsA

Step in Therapy	Class	Treatment Alternatives	For Peripheral Synovitis / Dactylitis	For Joint Erosion	For Enthesitis		For Axial PsA
NSAIDs	NSAIDs	Various	Yes / No [†]	No	Yes [†]		Yes [†]
Glucocorticoids (local or systemic)	Glucocorticoids	Various	Yes	No	Yes		Yes [‡]
csIMM, typically methotrexate	Folate inhibitor	Methotrexate	Yes	No	Yes [∞]		No
	Pyrimidine inhibitor	Leflunomide					
	5-ASA	Sulfasalazine					
Non-JAKI tsIMM	PDE4I	Apremilast	Yes	No	Yes		No
First bDMARD, typically TNFI	TNFIs	Adalimumab	Yes	Yes	Yes		Yes
		Certolizumab					
		Etanercept					
		Golimumab					
	Infliximab						
IL-17AI	Ixekizumab Secukinumab	Yes	Yes	Yes		Yes	
IL-12/23I	Ustekinumab	Yes	Yes	Yes		No	
IL-23I	Guselkumab ^{8,9,10}	Guselkumab ^{8,9,10}	Yes	Yes	Yes	Yes	No [§]
		Risankizumab-rzaa	Yes	No	Yes	No	
Subsequent bDMARD or JAKI or PDE4I	TNFIs	As above		As above			
		IL-17AI					
		IL-12/23I					
		IL-23I					
	PDE4I						
	JAKI	Tofacitinib Upadacitinib		Yes	Yes	Yes	Yes
T-cell costimulation inhibitor	Abatacept ^{11,12,}		Yes	Uncertain	Uncertain [^]	No	

Sources: 13,14,15

5-ASA, 5-aminosalicylic acid; **csIMM**, Conventional synthetic immunomodulator; **IL-17AI**, Interleukin 17A inhibitor; **IL-12/23I**, Interleukin 12/23 inhibitor; **IL-23I**, Interleukin-12 inhibitor; **JAKI**, Janus kinase inhibitor; **PDE4I**, Phosphodiesterase-4 inhibitor; **tsIMM**, Targeted synthetic immunomodulator

[†] NSAIDs have not been shown to be effective for dactylitis, and are used for symptomatic relief (mild inflammation, pain, stiffness).

[‡] Systemic glucocorticoids are not recommended for axial disease.

[§] Guselkumab was ineffective for axial spondyloarthritis. Uncertain effects on MRI-verified axial PsA.

^{||} Risankizumab-rzaa was not effective for radiographic progression in short term and not evaluated long-term.

[∞] The 2021 GRAPPA guidelines on the management of psoriatic arthritis changed from *does not recommend* (insufficient evidence) to *conditionally recommends* methotrexate for enthesitis in NSAID inadequate responders based on the SEAM-PsA trial results, which showed that methotrexate was not significantly different from etanercept but there was no placebo control to determine effect size (low quality evidence).¹⁵

[^] The 2021 GRAPPA guidelines conditionally recommends abatacept for enthesitis in NSAIDs / csIMM inadequate responders based on an RCT showing numerical but not statistically significant improvement in enthesitis resolution rates vs placebo (low quality evidence).¹⁵

- Alternative treatments for active PsA are summarized in Table 6.

Table 6 Alternative Targeted Therapies FDA Approved for Active PsA

Drug (Formulary Status)	CFU Place in Therapy in PsA	2022 GRAPPA Place in Therapy	2019 EULAR Place in Therapy ¹⁶	2018 ACR Place in Therapy ¹⁷	Safety Considerations	Other Considerations
Interleukin-23 Inhibitor						
Risankizumab-rzaa NonF, CFU	TBD	IL-23I strongly recommended for P E D N S (not for axial PsA) and conditionally recommended for IBD.	Not included	Not included	Infections, TB Lacks IBD warning of IL-17AIs.	Approved for Crohn's disease. Effective for nail psoriasis in PsA. ¹⁸ Ineffective for axial spondyloarthritis. ¹⁹ No data for axial PsA.
Guselkumab NonF, CFU	After one TNFI, one IL-17AI, and ustekinumab.	See risankizumab	Not included	Not included	Infections, TB Lacks IBD warning of IL-17AIs.	A network meta-analysis showed that secukinumab 300 and 150 mg are nonsignificantly better than guselkumab 100 mg Q4W and Q8W in achieving ACR20. ²⁰ Effective for nail psoriasis.
TNF Inhibitors						
Adalimumab Certolizumab Etanercept Infliximab-abda PA-F	—	TNFI strongly recommended for P E D A N S TNFI (not ETA) strongly recommended for IBD and conditionally recommended for uveitis.	Typically the initial bDMARD class selected. Should be started in patients with <u>peripheral arthritis</u> and an inadequate response to ≥ 1 csIMM. Should be considered in patients with <u>enthesitis</u> and inadequate response to NSAIDs or LGCI.	Treatment-naive active PsA; TNFIs are conditionally recommended over oral csIMMs or PDE4I, IL-17I, or IL-12/23I. Active PsA despite csIMM or PDE4I; switching to a TNFI is conditionally recommended over a different oral csIMM or PDE4I, switching to IL-17AI, IL-12/23I, abatacept, or tofacitinib.	Serious infections, HBV reactivation, TB, HIV, malignancy, demyelinating disease, autoimmune disorder (lupus-like), heart failure, hematocytopenias. Infliximab infusion reactions, hepatic reactions. Antidrug antibody-associated loss of efficacy. Long-term safety experience; clinician familiarity with use of TNFIs.	When switching within TNFI class, may consider switching from the TNFI mAbs to etanercept or vice versa. Infliximab / biosimilars are given IV; golimumab IV or SC; other TNFIs SC. Effective for nail psoriasis.

Drug (Formulary Status)	CFU Place in Therapy in PsA	2022 GRAPPA Place in Therapy	2019 EULAR Place in Therapy ¹⁶	2018 ACR Place in Therapy ¹⁷	Safety Considerations	Other Considerations
Interleukin-17A Inhibitors						
Ixekizumab NonF, CFU	After TNFI.	IL-17AIs strongly recommended for P E D A N S	Consider for TNFI inadequate responders with <u>peripheral</u> arthritis ± enthesitis without predominantly axial disease (same level as switching to another TNFI, IL-12/23I, JAKI, or PDE4I). Consider for TNFI or IL-17AI inadequate responders with predominantly <u>axial</u> disease (same level as switching within or between TNFI or IL-17AI class(es)).	Active PsA despite TNFI (conditionally recommended; same level as IL-12/23I, abatacept, or tofacitinib).	Infections (including mucocutaneous candidiasis), TB, onset or worsening of IBD.	Relative to adalimumab, ixekizumab was similar in ACR50 response and better in PASI100 response at Wk 52. ²¹ No direct comparisons of secukinumab with TNFI. For patients with <u>major skin involvement</u> (and <u>peripheral</u> or predominantly <u>axial</u> disease), an IL-17AI may be preferred over a TNFI. Effective for nail psoriasis.
Secukinumab NonF, CFU	After TNFI.	See ixekizumab				
JAK Inhibitors						
Tofacitinib NonF, CFU	After TNFI	JAKI strongly recommended for P E D A S (not for nail disease) JAKI conditionally recommended for IBD	Consider a JAKI for patients with <u>peripheral</u> arthritis ± <u>enthesitis</u> <u>without</u> <u>predominant</u> <u>axial</u> disease after inadequate response to bDMARD or when a bDMARD is inadvisable (same level as switching to another bDMARD or PDE4I).	For active PsA despite TNFI, IL-17AI, and IL-12/23I (conditionally recommended; same level as abatacept). May consider tofacitinib over TNFI, IL-17AI, or IL-12/23I if patient prefers oral medication.	Higher risk of mortality, malignancy, MACE, and thrombosis than TNFIs in patients ≥ 50 yrs with rheumatoid arthritis and ≥ 1 CV risk factor. ²² Not recommended in severe (Child-Pugh class C) liver disease.	PI Place in Therapy in PsA: Inadequate response or intolerance to ≥ 1 TNFI. Administered orally. Avoid co-use with strong CYP3A4 inducers. Hematologic, renal, and hepatic dosage adjustments. Effective for nail psoriasis. FDA approved for ulcerative colitis.
Upadacitinib NonF, CFU	After TNFI	See tofacitinib	Not specifically reviewed. See tofacitinib.	Not specifically reviewed. See tofacitinib.	Mortality, malignancy, MACE, thrombosis, hematocytopenias, infection, TB, HBV, HZ, hepatotoxicity, increased lipids, bowel perforation.	PI Place in Therapy in PsA: Inadequate response or intolerance to ≥ 1 TNFI.

Drug (Formulary Status)	CFU Place in Therapy in PsA	2022 GRAPPA Place in Therapy	2019 EULAR Place in Therapy ¹⁶	2018 ACR Place in Therapy ¹⁷	Safety Considerations	Other Considerations
					Not recommended in severe (Child-Pugh class C) liver disease.	FDA approved for ankylosing spondylitis and ulcerative colitis. Administered orally. Not recommended for co-use with strong CYP3A4 inhibitors or inducers. Hematologic and renal dosage adjustments. Unknown effects on nail psoriasis.
Interleukin-12/23 Inhibitor						
Ustekinumab NonF, CFU	After one TNFI and one IL-17AI.	Strongly recommended for P E D N S (not for axial disease) Strongly recommended for IBD	Consider for inadequate responders to TNFI with <u>peripheral</u> arthritis ± enthesitis without predominant axial disease (same level as switching to another TNFI, IL-17AI, abatacept, JAKI, or PDE4I).	Active PsA despite TNFI and IL-17AI (conditionally recommended; same level as abatacept or tofacitinib).	Infections, malignancy, noninfectious pneumonia, posterior reversible encephalopathy syndrome, TB.	For patients with major skin involvement and <u>peripheral</u> arthritis, an IL-12/23I may be preferred over a TNFI. Patients > 100 kg may require higher doses. Effective for nail psoriasis.

Drug (Formulary Status)	CFU Place in Therapy in PsA	2022 GRAPPA Place in Therapy	2019 EULAR Place in Therapy ¹⁶	2018 ACR Place in Therapy ¹⁷	Safety Considerations	Other Considerations
Phosphodiesterase-4 Inhibitor						
Apremilast VANF, CFU	After a csIMM and TNFI is medically inadvisable.	PDE4I strongly recommended for P E D N S (not for axial disease)	Consider for mild, nonerosive, nonaxial disease in csIMM inadequate responders when neither a bDMARD nor JAKI is advisable, or for peripheral arthritis ± enthesitis without predominant axial disease in bDMARD inadequate responders (same level as switching to another bDMARD or JAKI).	Not recommended in TNFI inadequate responders.	Slow up-titration of dosage in first week is recommended to reduce GI adverse effects. Neuropsychiatric effects; weight loss. Renal dosage adjustment.	Generally favorable safety profile. Administered orally. Effective for nail psoriasis.
T-cell Costimulation Inhibitor						
Abatacept NonF	—	Conditionally recommended for P E D (not for axial, nail, or skin disease)	Should be limited to inadequate responders to other bDMARDs.	Active PsA despite TNFI, IL-17AI, and IL-12/23I (conditionally recommended; same level as tofacitinib).	Infections, malignancy, COPD exacerbation; TB and HBV screening	Low efficacy. Administered IV or SC. Unknown effects on nail psoriasis.

Sources: 10,13,17,23,24,25

CFU, Criteria for Use; **IBD**, Inflammatory bowel disease; **LGCI**, Local glucocorticoid injection; **NonF**, Nonformulary; **PA-F**, Formulary with Prior Authorization-Facility; **PASI100**, At least 100% improvement in Psoriasis Area and Severity Index; **P E D A N S**, Peripheral arthritis, enthesitis, dactylitis, axial disease, nail disease, skin disease / psoriasis; **TB**, Tuberculosis; **TBD**, To be decided.

Projected Place in Therapy

- Potential Place in Therapy Based on the Evidence.** Although no head-to-head trials were available to inform place in therapy, moderate- to high-quality evidence from placebo-controlled trials supports the use of risankizumab-rzaa in patients with active PsA who have had an inadequate response to conventional immunomodulators and/or biologics or for whom these therapies are medically inadvisable. There was low certainty of the effect size for improvement in dactylitis with short-term (24-week) risankizumab-rzaa therapy. Short-term risankizumab-rzaa therapy was ineffective for preventing radiographic progression of peripheral erosive disease; long-term studies are needed to further assess anti-erosive effects. There was no available data to support its efficacy for symptomatic, MRI-verified axial PsA. Overall, short-term risankizumab-rzaa therapy was effective for achievement of ACR20 response (small to moderate effects) and minimal disease activity and for improvement of joint, enthesal,

dactylitis, and nail manifestations, function, and quality of life. Benefits were clinically meaningful. Further studies are required to evaluate the long-term safety of risankizumab-rzaa and its efficacy and safety in preventing radiographic progression and treating axial PsA.

- **Potential Place in Therapy in VHA.** Risankizumab-rzaa may be an alternative to (at the same level as) ustekinumab and the other IL-23I guselkumab in patients with active nonaxial, nonerosive PsA who have an inadequate response to at least one TNFI and at least one IL-17AI (ixekizumab preferred in new starts), unless they are medically inadvisable. IL-23Is may be preferred over ustekinumab for severe PsA-associated plaque psoriasis, and ustekinumab may be preferred over the IL-23Is in patients with ulcerative colitis. There is no comparative clinical evidence available to inform whether one IL-23I can be preferred over the other in the treatment of active PsA; however, guselkumab has been shown in longer term studies to keep radiographic progression low¹⁰ while risankizumab-rzaa has not shown benefit for joint erosions in the short term.

Prepared August 2022.

Contact person: Francine Goodman, PharmD, BCPS, National PBM Clinical Pharmacy Program Manager, Formulary Management, VA Pharmacy Benefits Management Services (12PBM)

References

- ¹ SKYRIZI (risankizumab-rzaa) for subcutaneous injection [prescribing information online]. North Chicago, IL: AbbVie. January 2022. Available at: [Microsoft Word - 33326.docx \(rxabbvie.com\)](#). Accessed 11 March 2022.
- ² Kristensen LE, Keiserman M, Papp K, McCasland L, White D, Lu W, Wang Z, Soliman AM, Eldred A, Barcomb L, Behrens F. Efficacy and safety of risankizumab for active psoriatic arthritis: 24-week results from the randomised, double-blind, phase 3 KEEPSAKE 1 trial. *Ann Rheum Dis*. 2022 Feb;**81**(2):225-231. doi: 10.1136/annrheumdis-2021-221019. Epub 2021 Dec 15. PMID: 34911706; PMCID: PMC8762015.
- ³ Kristensen LE, Soliman AM, Papp K, Merola JF, Barcomb L, Wang Z, Eldred A, Behrens F. Effects of risankizumab on nail psoriasis in patients with active psoriatic arthritis: results from KEEPSAKE 1. *J Eur Acad Dermatol Venereol*. 2022 Jan 15. doi: 10.1111/jdv.17931. Epub ahead of print. PMID: 35032356.
- ⁴ Östör A, Van den Bosch F, Papp K, Asnal C, Blanco R, Aelion J, Alperovich G, Lu W, Wang Z, Soliman AM, Eldred A, Barcomb L, Kivitz A. Efficacy and safety of risankizumab for active psoriatic arthritis: 24-week results from the randomised, double-blind, phase 3 KEEPSAKE 2 trial. *Ann Rheum Dis*. 2022 Mar;**81**(3):351-358. doi: 10.1136/annrheumdis-2021-221048. Epub 2021 Nov 23. PMID: 34815219.
- ⁵ Academy of Managed Care Pharmacy (AMCP) dossier for ——. Company, City, State, Date.
- ⁶ Center for Drug Evaluation and Research (CDER). Multi-discipline review of ——. Food and Drug Administration (FDA). Month Year
- ⁷ Frenzl DM, Ware JE Jr. Patient-reported functional health and well-being outcomes with drug therapy: a systematic review of randomized trials using the SF-36 health survey. *Med Care*. 2014 May;**52**(5):439-45. doi: 10.1097/MLR.00000000000010311. PMID: 24714581.
- ⁸ McInnes IB, Rahman P, Gottlieb AB, Hsia EC, Kollmeier AP, Chakravarty SD, Xu XL, Subramanian RA, Agarwal P, Sheng S, Jiang Y, Zhou B, Zhuang Y, van der Heijde D, Mease PJ. Efficacy and Safety of Guselkumab, an Interleukin-23p19-Specific Monoclonal Antibody, Through One Year in Biologic-Naive Patients With Psoriatic Arthritis. *Arthritis Rheumatol*. 2021 Apr;**73**(4):604-616. doi: 10.1002/art.41553. Epub 2021 Mar 17. PMID: 33043600.
- ⁹ Mease PJ, Helliwell PS, Gladman DD, *et al*. Efficacy of guselkumab on axial involvement in patients with active psoriatic arthritis and sacroiliitis: a post-hoc analysis of the phase 3 DISCOVER-1 and DISCOVER-2 studies. *Lancet Rheumatol* 2021;**3**:e715–23.
- ¹⁰ McInnes IB, Rahman P, Gottlieb AB, Hsia EC, Kollmeier AP, Xu XL, Jiang Y, Sheng S, Shawi M, Chakravarty SD, van der Heijde D, Mease PJ. Long-Term Efficacy and Safety of Guselkumab, a Monoclonal Antibody Specific to the p19 Subunit of Interleukin-23, Through Two Years: Results From a Phase III, Randomized, Double-Blind, Placebo-Controlled Study Conducted in Biologic-Naive Patients With Active Psoriatic Arthritis. *Arthritis Rheumatol*. 2022 Mar;**74**(3):475-485. doi: 10.1002/art.42010. Epub 2022 Feb 7. PMID: 34719872.
- ¹¹ Mease PJ, Gottlieb AB, van der Heijde D, *et al*. Efficacy and safety of abatacept, a T-cell modulator, in a randomised, double-blind, placebocontrolled, phase III study in psoriatic arthritis. *Ann Rheum Dis*. 2017;**76**(9):1550–1558
- ¹² Mease P, Genovese MC, Gladstein G, *et al*. Abatacept in the treatment of patients with psoriatic arthritis: results of a six-month, multicenter, randomized, double-blind, placebo-controlled, phase II trial. *Arthritis Rheum*. 2011;**63**(4):939–948
- ¹³ Gossec L, Baraliakos X, Kerschbaumer A, de Wit M, McInnes I, Dougados M, Primdahl J, McGonagle DG, Aletaha D, Balanescu A, Balint PV, Bertheussen H, Boehncke WH, Burmester GR, Canete JD, Damjanov NS, Kragstrup TW, Kvien TK, Landewé RBM, Lories RJU, Marzo-Ortega H, Poddubnyy D, Rodrigues Manica SA, Schett G, Veale DJ, Van den Bosch FE, van der Heijde D, Smolen JS. EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2019 update. *Ann Rheum Dis*. 2020 Jun;**79**(6):700-712. doi: 10.1136/annrheumdis-2020-217159. PMID: 32434812; PMCID: PMC7286048.
- ¹⁴ Gladman DD, Ritchlin C. Treatment of psoriatic arthritis. In: UpToDate, Sieper J, Romain PL (Eds), UpToDate, Waltham, MA, 2022. (Accessed 29 March 2022.)
- ¹⁵ Coates, L.C., Soriano, E.R., Corp, N. *et al*. Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA): updated treatment recommendations for psoriatic arthritis 2021. *Nat Rev Rheumatol* (2022). <https://doi.org/10.1038/s41584-022-00798-0>

-
- ¹⁶ Gossec L, Baraliakos X, Kerschbaumer A, *et al.* EULAR recommendations for the management of psoriatic arthritis with pharmacological therapies: 2019 update *Annals of the Rheumatic Diseases* 2020;**79**:700-712.
- ¹⁷ Singh JA, Guyatt G, Ogdie A, Gladman DD, Deal C, Deodhar A, Dubreuil M, Dunham J, Husni ME, Kenny S, Kwan-Morley J, Lin J, Marchetta P, Mease PJ, Merola JF, Miner J, Ritchlin CT, Siaton B, Smith BJ, Van Voorhees AS, Jonsson AH, Shah AA, Sullivan N, Turgunbaev M, Coates LC, Gottlieb A, Magrey M, Nowell WB, Orbai AM, Reddy SM, Scher JU, Siegel E, Siegel M, Walsh JA, Turner AS, Reston J. Special Article: 2018 American College of Rheumatology/National Psoriasis Foundation Guideline for the Treatment of Psoriatic Arthritis. *Arthritis Rheumatol.* 2019 Jan;**71**(1):5-32. doi: 10.1002/art.40726. Epub 2018 Nov 30. PMID: 30499246; PMCID: PMC8218333.
- ¹⁸ Kristensen LE, Keiserman M, Papp K, McCasland L, White D, Lu W, Wang Z, Soliman AM, Eldred A, Barcomb L, Behrens F. Efficacy and safety of risankizumab for active psoriatic arthritis: 24-week results from the randomised, double-blind, phase 3 KEEPSAKE 1 trial. *Ann Rheum Dis.* 2022 Feb;**81**(2):225-231. doi: 10.1136/annrheumdis-2021-221019. Epub 2021 Dec 15. PMID: 34911706; PMCID: PMC8762015.
- ¹⁹ Baeten D, Østergaard M, Wei JC, *et al.* Risankizumab, an IL-23 inhibitor, for ankylosing spondylitis: results of a randomised, double-blind, placebo-controlled, proof-of-concept, dose-finding phase 2 study. *Annals of the Rheumatic Diseases* 2018;**77**:1295-1302.
- ²⁰ Song GG, Lee YH. Relative efficacy and safety of secukinumab and guselkumab for the treatment of active psoriatic arthritis: A network meta-analysis. *Int J Clin Pharmacol Ther.* 2021 Jun;**59**(6):433-441. doi: 10.5414/CP203906. PMID: 33860750.
- ²¹ Smolen JS, Mease P, Tahir H, Schulze-Koops H, de la Torre I, Li L, Hojnik M, Sapin C, Okada M, Caporali R, Gratacós J, Goupille P, Liu Leage S, Pillai S, Nash P. Multicentre, randomised, open-label, parallel-group study evaluating the efficacy and safety of ixekizumab versus adalimumab in patients with psoriatic arthritis naïve to biological disease-modifying antirheumatic drug: final results by week 52. *Ann Rheum Dis.* 2020 Oct;**79**(10):1310-1319. doi: 10.1136/annrheumdis-2020-217372. Epub 2020 Jul 13. PMID: 32660977; PMCID: PMC7509529.
- ²² XELJANZ (tofacitinib) tablets, extended-release tablets, and oral solution [prescribing information online]. NY, NY: Pfizer Labs. January 2022. Available at: <https://labeling.pfizer.com/ShowLabeling.aspx?id=959#section-13.6> . Accessed 24 January 2022.
- ²³ Huang IH, Wu PC, Yang TH, Li H, Huang YT, Cheng YC, Kuo PH, Lee YH, Huang YC, Tu YK. Small molecule inhibitors and biologics in treating nail psoriasis: A systematic review and network meta-analysis. *J Am Acad Dermatol.* 2021 Jul;**85**(1):135-143. doi: 10.1016/j.jaad.2021.01.024. Epub 2021 Jan 19. PMID: 33482253.
- ²⁴ Mease PJ, Gottlieb AB, van der Heijde D, *et al.* Efficacy and safety of abatacept, a T-cell modulator, in a randomised, double-blind, placebo controlled, phase III study in psoriatic arthritis. *Ann Rheum Dis.* 2017;**76**(9):1550–1558
- ²⁵ Mease P, Genovese MC, Gladstein G, *et al.* Abatacept in the treatment of patients with psoriatic arthritis: results of a six-month, multicenter, randomized, double-blind, placebo-controlled, phase II trial. *Arthritis Rheum.* 2011;**63**(4):939–948