### Horizon At A Glance



### **Our Mission**

We **put patients first**. At our core, we believe that science and compassion must work together to transform lives.



### **Our Vision**

We operate with an entrepreneurial mindset

that unites collaboration and innovation to deliver meaningful medicines.



### **Our Ethical Culture**

We operate with integrity

by fostering a culture that embraces ethical decision making and accountability when engaging others.





# KRYSTEXXA<sup>®</sup> (pegloticase): Changing the course of uncontrolled gout

#### **INDICATION**

KRYSTEXXA<sup>®</sup> (pegloticase) is indicated for the treatment of chronic gout in adult patients who have failed to normalize serum uric acid and whose signs and symptoms are inadequately controlled with xanthine oxidase inhibitors at the maximum medically appropriate dose or for whom these drugs are contraindicated.

Limitations of Use: KRYSTEXXA is not recommended for the treatment of asymptomatic hyperuricemia.



## SELECT IMPORTANT SAFETY INFORMATION

#### WARNING: ANAPHYLAXIS AND INFUSION REACTIONS, G6PD DEFICIENCY ASSOCIATED HEMOLYSIS AND METHEMOGLOBINEMIA

- Anaphylaxis and infusion reactions have been reported to occur during and after administration of KRYSTEXXA.
- Anaphylaxis may occur with any infusion, including a first infusion, and generally manifests within 2 hours of the infusion.
   Delayed hypersensitivity reactions have also been reported.
- KRYSTEXXA should be administered in healthcare settings and by healthcare providers prepared to manage anaphylaxis and infusion reactions.
- Premedicate with antihistamines and corticosteroids and closely monitor for anaphylaxis for an appropriate period after administration of KRYSTEXXA.
- Monitor serum uric acid levels prior to each infusion and discontinue treatment if levels increase to above 6 mg/dL, particularly when 2 consecutive levels above 6 mg/dL are observed.
- Screen patients at risk for glucose-6-phosphate dehydrogenase (G6PD) deficiency prior to starting KRYSTEXXA. Hemolysis and methemoglobinemia have been reported with KRYSTEXXA in patients with G6PD deficiency. KRYSTEXXA is contraindicated in patients with G6PD deficiency.

#### **CONTRAINDICATIONS:**

- In patients with G6PD deficiency.
- In patients with history of serious hypersensitivity reactions, including anaphylaxis, to KRYSTEXXA or any of its components.



## **Disclaimer information**

- This program is sponsored by Horizon Therapeutics
- I am presenting on behalf of Horizon Therapeutics, and I am being compensated by them for my services

### **Program objectives**

Recognize that uncontrolled gout is a systemic, progressive disease associated with serious comorbidities and increased all-cause mortality Discuss contributing factors to underdiagnosis and undertreatment of uncontrolled gout Learn about KRYSTEXXA: the first and only biologic for uncontrolled gout





Uncontrolled gout is a systemic, progressive disease associated with serious comorbidities and increased all-cause mortality

### Gout is often underdiagnosed and undertreated<sup>1</sup>



10-fold increase in gout prevalence among patients with moderate-to-severe CKD<sup>4</sup>

### Uncontrolled gout can result in many unfavorable outcomes<sup>1,2</sup>



#### Gout can affect daily activities and negatively impact a patient's ability to enjoy life<sup>15†</sup>

\*Based on a national survey of 355 patients with gout currently treated by a rheumatologist.

<sup>†</sup>Based on 56% of survey respondents.

1. Edwards NL. In: Klippel JH, et al, eds. *Primer on the Rheumatic Diseases*. 13th ed. Springer; 2008:241-249. 2. Roddy E, Doherty M. *Arthritis Res Ther*. 2010;12(6):223. 3. Choi HK, et al. *Ann Rheum Dis*. 2009;68:1609-1612. 4. McQueen FM, et al. *Nat Rev Rheumatol*. 2012;8:173-181. 5. Chhana A, Dalbeth N. *Rheum Dis Clin North Am*. 2014;40:291-309. 6. Schlesinger N, Thiele RG. *Ann Rheum Dis*. 2010;69:1907-1912. 7. Sapsford M, et al. *Rheumatology (Oxford)*. 2017;56:129-133. 8. Dalbeth N, et al. *Arthritis Rheum*. 2008;58:1854-1865. 9. Chhana A, et al. *Ann Rheum Dis*. 2011;70:1684-1691. 10. Stewart S, et al. *Semin Arthritis Rheum*. 2020;50(4):805-811. 11. De Meulemeester M, et al. *BJGP Open*. 2020;4(1):bjgpopen20X101003. 12. Mikuls TR, et al. *JAMA Netw Open*. 2022;5(1):e2142347. 13. Flores NM, et al. *J Med Econ*. 2019;22(1):1-6. 14. Kabadi S, et al. *Arthritis Rheumatol*. 2016;68(suppl 10):2906-2908. 15. Alliance for Gout Awareness. https://www.goutalliance.org/s/AGA\_GoutSurveyReport\_Oct2022.pdf. Accessed May 4, 2023. 16. Lim SY, et al. *JAMA*. 2016;315:2345-2347.

# Uncontrolled gout can lead to increased risk of mortality and serious comorbidities

#### CARDIOVASCULAR

- Independent risk factor for CHD, PAD, heart failure, stroke, and HTN<sup>1,2</sup>
- ~2x greater risk of cardiovascular mortality<sup>3\*</sup>

#### **METABOLIC**

 Independent risk factor for development of type 2 diabetes<sup>1</sup>



#### RENAL

 Independent risk factor for onset and progression of CKD<sup>1,4</sup>

#### MORTALITY

- 3-fold risk of death in patients with visible tophi at diagnosis<sup>5</sup>
- All-cause mortality increased by 9% with every 1-mg/dL increase in sUA level<sup>6</sup>

\*Cardiovascular mortality (risk ratio [RR]=2.09; 95% CI: 1.45-3.02) and all-cause mortality (RR=1.80; 95% CI: 1.39-2.34) after adjustment for potential confounders in a random effects model.<sup>3</sup>

CHD, congestive heart disease; HTN, hypertension; PAD, peripheral artery disease.

1. Bardin T, Richette P. BMC Med. 2017;15:123. 2. Clarson LE, et al. Ann Rheum Dis. 2015;74:642-647. 3. Wang R, et al. Atherosclerosis. 2016;254:193-199. 4. Roughley M, et al. Arthritis Res Ther. 2018;20:243. 5. Vincent ZL, et al. J Rheumatol. 2017;44:368-373. 6. Zuo T, et al. BMC Cardiovasc Disord. 2016;16(1):207.

### Urate deposition builds over time, even between flares<sup>1-3</sup>



# Lower temperature, pH, and trauma increase the formation of urate crystals in the extremities<sup>1</sup>



\*In vitro in the presence of 140 mM of sodium.

MIT, Massachusetts Institute of Technology

1. Roddy E. J Foot Ankle Res. 2011;4:13. 2. Loeb JN. Arthritis Rheum. 1972;15:189-192. 3. MIT OpenCourseWare. https://ocw.mit.edu/courses/4-401-introduction-to-building-technology-spring-2006/resources/lec2/. Accessed June 15, 2023.

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# Lower temperature, pH, and trauma increase the formation of urate crystals in the extremities<sup>1</sup>



Image courtesy of Dr. John Albert. Individual patient presentations may vary.

The ear lobe is one of the cooler regions on the body and, although easily accessible, is often overlooked during examination

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\*In vitro in the presence of 140 mM of sodium.

MIT, Massachusetts Institute of Technology.

1. Roddy E. J Foot Ankle Res. 2011;4:13. 2. Loeb JN. Arthritis Rheum. 1972;15:189-192. 3. MIT OpenCourseWare. https://ocw.mit.edu/courses/4-401-introduction-to-building-technology-spring-2006/resources/lec2/. Accessed June 15, 2023.

### Systemic urate deposition can accumulate nearly anywhere in the body<sup>1-5</sup>



#### Urate deposition accumulates between flares and continues to progress if left unaddressed<sup>2,4,11</sup>

Images used with permission from John Wiley and Sons, Oxford University Press, and BMJ Publishing Group Ltd.

DECT, dual-energy computed tomography; MSU, monosodium urate.

1. Khanna P, et al. J Clin Med. 2020;9(10):3204. 2. Doghramji PP, Wortmann RL. Postgrad Med. 2012;124(6):98-109. 3. Spieker LE. Eur J Heart Fail. 2002;4:403-410. 4. Edwards NL. In: Klippel JH, et al. eds. Primer on the Rheumatic Diseases. 13th ed. Springer; 2008:241-249. 5. Park JJ, et al. BMJ Open. 2014;4:e005308. 6. Barazani SH, et al. World J Radiol. 2020;12(8):184-194. 7. Nickeleit V, Mihatsch MJ. Nephrol Dial Transplant. 1997;12:1832-1838. 8. Logee K, et al. Arthritis Rheumatol. 2013;65(suppl 10):S87-S88. 9. Bernad B, et al. Arthritis Rheum. 2006;54(3):1025. 10. Sharon Y, Schlesinger N. Curr Rheumatol Rep. 2016;18:37. 11. Stamp LK, et al. Nat Rev Rheumatol. 2021;17(10):633-641.

# Up to 75% of urate burden may not be detected upon physical examination<sup>1</sup>

- Dual-energy computed tomography (DECT) is an imaging modality that highlights uric acid deposition (green) and calcium (purple)<sup>2</sup>
- Imaging studies show that the majority of patients with gout have nonvisible tophi<sup>1,3,4</sup>



Images courtesy of Dr. Jurgen Rech. Images from the same patient. Individual patient presentations may vary.

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# Up to 75% of urate burden may not be detected upon physical examination<sup>1</sup>

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Images courtesy of Dr. Jurgen Rech. Images from the same patient. Individual patient presentations may vary.

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### Unresolved urate deposition can lead to bone erosions<sup>1,2</sup>



Example of plain radiographic and DECT images of affected first MTP joints. Urate shown in green<sup>3</sup>

Gout flares are self-resolving, allowing tophus formation and bone erosion to occur, even in the absence of pain<sup>1,2</sup>

Image used with permission from Dalbeth N, et al. Ann Rheum Dis. 2015;74:1030-1036.

MTP, metatarsophalangeal.

1. Schett G, et al. RMD Open. 2015;1(suppl 1):e000046. 2. McQueen FM, et al. Nat Rev Rheumatol. 2012;8:173-181. 3. Dalbeth N, et al. Ann Rheum Dis. 2015;74:1030-1036.

# Management of uncontrolled gout requires both symptomatic and urate-lowering treatment



# ACR guidelines recommend a treat-to-target approach of sUA levels <6 mg/dL<sup>1</sup>



\*The primary efficacy endpoint was an sUA level of <6 mg/dL at each of the last 3 monthly measurements.<sup>2</sup>

<sup>1</sup>Black box warning for cardiovascular death and all-cause mortality for Uloric (febuxostat) [February 2019].<sup>6,7</sup>

<sup>‡</sup>Once controlled, guidelines recommend measuring sUA every 6 months.<sup>5</sup>

ACR, American College of Rheumatology.

1. FitzGerald JD, et al. Arthritis Care Res (Hoboken). 2020;72:744-760. 2. Becker MA, et al. N Engl J Med. 2005;353:2450-2461. 3. Singh JA, et al. Arthritis Res Ther. 2015;17(1):120. 4. Jordan A, Gresser U. Pharmaceuticals. 2018;11(2):51. 5. Khanna D, et al. Arthritis Care Res (Hoboken). 2012;64(10):1431-1446. 6. U.S. Food and Drug Administration. https://www.fda.gov/drugs/fda-drug-safety-podcasts/fda-adds-boxed-warning-increased-risk-death-gout-medicine-uloric-febuxostat. January 11, 2022. Accessed May 8, 2023. 7. White WB, et al. N Engl J Med. 2018;378:1200-1210.

# Dissolution of tophi occurs 97% faster at $\leq 4 \text{ mg/dL}$ than at sUA levels 5.1-6.0 mg/dL<sup>1,2</sup>



# Other factors that affect urate crystal deposition are cation concentration, temperature, intra-articular dehydration, pH, and trauma<sup>10,11</sup>

1. Perez-Ruiz F. *Rheumatology (Oxford).* 2009;48(suppl 2):ii9-ii14. 2. Perez-Ruiz F, et al. *Arthritis Rheum.* 2002;47:610-613. 3. Araujo EG, et al. *RMD Open.* 2015;1(1):e000075. 4. Shoji A, et al. *Arthritis Rheum.* 2004;51(3):321-325. 5. Khanna D, et al. *Arthritis Care Res (Hoboken).* 2012;64(10):1431-1446. 6. Schumacher HR Jr. *Arthritis Rheum.* 2008;59(11):1540-1548. 7. Maiuolo J, et al. *Int J Cardiol.* 2016;213:8-14. 8. Doghramji PP, Wortmann RL. *Postgrad Med.* 2012;124(6):98-109. 9. Vargas-Santos AB, Neogi T. *Am J Kidney Dis.* 2017;70(3):422-439. 10. Chhana A, et al. *BMC Musculoskelet Disord.* 2015;16:296. 11. Abhishek A, et al. *PLoS One.* 2017;12(10):e0186096.

### Tophus resolution may require years of oral therapy<sup>1</sup>

A visible tophus the size of a **small marble** may take **more than 2 years** to resolve with an sUA level of 5.4 mg/dL<sup>1\*</sup>

The lower the uric acid level, the faster the rate of tophus reduction<sup>2</sup>

Image used with permission from Roddy E, et al. *BMJ*. 2013;347:f5648.

\*According to a long-term follow-up of patients receiving a mean daily dose of 320 mg of allopurinol.<sup>1</sup> 1. Perez-Ruiz F, et al. *Arthritis Rheum*. 2002;47(4):356-360. 2. Perez-Ruiz F. *Rheumatology (Oxford)*. 2009;48(suppl 2):ii9-ii14.





### Tophus surgery does not address systemic urate burden

- Tophus surgery is associated with a high rate of complications, such as infections and poor wound healing<sup>1,2</sup>
- Surgery should be considered in cases where a tophus is causing urgent or functional complications<sup>1</sup>
  - Ulceration
  - Joint instability
  - Skin ulceration<sup>1,3</sup>
  - Recurrent infection<sup>1,3,4</sup>
  - Nerve compression
  - Motion restriction

"There is no clear 'metabolic indication' for the surgical removal of tophi as the mechanical removal of tophus does not appreciably decrease total body urate burden"<sup>1</sup>



Photo courtesy of Chief Ilizarov Surgical Instructor at Doctors Hospital of West Covina, CA.

Delayed wound healing occurred in 53% of patients undergoing tophectomies<sup>1</sup>



# Contributing factors to underdiagnosis and undertreatment



### Factors that may lead to uncontrolled gout



<sup>1.</sup> Kawamura Y, et al. Ann Rheum Dis. 2019;78(10):1430-1437. 2. Rai SK, et al. Rheumatology (Oxford). 2018;57(7):1282-1292. 3. Edwards NL, et al. Presented at: 2021 ACR Virtual Meeting; November 3-10, 2021.

<sup>4.</sup> Perez-Ruiz F, Desideri G. Ther Clin Risk Manag. 2018;14:793-802. 5. Singh JA, Edwards NL. J Clin Rheumatol. 2020;26(4):129-133. 6. Kong DCH, et al. BMJ Open. 2019;9:e033726. 7. Keenan RT. Clin Ther. 2017;39(2):430-441.

<sup>8.</sup> Edwards N, et al. ACR Open Rheumatol. 2020;2(3):180-187.

## Gout may not be managed by diet alone<sup>1</sup>

Two major factors contribute to uric acid buildup and crystallization<sup>2,3</sup>





Additional contributing factors include<sup>2,4-6</sup>:

- Diet and lifestyle
- Comorbidities

Age

Metabolism

# Diet is not a substitute for treatment, as dietary restrictions may reduce urate levels by only ~1 mg/dL<sup>1,6,7</sup>

1. Fam AG. J Rheumatol. 2002;29(7):1350-1355. 2. Doherty M. Rheumatology (Oxford). 2009;48(suppl 2):ii2-ii8. 3. Kang DH, et al. Electrolyte Blood Press. 2014;12:1-6. 4. Krishnan E. In: Terkeltaub R, ed. Gout and Other Crystal Arthropathies.1st ed: Elsevier Saunders; 2012. 5. Major TJ, et al. BMJ. 2018;363:k3951. 6. Doghramji PP, et al. Postgrad Med. 2012;124:98-109. 7. Tang O, et al. Clin Rheumatol. 2017;36(6):1413-1417.

## Meet Bet: A real patient

#### **Medical History**

- 43 years old, married with 2 children
- Lived with gout for almost 20 years
- Stopped working due to physical limitations from gout
- sUA 14.3 mg/dL



# What would you do next for Bet?



#### SELECT IMPORTANT SAFETY INFORMATION

Anaphylaxis and infusion reactions have been reported to occur during and after administration of KRYSTEXXA. Anaphylaxis may occur with any infusion, including a first infusion, and generally manifests within 2 hours of the infusion. Delayed hypersensitivity reactions have also been reported. KRYSTEXXA should be administered in healthcare settings and by healthcare providers prepared to manage anaphylaxis and infusion reactions. Premedicate with antihistamines and corticosteroids and closely monitor for anaphylaxis for an appropriate period after administration of KRYSTEXXA. Monitor serum uric acid levels prior to each infusion and discontinue treatment if levels increase to above 6 mg/dL, particularly when 2 consecutive levels above 6 mg/dL are observed. Screen patients at risk for glucose-6-phosphate dehydrogenase (G6PD) deficiency prior to starting KRYSTEXXA. Hemolysis and methemoglobinemia have been reported with KRYSTEXXA in patients with G6PD deficiency. KRYSTEXXA is contraindicated in patients with G6PD deficiency. Please see additional Important Safety Information (slides 30-31) and accompanying

Full Prescribing Information, including Boxed Warning.



# KRYSTEXXA is the first and only approved biologic for uncontrolled gout<sup>1</sup>

ACR guidelines **strongly recommend** pegloticase for patients who<sup>2</sup>:



\*On medically maximum doses.<sup>2</sup> 1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. FitzGerald JD, et al. *Arthritis Care Res (Hoboken).* 2020;72(6):744-760.



# Mechanism of action: An infused biologic that converts urate into allantoin<sup>1</sup>



1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. Terkeltaub R, et al. *Arthritis Res Ther*. 2006;8(suppl 1):S4. 3. McDonagh EM, et al. *Pharmacogenet Genomics*. 2014;24(9):464-476. 4. Caussé E, et al. *Clin Nephrol*. 2010;73(1):51-57.



# KRYSTEXXA can change the course of uncontrolled gout by dissolving years of systemic urate deposition<sup>1-4</sup>

#### PRIMARY ENDPOINT

At 6 months, **71%** (71/100) in the KRYSTEXXA with methotrexate group and **39%** (20/52) in the KRYSTEXXA alone group achieved and maintained an sUA level <6 mg/dL for at least 80% of the time

#### Best results with KRYSTEXXA were seen at 6-12 months

Optimal treatment duration has not been established.

#### SELECT IMPORTANT SAFETY INFORMATION

KRYSTEXXA is contraindicated in patients with G6PD deficiency, and patients with history of serious hypersensitivity reactions, including anaphylaxis, to KRYSTEXXA or any of its components.

Images are from the same patient in MIRROR RCT.
G6PD, glucose-6-phosphate dehydrogenase; RCT, randomized controlled trial.
1. Sundy JS, et al. *JAMA*. 2011;306:711-720.
2. Schlesinger N, et al. *Arthritis Rheumatol*.
2017;69(suppl 10):1-4426.
3. KRYSTEXXA (pegloticase) [prescribing information] Horizon.
4. Data on File. Horizon, June 2023.

Please see additional Important Safety Information (slides 30-31) and accompanying Full Prescribing Information, including Boxed Warning.





Individual results may vary.



KRYSTEX

pegloticase

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# Co-administration of KRYSTEXXA with methotrexate showed significant improvement in complete tophi resolution<sup>1,2\*</sup>



Individual presentation and results may vary.

#### **SELECT IMPORTANT SAFETY INFORMATION**

SECONDARY ENDPOINT COMPLETE TOPHI RESOLUTION<sup>1†</sup> Defined as 100% resolution of at least 1 target tophus, no new tophi appearing, and no single tophus showing progression

**54%** (28/52) in the KRYSTEXXA with methotrexate group and **31%** (9/29) in the KRYSTEXXA alone group achieved a response at **Month 12**<sup>1</sup>

KRYS

peglotica

**Congestive Heart Failure:** KRYSTEXXA has not been formally studied in patients with congestive heart failure, but some patients in the pre-marketing placebo-controlled clinical trials experienced exacerbation. Exercise caution in patients who have congestive heart failure and monitor patients closely following infusion.

\*Significant Cochran-Mantel-Haenszel treatment response difference (95% CI). *P*≤0.048.<sup>2</sup>

<sup>†</sup>Approximately 53.3% (81/152) of patients had tophi at baseline (Week -6) that were confirmed by digital photography.<sup>1</sup>

1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. Botson JK, et al. Presented at: American College of Rheumatology Convergence; November 10-14, 2022. 3. Data on File. Horizon, June 2023.

### MSU depletion and bone erosion remodeling occurred over 52 weeks\*



Images used with permission from Dalbeth N, et al. *Ann Rheum Dis.* 2023;82(Suppl 1):519-520. \*In a subset of patients (n=8) in MIRROR RCT, bone remodeling was examined via imaging. Bone remodeling was evident in 88% of patients at 52 weeks. It is possible that sUA lowering with intensive urate lowering led to the DECT changes, although further study is needed. Dalbeth N, et al. *Ann Rheum Dis.* 2023;82(Suppl 1):519-520.



## **IMPORTANT SAFETY INFORMATION**

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- Monitor serum uric acid levels prior to each infusion and discontinue treatment if levels increase to above 6 mg/dL, particularly when 2 consecutive levels above 6 mg/dL are observed.
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#### **CONTRAINDICATIONS:**

- In patients with G6PD deficiency.
- In patients with history of serious hypersensitivity reactions, including anaphylaxis, to KRYSTEXXA or any of its components.

KRYSTEXXA (pegloticase) [prescribing information] Horizon.

Please see Full Prescribing Information, including Boxed Warning.



# IMPORTANT SAFETY INFORMATION (CONTINUED)

#### WARNINGS AND PRECAUTIONS

**Gout Flares:** An increase in gout flares is frequently observed upon initiation of anti-hyperuricemic therapy, including KRYSTEXXA. Gout flare prophylaxis with a non-steroidal anti-inflammatory drug (NSAID) or colchicine is recommended starting at least 1 week before initiation of KRYSTEXXA therapy and lasting at least 6 months, unless medically contraindicated or not tolerated.

**Congestive Heart Failure:** KRYSTEXXA has not been formally studied in patients with congestive heart failure, but some patients in the pre-marketing placebo-controlled clinical trials experienced exacerbation. Exercise caution in patients who have congestive heart failure and monitor patients closely following infusion.

#### **ADVERSE REACTIONS**

The most commonly reported adverse reactions ( $\geq$ 5%) are:

#### KRYSTEXXA co-administration with methotrexate trial:

KRYSTEXXA with methotrexate: gout flares, arthralgia, COVID-19, nausea, and fatigue; KRYSTEXXA alone: gout flares, arthralgia, COVID-19, nausea, fatigue, infusion reaction, pain in extremity, hypertension, and vomiting.

#### KRYSTEXXA pre-marketing placebo-controlled trials:

gout flares, infusion reactions, nausea, contusion or ecchymosis, nasopharyngitis, constipation, chest pain, anaphylaxis, and vomiting.

KRYSTEXXA pegloticase 31

KRYSTEXXA (pegloticase) [prescribing information] Horizon.

Please see Full Prescribing Information, including Boxed Warning.

### Meet Bet: A real transformation

#### Before KRYSTEXXA

- 43 years old, married with 2 children
- Lived with gout for almost 20 years
- Stopped working due to physical limitations from gout

#### Currently on KRYSTEXXA with methotrexate

- Bet's sUA level has remained <1 mg/dL since starting KRYSTEXXA
- After a few infusions, Bet's tophi started going away\*

# Looking forward to the future

"I wish I had started KRYSTEXXA sooner. Now, I go out and do things and not just want to stay home. I'm definitely in a better place now"



Before

**KRYSTEXXA**:

sUA 14.3 mg/dL



September 2021

Currently on KRYSTEXXA with methotrexate: sUA <1 mg/dL

Individual results may vary.

KRYSTEXXA with methotrexate can help patients like Bet regain control of their gout

#### SELECT IMPORTANT SAFETY INFORMATION

The most commonly reported adverse reactions (≥5%) are: **KRYSTEXXA co-administration with methotrexate trial**: KRYSTEXXA with methotrexate: gout flares, arthralgia, COVID-19, nausea, and fatigue; KRYSTEXXA alone: gout flares, arthralgia, COVID-19, nausea, fatigue, infusion reaction, pain in extremity, hypertension, and vomiting. **KRYSTEXXA pre-marketing placebo-controlled trials**: gout flares, infusion reactions, nausea, contusion or ecchymosis, nasopharyngitis, constipation, chest pain, anaphylaxis, and vomiting.

\*Best results with KRYSTEXXA are seen at 6-12 months. Data on File. Horizon, June 2023.



# Evaluate your patients using STOP; if their gout is uncontrolled, it's time for KRYSTEXXA





### Promptly refer to a specialist for further evaluation and treatment

Change the course of the disease through prompt identification and referral<sup>1-3</sup> Find a gout specialist at KRYSTEXXAhcp.com

Contact your local Horizon representative

1. Gout & Uric Acid Education Society. http://gouteducation.org/wp-content/uploads/2014/11/2014-GUAES-Roundtable-Consensus-Paper-Final-Web.pdf. Accessed May 20, 2022. 2. Lansdowne N, et al. *J Foot Ankle Res.* 2015;8:1-7. 3. Edwards NL, et al. *ACR Open Rheumatol.* 2020;2(3):180-187.





For more information, use your smartphone to scan the QR code and link to the HCP website

# Thank you!

For further questions and additional information, please reach out to your Horizon representative. [email; contact number]

# **Questions?**

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# Supplemental slides

### The foot is a primary site of attack in gout

- The first MTP joint in the foot is the initial site of attack in >50% of patients with gout and is affected during the course of gout in up to 90% of patients<sup>1</sup>
- Crystal deposition is associated with muscle atrophy in the foot<sup>2</sup>
- Patients commonly report pain in the first MTP joint, even in intercritical periods<sup>3</sup>



Image used with permissions from Kumar RR, et al. *J Clin Rheumatol*. 2020;26(7):e217-e218.

## Ultrasonographic detection of double contour sign helps diagnose gout

Ultrasound of Double Contour Sign<sup>1</sup>



Ultrasound of Tophi<sup>1</sup>



- Ultrasonography may serve as an important tool in management of gout<sup>2</sup>
  - Is one of several strategies used to detect gout, including MRI, CT, and X-ray<sup>1</sup>
- Ultrasonographic markers of gout include:<sup>2</sup>
  - Double contour sign, hyperechoic aggregates, and tophi

Images used with permission.

<sup>1.</sup> Sun C, et al. J Orthop Surg Res. 2019;14(1):239. 2. Bhadu D, et al. Int J Rheum Dis. 2018;21(2):523-531.

# Up to 75% of urate burden may not be detected upon physical examination<sup>1</sup>

- Dual-energy computed tomography (DECT) is an imaging modality that highlights uric acid deposition (green) and calcium (purple)<sup>2</sup>
- Imaging studies show that the majority of patients with gout have nonvisible tophi<sup>1,3,4</sup>



Images are from the same patient. Individual presentation may vary.<sup>5</sup>

# Up to 75% of urate burden may not be detected upon physical examination<sup>1</sup>

- Dual-energy computed tomography (DECT) is an imaging modality that highlights uric acid deposition (green) and calcium (purple)<sup>2</sup>
- Imaging studies show that the majority of patients with gout have nonvisible tophi<sup>1,3,4</sup>



Images are from the same patient. Individual presentation may vary.<sup>5</sup>

# MIRROR RCT examined co-administration of KRYSTEXXA with methotrexate<sup>1,2</sup>



\*All patients who met eligibility criteria at screening began oral MTX 15 mg weekly at the Week -6 visit. Patients also took folic acid 1 mg orally every day during this 2-week period that continued until before the Week 52 visit. †sUA monitoring protocol was implemented: patients with sUA levels >6 mg/dL at 2 consecutive study visits beginning with the Week 2 visit were discontinued from KRYSTEXXA therapy but remained in the trial. ‡Key efficacy and safety assessments were conducted during Months 3, 6, 9, and 12. \$Noninfusion visits

IV, intravenous; MTX, methotrexate; PO, oral; QW, once per week; Q2W, every 2 weeks.

1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. Data on File. Horizon, June 2023.



## MIRROR RCT key inclusion criteria

- Adult patients ≥18 years old with diagnosis of gout
- **Uncontrolled gout**, defined as meeting the following criteria:
  - Hyperuricemia during the screening period, defined as sUA ≥7 mg/dL
  - Failure to maintain normalization of sUA with xanthine oxidase inhibitors at the maximum medically appropriate dose, or with a contraindication to xanthine oxidase inhibitor therapy based on medical record review or patient interview, AND
  - Symptoms of gout, including at least 1 of the following:
    - Presence of at least 1 tophus
    - Recurrent flares, defined as 2 or more flares in the past 12 months prior to screening
    - Presence of chronic gouty arthritis
- Able to tolerate MTX 15 mg orally for 2 weeks prior to randomization
  - After randomization, clinicians had the ability to dose adjust MTX but chose not to

Data on File. Horizon, June 2023.





## **MIRROR RCT exclusion criteria**

- Any serious bacterial infection
- Current or chronic treatment with systemic immunosuppressive agents
- History of any transplant surgery
- G6PD deficiency
- Chronic renal impairment, defined as eGFR <40 mL/min/1.73 m<sup>2</sup> or currently on dialysis
- Congestive heart failure, uncontrolled arrhythmia, treatment for acute coronary syndrome, uncontrolled blood pressure, history of malignancy, or osteomyelitis
- Known history of hepatitis B, hepatitis C, or HIV positivity
- Pregnant, planning to become pregnant, breastfeeding, planning to impregnate female partner

- Prior treatment with KRYSTEXXA, another recombinant uricase (rasburicase), or concomitant therapy with a polyethylene glycol (PEG)–conjugated drug
- Known allergy to PEGylated products, recombinant protein, or porcine product
- Contraindication to MTX treatment or known intolerance to MTX
- Receipt of an investigational drug prior to MTX administration
- Chronic liver disease, liver transaminase levels (AST or ALT) greater than ULN, or albumin lower than of LLN
- White blood cell count <4,000/µL, hematocrit <32%, or platelet count <75,000/µL</li>
- Current pulmonary fibrosis, bronchiectasis, or interstitial pneumonitis

ALT, alanine aminotransferase; AST, aspartate aminotransferase; eGFR, estimated glomerular filtration rate; HIV, human immunodeficiency virus; LLN, lower limit of normal; ULN, upper limit of normal. Study of KRYSTEXXA<sup>®</sup> (pegloticase) plus methotrexate in participants with uncontrolled gout (MIRROR RCT). https://clinicaltrials.gov/ct2/show/study/NCT03994731. Accessed June 15, 2023.



# Patient baseline demographics and characteristics were similar between groups

Patient characteristics*	KRYSTEXXA with MTX (n=100)	KRYSTEXXA alone (n=52)
Age, mean (SD), years	55.6 (12.7)	53.0 (12.1)
Male sex, n (%)	91 (91.0%)	44 (84.6%)
BMI, mean (SD), kg/m <sup>2</sup>	32.7 (5.6)	32.7 (7.8)
sUA, mean (SD), mg/dL	8.7 (1.6)	9.1 (1.7)
Time since first gout diagnosis, mean (SD), years	13.7 (10.6)	14.3 (10.8)
Number of flares in 12 months prior to baseline, mean (SD)	10.6 (12.9)	11.3 (16.7)
Presence of tophi, yes, n (%)	52 (52.0%)	29 (55.8%)
Stage 3 CKD, n (%) <sup>†</sup>	33 (33.0%)	16 (30.8%)

\*ITT population.

<sup>†</sup>Defined as eGFR >40 and <60 mL/min/1.73 m<sup>2</sup>. BMI, body mass index; ITT, intent-to-treat; SD, standard deviation. Data on File. Horizon, June 2023.



Antidrug antibody development can be common with biologic therapies and lead to a loss of response<sup>1-4</sup>



ADAs can lead to an increased risk of infusion reactions and lack of response<sup>1-4</sup>



ADAs may accelerate clearance of biologics from the circulation<sup>1,5</sup>



Administering an immunomodulator along with a biologic can reduce the formation of ADAs for a more predictable treatment and longer course of therapy<sup>1,2</sup>

ADA, antidrug antibody.

1. Sethu S, et al. Arch Immunol Ther Exp (Warsz). 2012;60:331-344. 2. Strand V, et al. BioDrugs. 2017;31:299-316. 3. Baraf HSB, et al. J Clin Rheumatol. 2014;20:427-432. 4. Sundy JS, et al. JAMA. 2011;306:711-720. 5. KRYSTEXXA (pegloticase) [prescribing information] Horizon.



# After 13 years of patient experience and continuous studies, KRYSTEXXA remains the only approved treatment for uncontrolled gout



\*Primary endpoint was defined as the proportion of patients with an sUA level <6 mg/dL for ≥80% of the time in Months 3 and 6.3

FDA, U.S. Food and Drug Administration; MIRROR, Methotrexate to Increase Response Rates in Patients With Uncontrolled Gout Receiving KRYSTEXXA; RCT, randomized controlled trial.

1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. Horizon Therapeutics. https://ir.horizontherapeutics.com/news-releases/news-release-details/horizon-pharma-plc-acquire-crealta-holdings-llc-all-cash. December 11, 2015. Accessed June 12, 2023. 3. Sundy JS, et al. *JAMA*. 2011;306:711-720. 4. Botson J, Peterson J. *Arthritis Rheumatol*. 2018;70(suppl 10):1408. 5. Horizon Therapeutics. https://ir.horizontherapeutics.com/news-releases/

# Please see Important Safety Information (slides 30-31) and accompanying Full Prescribing Information, including Boxed Warning.



Dealotic

# At 6 months, co-administration with methotrexate showed significant improvement in complete response



#### PRIMARY ENDPOINT

#### **COMPLETE SUA RESPONDERS**

Defined as the proportion of patients achieving and maintaining an sUA level <6 mg/dL for at least 80% of the time during **Month 6** 

#### **SELECT IMPORTANT SAFETY INFORMATION**

KRYSTEXXA is contraindicated in patients with G6PD deficiency, and patients with history of serious hypersensitivity reactions, including anaphylaxis, to KRYSTEXXA or any of its components.

Number needed to treat=4. KRYSTEXXA (pegloticase) [prescribing information] Horizon.



# At 12 months, co-administration with methotrexate continued to show a significant improvement in complete response



Adding MTX to KRYSTEXXA allowed patients to continue achieving therapeutic benefit from KRYSTEXXA over 12 months

#### **SELECT IMPORTANT SAFETY INFORMATION**

The most commonly reported adverse reactions (≥5%) are: **KRYSTEXXA co-administration with methotrexate trial:** KRYSTEXXA with methotrexate: gout flares, arthralgia, COVID-19, nausea, and fatigue; KRYSTEXXA alone: gout flares, arthralgia, COVID-19, nausea, fatigue, infusion reaction, pain in extremity, hypertension, and vomiting. **KRYSTEXXA pre-marketing placebo-controlled trials:** gout flares, infusion reactions, nausea, contusion or ecchymosis, nasopharyngitis, constipation, chest pain, anaphylaxis, and vomiting.

KRYSTEXXA (pegloticase) [prescribing information] Horizon.

Please see additional Important Safety Information (slides 30-31) and accompanying Full Prescribing Information, including Boxed Warning.

# KRYSTEXXA pegloticase 47

# KRYSTEXXA co-administered with methotrexate reduced the rate of infusion reactions to $4\%^{1,2^*}$

Adverse reaction	KRYSTEXXA with MTX (n=96) n (%)	KRYSTEXXA alone (n=49) n (%)
Gout flare	64 (67%)	35 (71%)
Arthralgia	13 (14%)	5 (10%)
COVID-19	9 (9%)	3 (6%)
Nausea	5 (5%)	6 (12%)
Fatigue	5 (5%)	2 (4%)
Infusion reaction <sup>†</sup>	4 (4%)	15 (31%)
Pain in extremity	1 (1%)	3 (6%)
Hypertension	1 (1%)	3 (6%)
Vomiting	0	4 (8%)

n=number of patients in each treatment group who received at least 1 KRYSTEXXA infusion during the KRYSTEXXA with MTX period.

\*Adverse reactions occurring in ≥5% of patients.

<sup>†</sup>Included 1 case of anaphylaxis.

1. Data on File. Horizon, June 2023. 2. KRYSTEXXA (pegloticase) [prescribing information] Horizon.



# Monitoring protocol: sUA levels can help identify patients at risk for infusion reactions<sup>1,2</sup>



#### Close monitoring of sUA levels <u>within</u> 48 hours prior to infusions can significantly reduce infusion reactions<sup>1,2</sup>

1. KRYSTEXXA (pegloticase) [prescribing information] Horizon. 2. Keenan RT, et al. *Rheumatol Ther.* 2019;6(2):299-304.



### The benefits of KRYSTEXXA are available for most patients



For information on coverage within your local plans, contact your Horizon representative

Terms and conditions can be found at KRYSTEXXAhcp.com. Data on File. Horizon, June 2023.





The dedicated members of the Horizon By Your Side team take a personalized approach to meet your patient's unique treatment needs. Once a patient is enrolled in the program, the team will partner with them to discuss support options and the best path forward



**OPTIONS FOR FINANCIAL ASSISTANCE\*** 

INFUSION LOGISTICS ASSISTANCE



**INSURANCE BENEFITS INVESTIGATION** 

Initiate your patient's enrollment in Horizon By Your Side by submitting the Patient Enrollment Form (PEF). Additional options available at KRYSTEXXAhcp.com

Your patient must complete enrollment to access our patient services and resources. \*For eligible patients.



### **Meet James**

#### **Medical History**

- Seeing PCP for gout for last 15 years
- Disease has rapidly progressed
- 6 flares in the last year
- Pain in his feet
- Tophi on hands, elbows, and feet (ankle and MTP joint)
- Diabetes



Actor portrayal, not actual patient.

# What would you do next for James?

### Meet James: A patient with uncontrolled gout you may see in your practice

#### **Medical History**

- Seeing PCP for gout for last 15 years
- Disease has rapidly progressed
- 6 flares in the last year
- Pain in his feet
- Tophi on hands, elbows, and feet (ankle and MTP joint)
- Diabetes

#### Patient Background

- Has uncontrolled gout
- Affected ability to present in class
- Increase in gout flares
- Self-conscious about • "bumpy hands"
- Heightened flare pain\*
- Difficulty moving •
- Nervous about job security; financial worry



Actor portrayal, not actual patient.

**KRYSTEXXA** with methotrexate can help patients like James regain control of their gout

#### Laboratory Workup

- sUA level: 9.3 mg/dL
- G6PD: normal
- BMI: 31
- A1C: 7.3%

#### **Current Treatment**

- Allopurinol: 300 mg QD (for past year)
- Metformin: 850 mg QD
- Linagliptin: 5 mg QD
- Colchicine: 0.6 mg QD for prophylaxis
- Naproxen: 500 mg BID

#### SELECT IMPORTANT SAFETY INFORMATION

The most commonly reported adverse reactions (≥5%) are: KRYSTEXXA co-administration with methotrexate trial: KRYSTEXXA with methotrexate: gout flares, arthralgia, COVID-19, nausea, and fatigue; KRYSTEXXA alone: gout flares, arthralgia, COVID-19, nausea, fatigue, infusion reaction, pain in extremity, hypertension, and vomiting. **KRYSTEXXA pre-marketing placebo-controlled trials**: gout flares, infusion reactions, nausea, contusion or ecchymosis, nasopharyngitis, constipation, chest pain, anaphylaxis, and vomiting.

\*KRYSTEXXA is not indicated for the treatment of pain. BID, twice daily; QD, every day. Data on File. Horizon. June 2023.

