Jasper Therapeutics

JASPER THERAPEUTICS

AAAAI KOL Event

March 1, 2025

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Today's Agenda and Presenters

Topic	Presenter	Title (Affiliation)
Opening Remarks	Edwin Tucker, MD, MRCP	Chief Medical Officer
BEACON Study Results Summary	Martin Metz, MD	Professor of Dermatology Institute of Allergology, Charité – Universitätsmedizin Berlin
Upcoming Milestones and Closing Remarks	Ronald Martell	Chief Executive Officer

Topline: BEACON study results demonstrate potential for differentiated efficacy and safety profile in CSU

BEACON TRIAL

Briquilimab demonstrated a rapid onset of clinical activity

- Clinical responses observed as early as 1 week post-dose and complete responses observed as early as week 2

Briquilimab drove deep clinical responses

- UAS7 reductions as much as 29 points noted 4 weeks post-dose (120mg Q12W)

Dose dependent durability observed

- Complete responses showed durability out to 4 weeks (120mg), 6 weeks (180mg) and 8 weeks (240mg)

Briquilimab was well tolerated and demonstrated a favorable safety profile

- c-Kit related AEs were low frequency, transient, low-grade, and did not result in dose delays or discontinuations
- The majority of AEs observed resolved while on study prior to subsequent doses

Data support advancing into registrational program 2H 2025

- Final dose selection to be informed by additional data expected by mid-year 2025

Professor Martin Metz, MD

- Professor of Dermatology and Deputy Director, Head of Translational Research and Clinical Studies, Institute of Allergology, Charité – Universitätsmedizin Berlin
- Lead EU investigator in the BEACON trial
- Lead investigator in the SPOTLIGHT trial
- Member of Jasper's Scientific Advisory Board

Initial Results from BEACON, a Phase 1b/2a Dose Escalation Study of the anti-c-Kit Briquilimab Antibody in Adults with Chronic Spontaneous Urticaria

Thomas Casale[1], Edwin Tucker[2], Jinwei Yuan[2], Daniel Adelman[2], David Ku[2], Annette Marcantonio[2], Patricia Carlos[2], Sophia R. Majeed[2], Wendy W, Pang[2], Martin Metz[3]

1. Internal Medicine, Morsani College of Medicine, University of South Florida, Tampa, FL, USA
2. Jasper Therapeutics, Redwood City, CA, USA
3. Institute of Allergology, Charité-Universitätsmedizin Berlin, Germany

Background

- Chronic spontaneous urticaria (CSU) is a mast-cell driven, recurring inflammatory skin condition lasting ≥ 6 weeks, characterized by itchy wheals (hives), angioedema, or both.
- c-Kit (CD117) receptor signaling, driven by its ligand stem cell factor (SCF), is an important regulator of mast cell function and survival, making it a potential therapeutic target to remove the underlying source of the inflammatory response in CSU.
- Briquilimab is a humanized, aglycosylated, anti-c-Kit monoclonal antibody that directly blocks the SCF binding site on the c-Kit receptor, leading to c-Kit/ SCF signal inhibition and mast cell apoptosis.
- We report the preliminary results from the Phase 1b/2a randomized, double blind, placebo-controlled multiple ascending dose clinical study of subcutaneous briquilimab in participants with moderate to severe CSU who are symptomatic despite H1 antihistamines and omalizumab.

Phase 1b/2a BEACON Study in Chronic Spontaneous Urticaria

Randomized, double-blind, placebo-controlled, multiple ascending dose study (NCT 06162728)

Screening/Eligibility

- CSU diagnosis ≥ 6 mos.
- UAS7 ≥ 16
- 18+ years
- H1-antihistamine-failed
- Inadequate response to omalizumab**

Study Operations

- **US Lead: Tom Casale, MD**
- **EU Lead: Martin Metz, MD**
- ~30 sites in the US & EU

Key Assessments

- **Disease Scores:** UAS7, UCT
- **Safety:** TEAEs, SAEs
- **Pharmacokinetics**
- **Mast Cell Depletion & Recovery:** Serum Tryptase, Skin Biopsies

	Dose	Patients (Randomization)	Schedule
Open Label (n=6)	10mg	n=3+3	Weeks 0, 4, 12, 20
	40mg	n=3+3	
Double-Blind Placebo-Controlled (n=71)	80mg	n=8 (3:1)	Q8W
	120mg	n=6 (2:1)	Q8W
		n=6 (2:1)	Q12W
	180mg	n=10 (3:1)	Q8W
		n=9 (3:1)	Q12W
	240mg	n=8* (3:1)	Single Dose
	240mg → 180mg**	n=8** (3:1)	Q8W
	240mg**	n=8** (3:1)	Q8W
	360mg	n=8* (3:1)	Single Dose

Note: *Expanding 240 mg and 360 mg SD cohorts to 8 participants each; **Enrolling omalizumab-naïve participants with CSU.

Briquilimab is an investigative drug and is not approved for any indication.

Baseline Demographics and Disease Characteristics

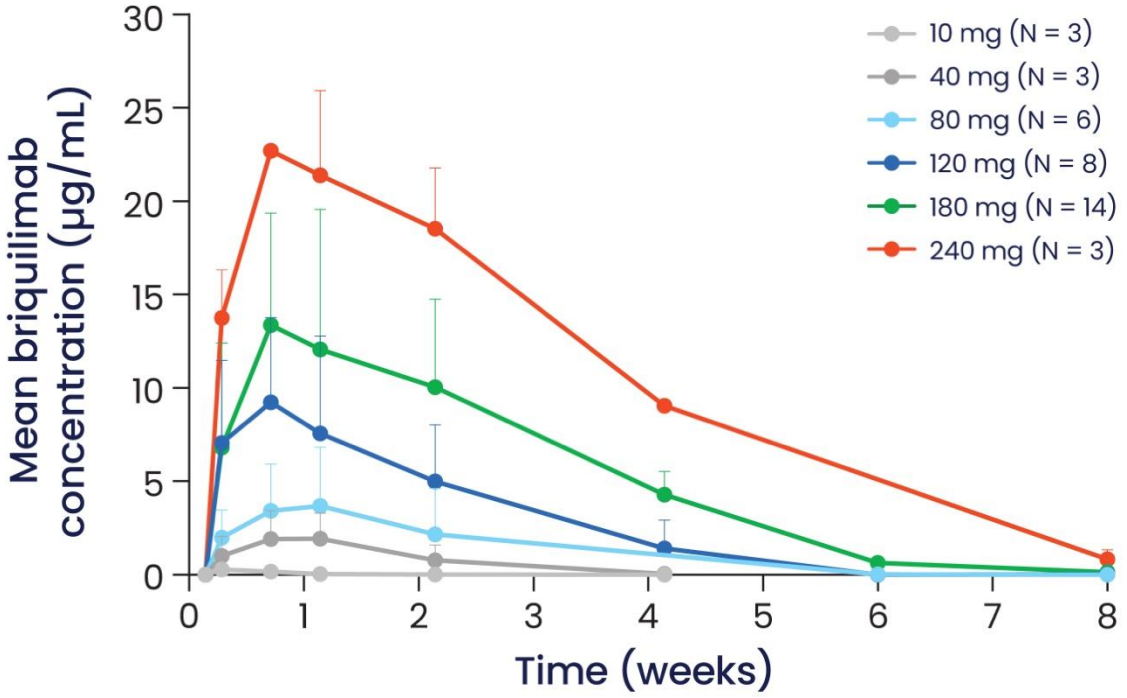
	Pooled Briquilimab (N=37)	Pooled placebo (N=12)
Age (years), median (range)	41 (18-82)	39 (26-60)
Female Sex, n (%)	24 (65%)	10 (83%)
BMI, median (range)	28 (22-50)	27 (24-42)
UAS7 (0-42), mean (SD)	27.3 (8.2)	28.6 (9.4)
UCT (0-16), mean (SD)	3.8 (2.3)	3.7 (3.6)
Serum tryptase (ng/mL), mean (SD)	6.7 (3.4)	8.1 (4.7)

- All participants were refractory or intolerant to omalizumab, representing a CSU population of highest unmet medical need.

Subcutaneous Briquilimab Demonstrates Rapid T_{max} and High C_{max} Consistent with Early Onset of Clinical Response in CSU Patients

- Preliminary PK data in participants with CSU indicates briquilimab PK is comparable to historical data in healthy volunteers.
- 240 mg briquilimab SC T_{max} is 4-7 days with a half-life of approximately 9 days.
- Predictable clearance with no meaningful drug accumulation anticipated at doses up to 240 mg every 8 weeks.

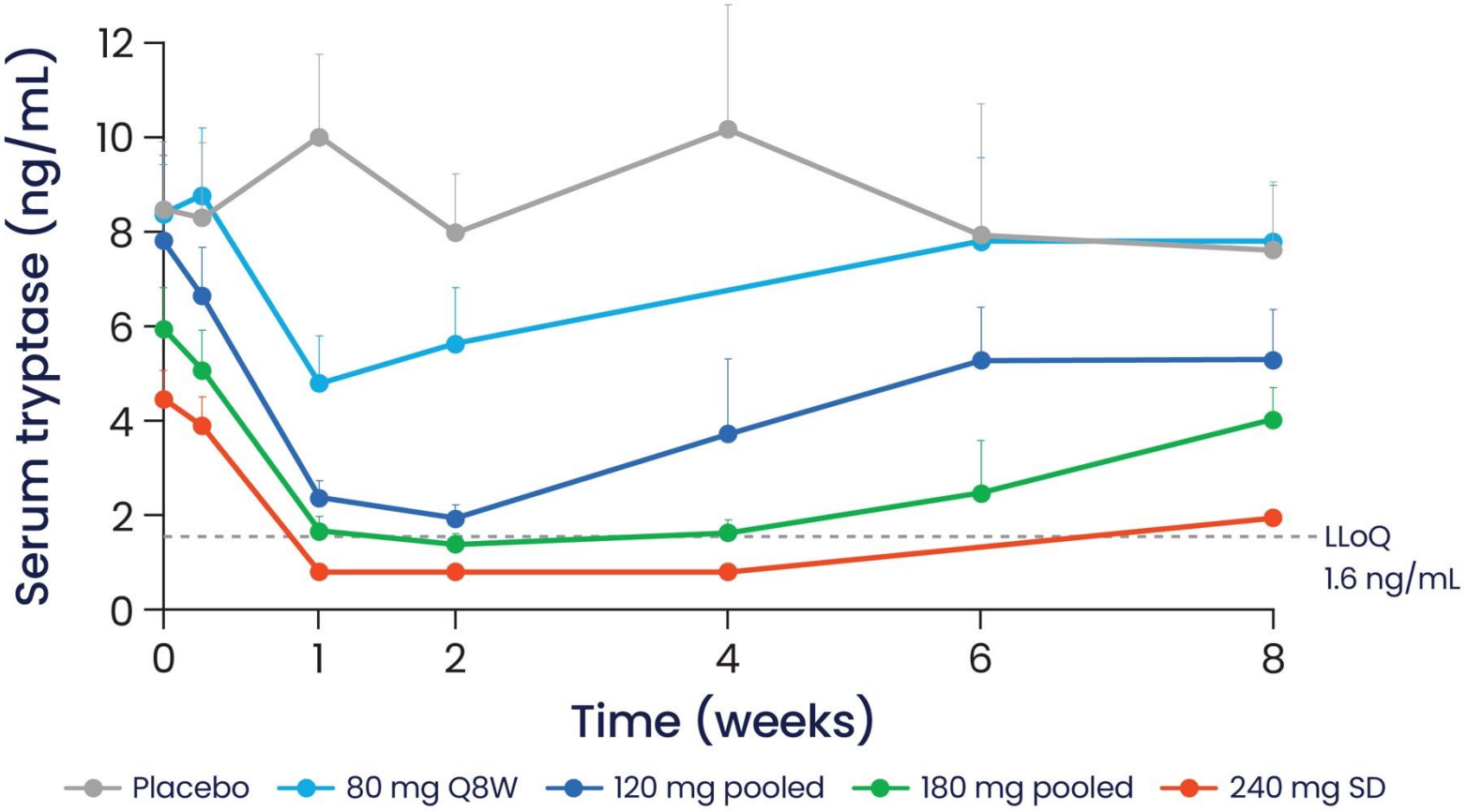
Briquilimab serum concentration over time in CSU patients following subcutaneous administration



Briquilimab is an investigative drug and is not approved for any indication.

Dose Dependent Reductions in Serum Tryptase

Reduction below LLOQ in all 240 mg participants and in 57% of 180 mg participants by Week 2



Note: *All values below LLOQ (1.6 ng/ml) are represented as 50% of LLOQ (0.8 ng/ml); Data cut-off 31 Jan 2025

Briquilimab is an investigative drug and is not approved for any indication.

Primary Efficacy Analysis of 80, 120 and 180 mg Q8W Cohorts

75% WC disease observed at 12 weeks – 4 weeks post second dose

Week 12	80 mg Q8W (N=6)	120 mg Q8W (N=4)	180 mg Q8W (N=7)	Pooled placebo (N=12)[1]
Mean (SE) UAS7 at Week 12	21.7 (7.2)	2.7 (2.7)	9.9 (4.8)	19.5 (4.0)
Mean (SE) UAS7 change from baseline at Week 12	-9.3 (5.8)	-27.2 (3.9)	-15.1 (4.7)	-9.2 (3.6)
Complete response (CR) rate[2, 3]	17%	50%	43%	8%
Well controlled rate[3]	33%	75%	43%	8%

1. 50% of participants in the pooled placebo group utilized rescue medications, including steroids during the study.
2. Median time to first dose CR <3 weeks (pooled 120mg, 180mg)
3. Last observation carried forward (LOCF) method was applied for missing data.

Primary Efficacy Analysis of 120 and 180 mg Q12W Cohorts

75% WC disease observed at 16 weeks - 4 weeks post second dose

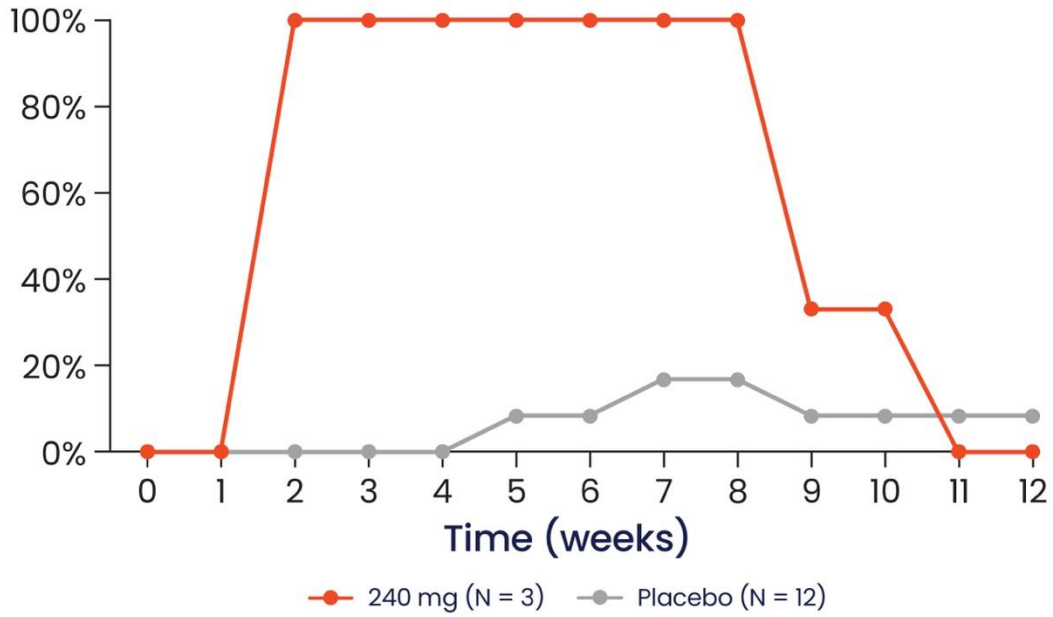
Week 16	120 mg Q12W (N=4)	180 mg Q12W (N=7)	Pooled placebo (N=12)[1]
Mean (SE) UAS7 at Week 16	0.5 (0.5)	7.2 (4.9)	15.6 (4.5)
Mean (SE) UAS7 change from baseline at Week 16	-29.8 (6.9)	-21.7 (6.5)	-13 (3.2)
Complete response (CR) rate[2,3]	50%	57%	17%
Well controlled rate[3]	75%	57%	33%

1. 50% of participants in the pooled placebo group utilized rescue medications, including steroids during the study.
2. Median time to first dose CR <3 weeks (pooled 120mg, 180mg)
3. Last observation carried forward (LOCF) method was applied for missing data

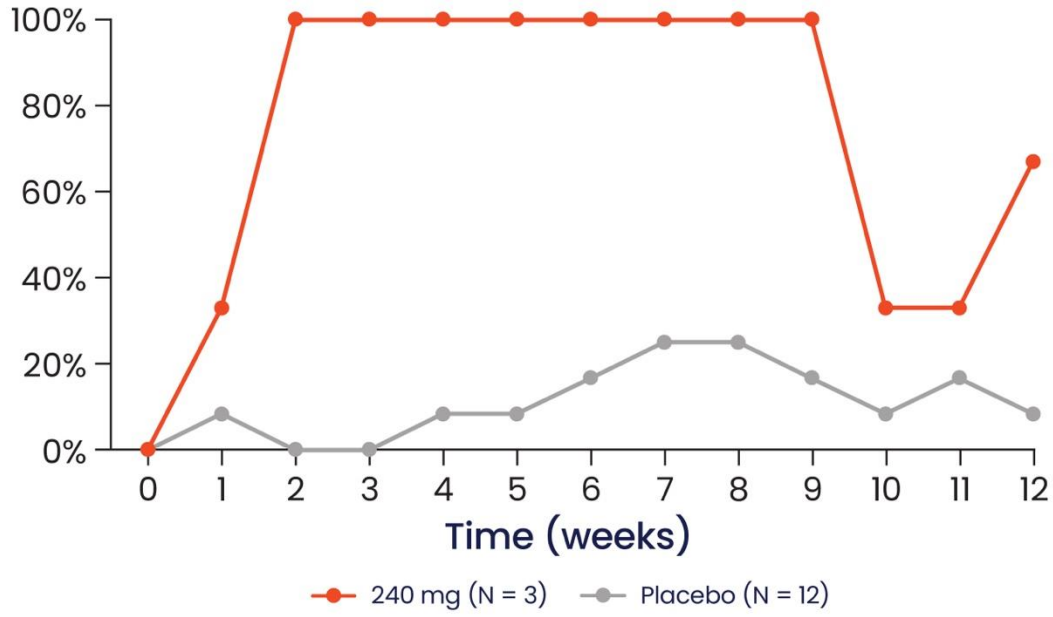
Primary Efficacy Analysis of 240mg Single Dose Cohort

Mean baseline UAS7=26.6; Mean week 2 UAS7=0

240mg complete response
Weeks 1-12 (UAS7 = 0)



240mg well controlled
Weeks 1-12 (UAS7 ≤ 6)

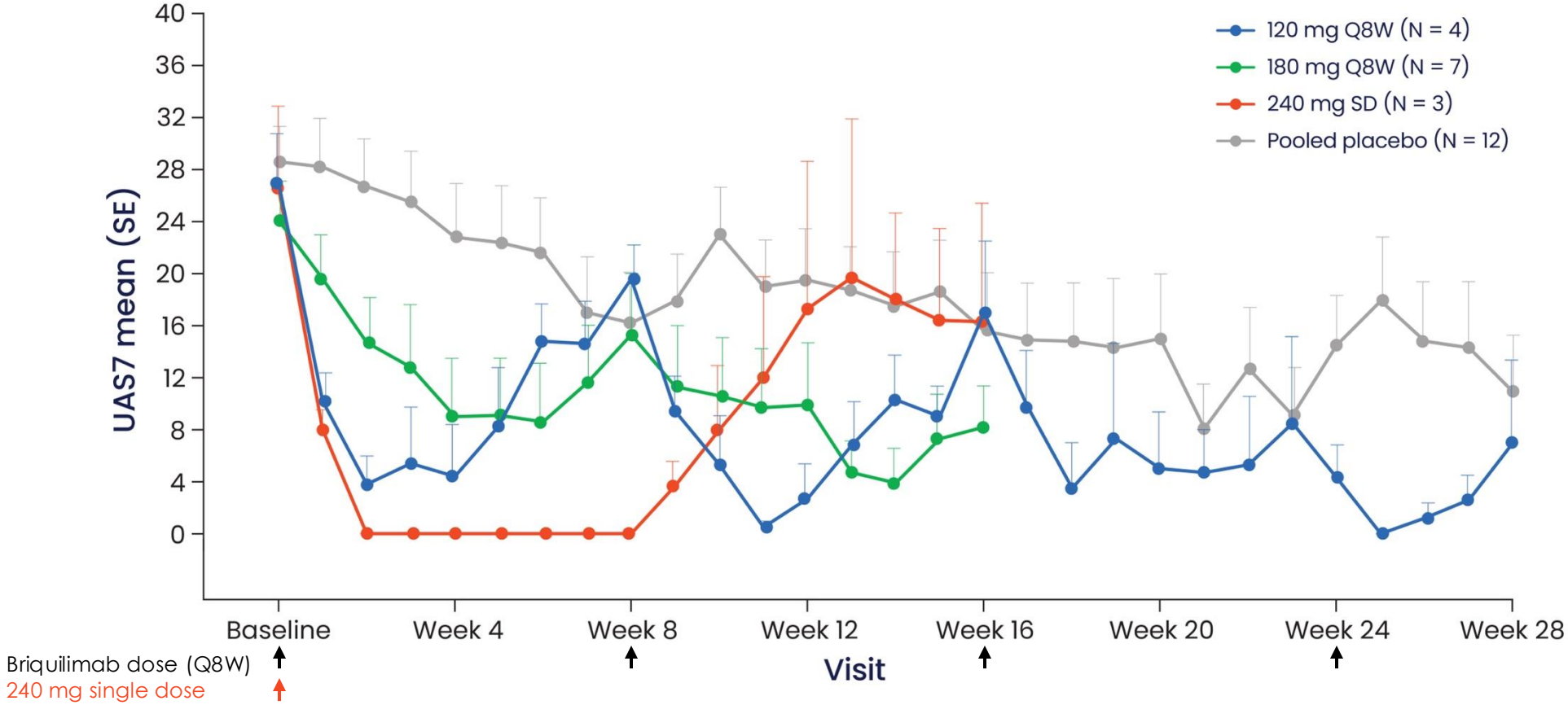


Note: Data cut-off 31 Jan 2025

Briquilimab is an investigative drug and is not approved for any indication.

Dose Dependent UAS7 Reductions Observed Over 28-Week Treatment Period

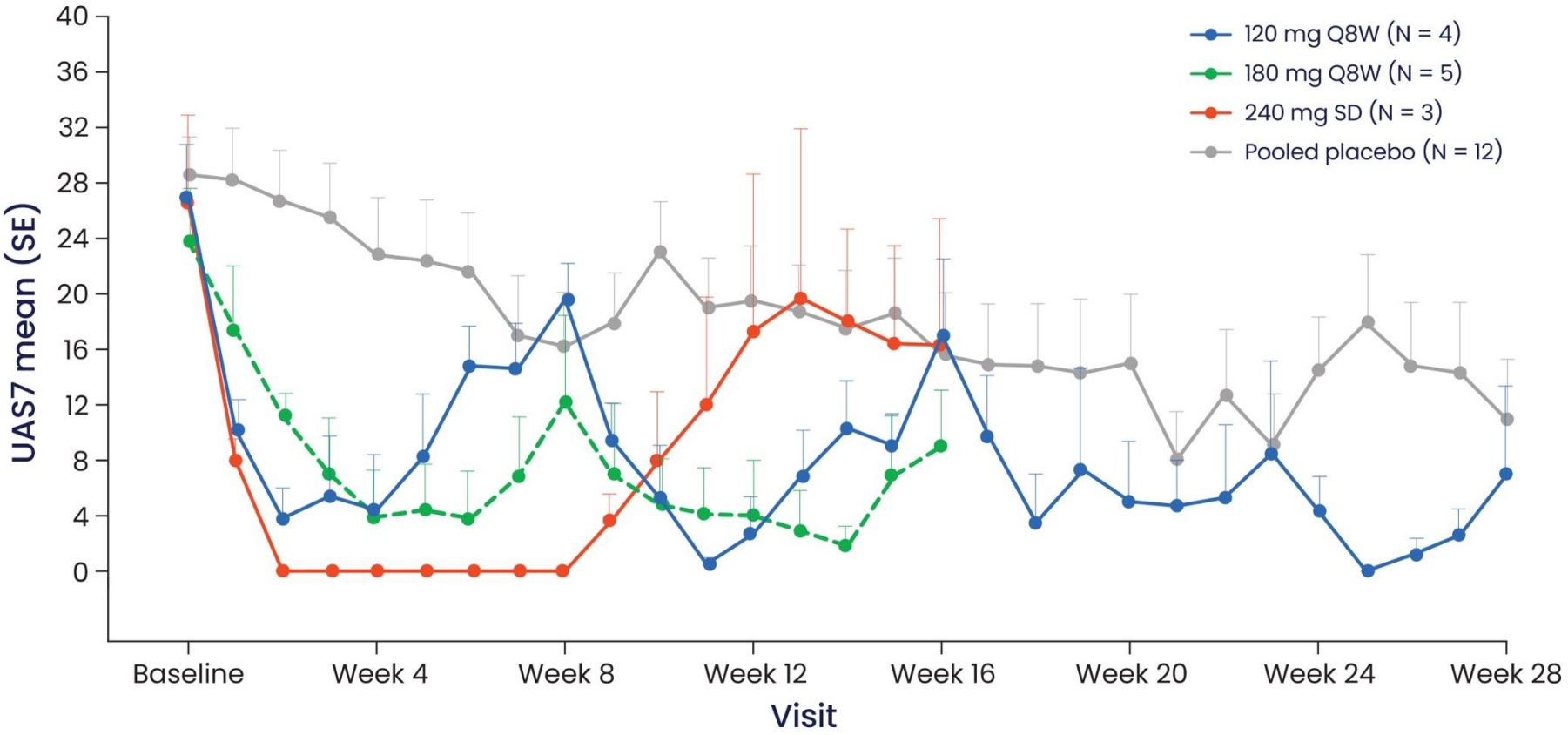
Deeper UAS7 reductions observed in subsequent doses



Note: 1. 50% of participants in the pooled placebo group utilized rescue medications, including steroids during the study; Data cut-off 31 Jan 2025.

Briquilimab is an investigative drug and is not approved for any indication.

Sensitivity Analysis: UAS7 Reductions Observed Over 28-Week Treatment Period



- A sensitivity analysis was conducted to evaluate dose-dependent responses excluding participants with potentially non-mast-cell-mediated chronic urticaria.
  - 2 participants in the 180 mg Q8W cohort with typical PK and tryptase reductions below LLOQ by 1-week post dose, did not have an appreciable change in UAS7 score, suggestive of non-mast cell mediated urticarial disease
  - Verification of diagnosis may occur at study completion and treatment unblinding

Note: Data cut-off 31 Jan 2025.

Briquilimab Demonstrated a Favorable Safety Profile

28-week exposure for 10 mg - 180 mg doses

Number of participants with:	Pooled briquilimab N=37 (n, %)	Pooled placebo N=12 (n, %)
Any DLT	0 (0)	0 (0)
Any TEAE	27 (73.0)	8 (66.7)
Any treatment-related serious TEAE	1 (2.7)[1]	0 (0)
Any hypersensitivity	1 (2.7)[1]	0 (0)
Any TEAE leading to discontinuation of IP	1 (2.7)[1]	0 (0)
Any anaphylaxis	0 (0)	0 (0)
Adverse event ≥ Grade 3	1 (2.7)[2]	1 (8.3)[3]

Note: Most commonly reported AEs (≥5 participants): nasopharyngitis, fatigue, hair color change, taste changes; **1.** Single participant, 180 mg Q8W, CoFAR grade 2 hypersensitivity reaction; **2.** Single participant, 180 mg Q12W, CTCAE grade 3 AE: neutropenia, unrelated - prior history of idiopathic neutropenia, thrombocytopenia; **3.** Single participant, placebo, CTCAE grade 3 bronchitis

Safety Observations Possibly Related to c-Kit Blockade were Infrequent and Generally Limited to Grade 1 Events

Majority resolved during repeat dosing and none resulted in discontinuations or dose delays

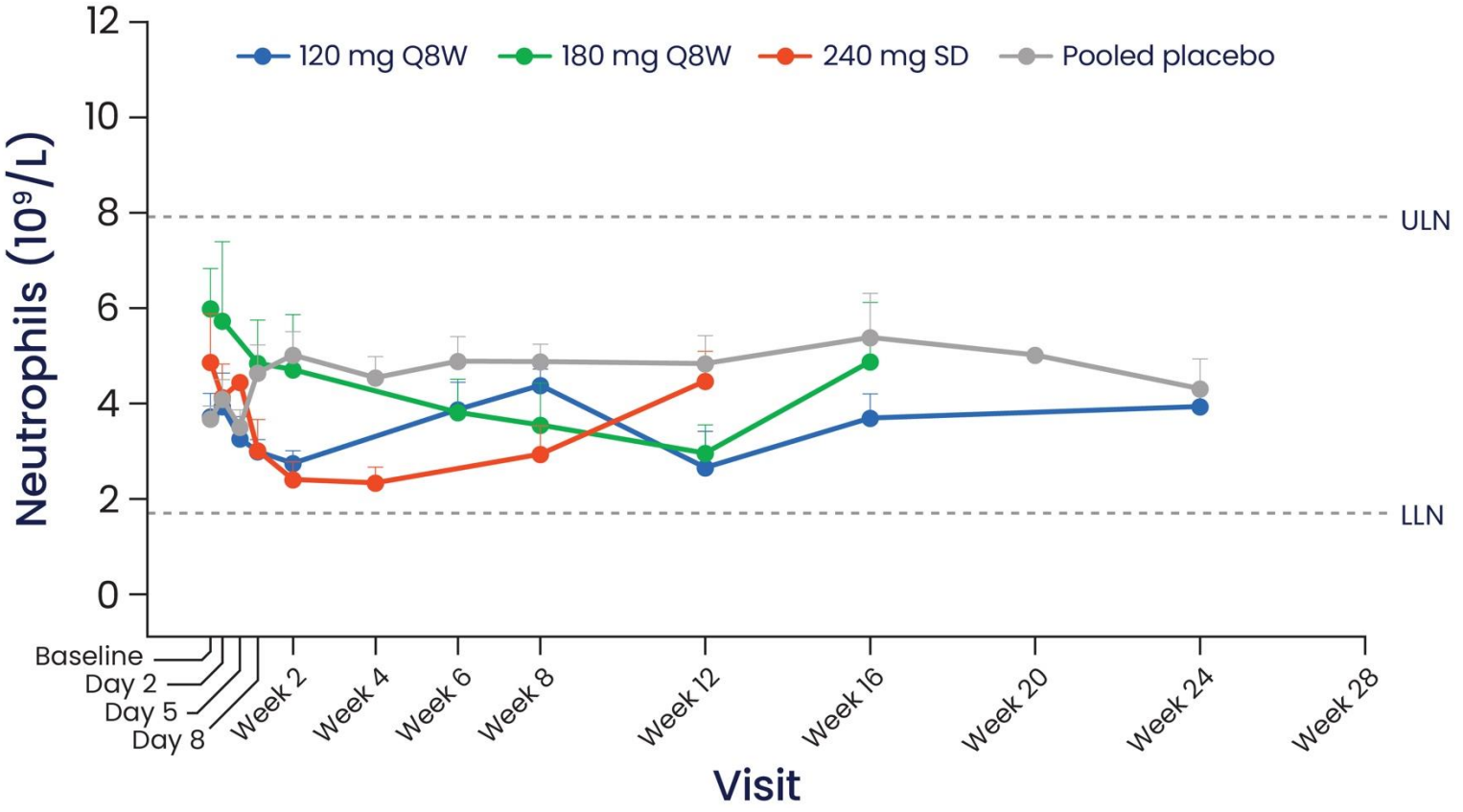
Adverse event	Pooled briquilimab N = 37 (n, %)	Pooled placebo N = 12 (n, %)	CTCAE Grade / comments
Hair color changes	4 (10.8)	1 (8.3)	• All reported as Grade 1. • 2 cases reported to be resolved/resolving. • 1 at 80 mg, 1 at 120 mg, 2 at 180 mg and 0 at 240 mg.
Skin discoloration	0 (0)	1 (8.3)	• No skin discoloration observed with patient exposure up to 28 weeks.
Taste change/ Hypogeusia	6 (16.2)	0 (0.0)	• All mild, Grade 1 occurring on first dose, 2 recurrences (resolved). • Taste reductions: bitter, salt, umami. • Resolved in 5 participants: Median time to resolution of 31 days. • 1 at 80 mg, 1 at 120 mg, 1 at 180 mg and 3 at 240 mg.
Neutropenia / Neutrophil count decreased	5 (13.5)	1 (8.3)	• All resolved while on therapy prior to subsequent dose. • Grade 3 neutropenia in a single participant with prior history of idiopathic neutropenia and thrombocytopenia, resolved on therapy. • Grade 1 neutropenia/neutrophil count decrease in 5 participants, all resolved on therapy. • No associated fevers or infections. • 0 at 80 mg, 2 at 120 mg, 2 at 180 mg and 1 at 240 mg.

Note: Data cut-off 31Jan2025.

Briquilimab is an investigative drug and is not approved for any indication.

Neutrophil Counts Generally Remained Stable, with Predictable Reduction Which Subsequently Resolved

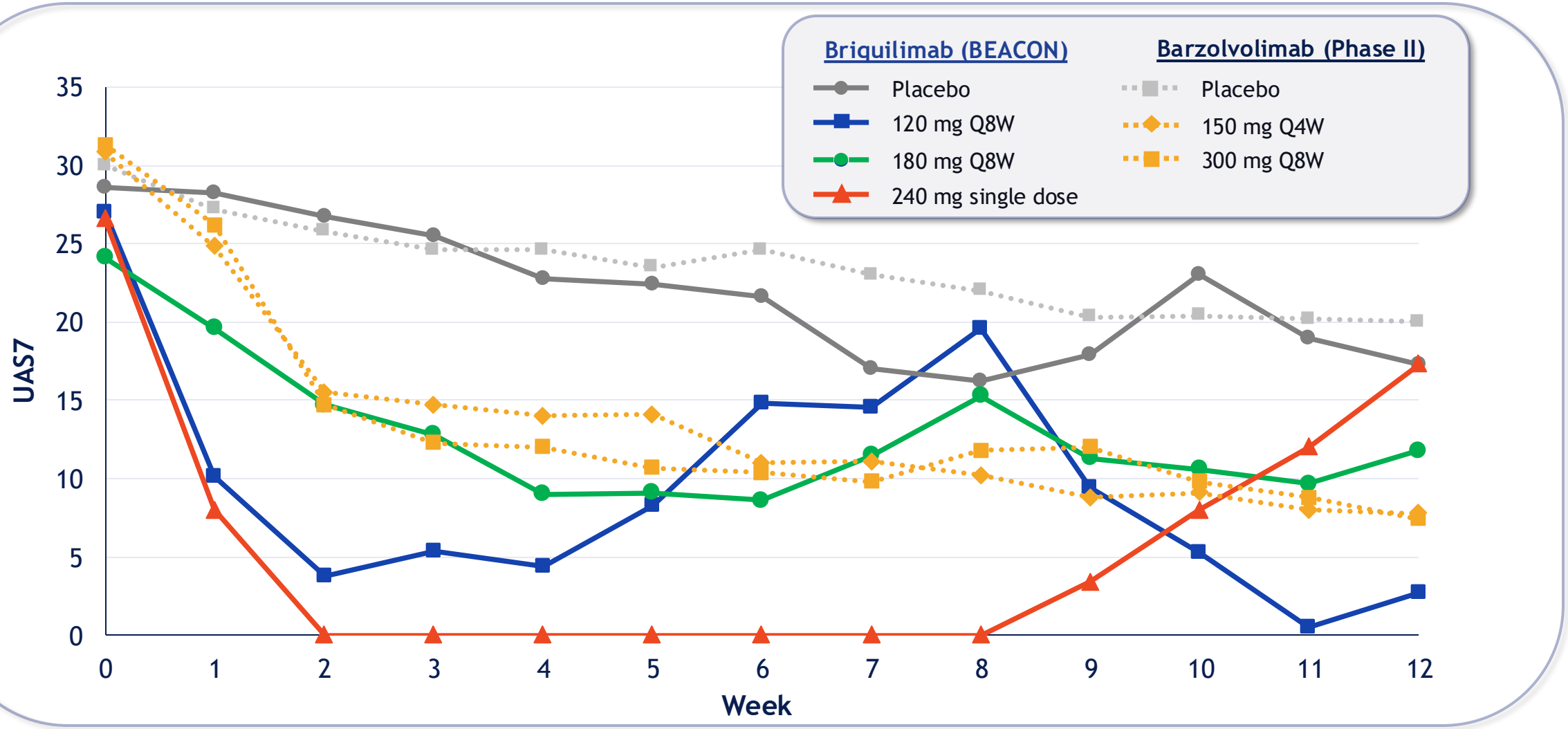
No discontinuations or dose delays due to reductions in neutrophil counts



Note: ULN = upper limit of normal; LLN = lower limit of normal; Data cut-off 31Jan2025; Source – Figure 14.3.4.1.

Briquilimab is an investigative drug and is not approved for any indication.

Briquilimab demonstrated rapid onset of durable disease control



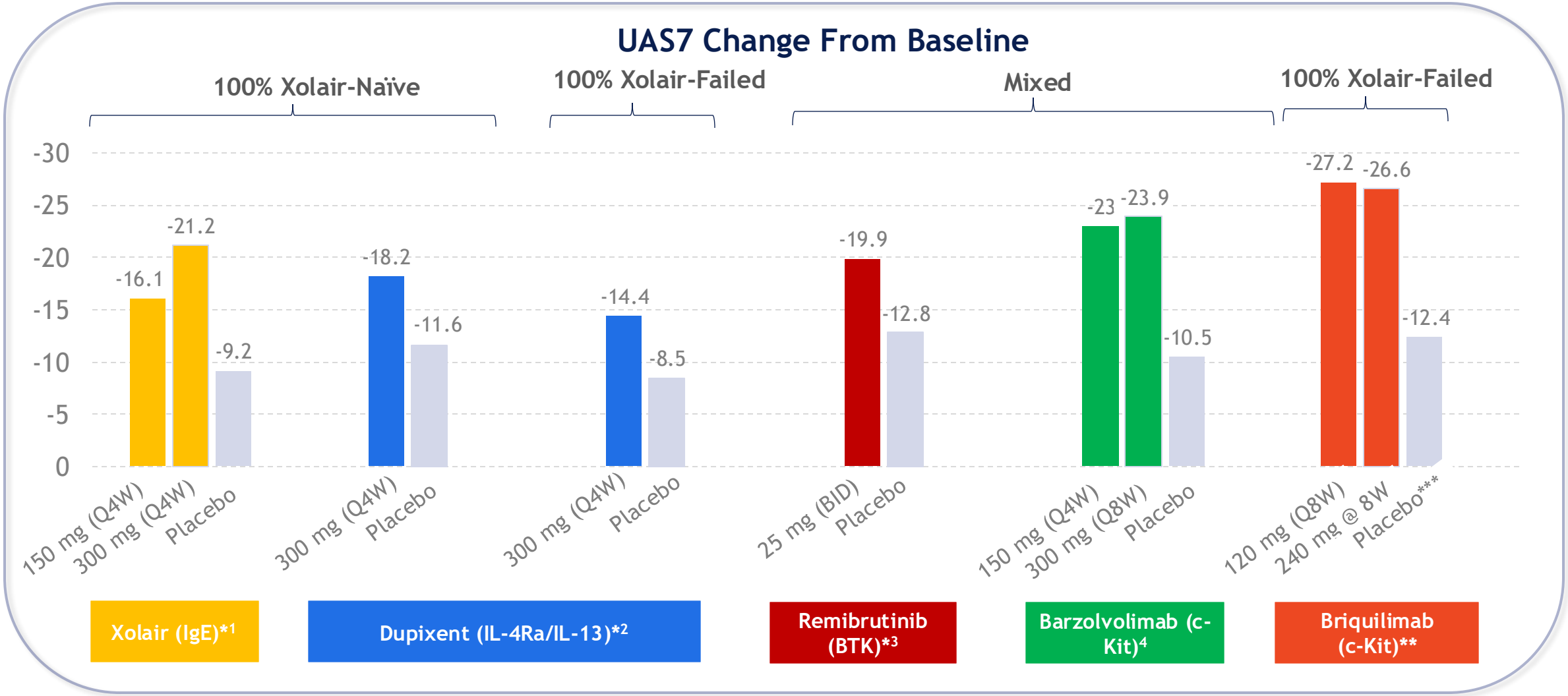
Data cut-off 31 Dec 2024

*Note: At Week 6 in the BEACON study, patients in the placebo arm were allowed rescue medications.

Adapted from William Blair Equity Research, Company reports

Change in UAS7 at week 12 (AH-failed)

Single dose 240mg briquilimab at 8 weeks shown for comparison



*ASTERIA 1 and 2 (Xolair), CUPID-A and C (Dupixent), and REMIX-1 and 2 (Remibrutinib) results are averaged. CUPID A-C results are at 24 weeks and not 12 weeks. ** Data cut-off 31 Dec 2024. ***Briquilimab placebo is at week 8

1 Saini. Journal of Investigative Dermatology. 2015; Casale. J Allergy Clin Immunol. 2015
2 Sanofi Press Release, October 24, 2024; Mauer. JACI. 2024
3 Saini et al. 2023 (Remix-1/2 Phase 3 Remibrutinib studies)
4 Barzolvolimab Phase 2 CSU Topline Results

Conclusions

- Subcutaneous briquilimab demonstrated an early T_{max} consistent with rapid onset of clinical response
  - Rapid decline in UAS7 as early as Week 1
  - Median time to first dose CR < 3 weeks (pooled 120 mg, 180 mg cohorts)
- Dose dependent durability observed in complete responses and well-controlled disease
  - High CR rate observed, durable to 8 weeks, following single 240 mg administration
- Briquilimab was well tolerated and demonstrated a favorable safety profile
  - Predictable clearance may allow for restoration of signaling on other c-Kit-expressing cells
- Dose optimization, based on PK/PD variables, may enhance efficacy and mitigate potential safety events
- Mast cell depletion, occurring after briquilimab administration, appears to be a promising therapeutic approach for mast cell mediated diseases, including CSU
- The data support advancing into a late-stage clinical development program for CSU

Upcoming Milestones and Next Steps

Data readouts in 2025 enable registrational programs in CSU & CIndU

Adaptive Phase 2b study in CSU expected to commence 2H 2025 followed by Phase 3 in 2H 2026

Jan 8th 2025 CSU Data Release

- **49 Patients**
- Cohorts (n):
  - 10mg (3)
  - 40mg (3)
  - 80mg Q8w(8)
  - 120mg Q8W (6)
  - 120mg Q12W (6)
  - 180mg Q8W (10)
  - 180mg Q12W (9)
  - 240mg Single-Dose(4)

Mid-Year 2025 CSU Data Release

- **~45 Additional Patients**
- Cohorts (n):
  - 240mg single dose (4)
  - 360mg single dose (8)
  - 240mg Q8W (8)
  - 240mg -> 180mg Q8W (8)
  - 180mg Q8W Open Label Extension (20-25 CSU)

1H 2025 CIndU Data Release

- **~25 Additional Patients**
- Cohorts (n):
  - 180mg single dose (12)
  - 180mg Q8W Open Label Extension (10-15 CIndU)

CSU Registrational Program

- **Phase 2b Study – Commencing Q4 2025**
  - **2 dose levels**
  - **~75 - 100 patients**
  - **Data expected 2H 2026**
- **Phase 3 Studies – Commencing Q4 2026**
  - **Single dose regimen determined in Phase 2b study**
  - **~1,200-1,500 patients**

CIndU Registrational Program

- **Phase 3 Study – Commencing Early 2027**
  - **Single dose regimen**

Robust clinical data support commencing registrational program 2H 2025

Multiple doses demonstrated potential for best-in-class therapeutic profile in preliminary data

Substantial volume of additional CU patient data expected mid-year 2025

- ~40 additional patients from higher dose cohorts of the BEACON and SPOTLIGHT studies
- ~25 patients in the Open Label Extension study at 180mg Q8W

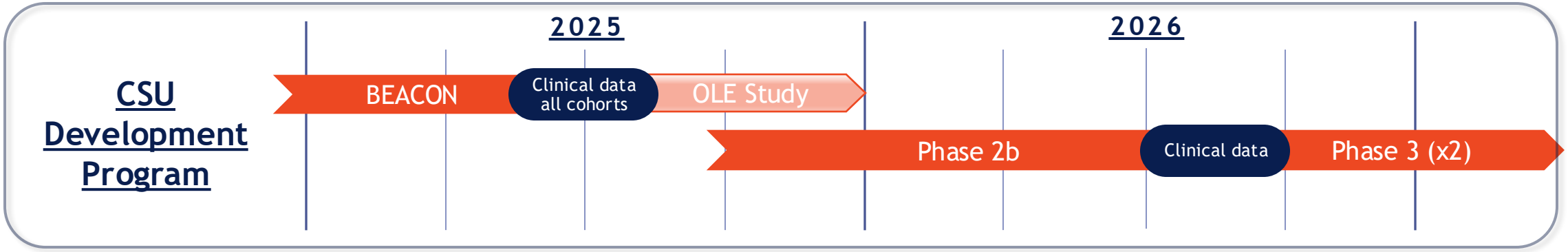
Data from more than 100 patients across mast-cell studies (BEACON, SPOTLIGHT and OLE)

- Data set should be more than adequate to determine dose selection for operationally adaptive Phase 2b study

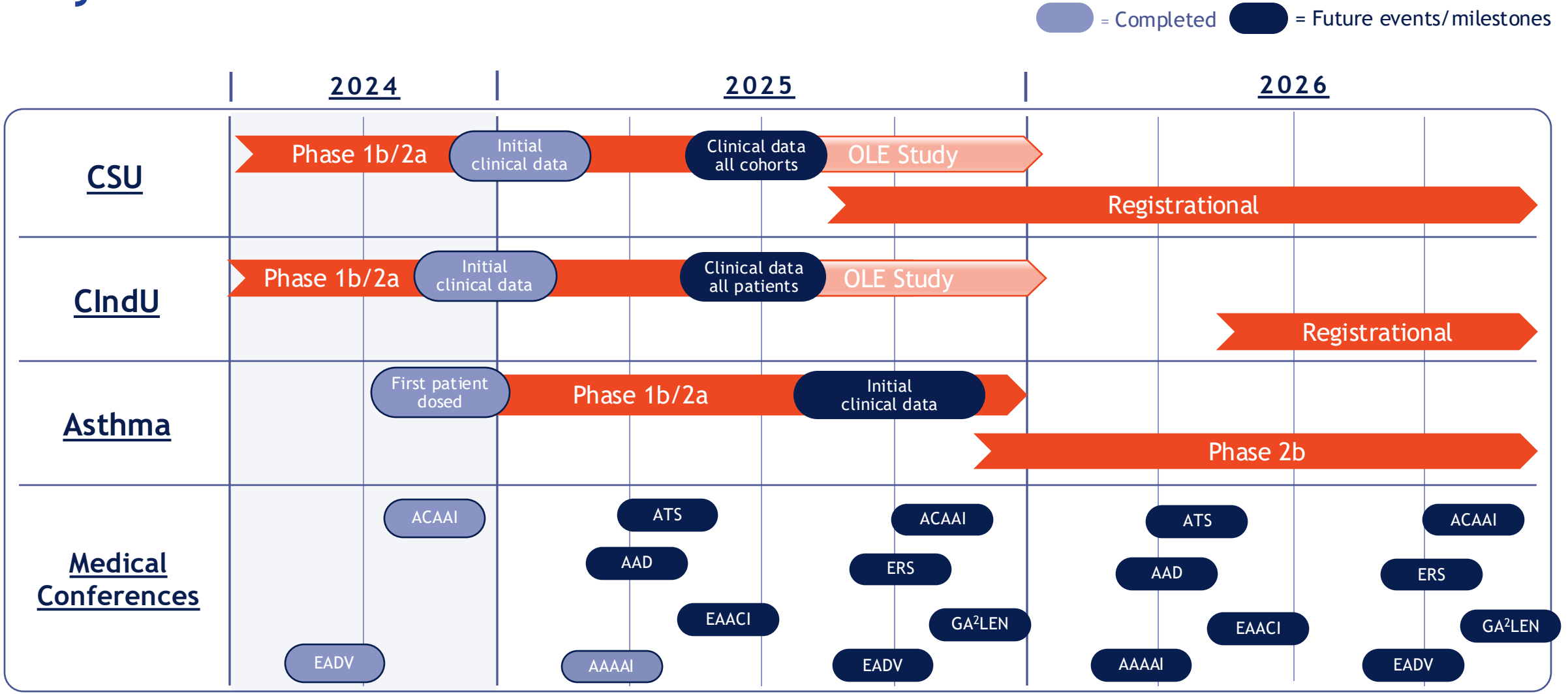
Phase 2b operationally adaptive study expected to commence 2H 2025

Phase 3 studies expected to commence 2H 2026

- Target enrollment of 1,200-1,500 patients total to be driven by size of required safety database given robust efficacy



Key milestones



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