Barzolvolimab GUF 2022 Update Call
December 6, 2022

GA²LEN Global Urticaria Forum - Berlin
December 7-8, 2022

Safe Harbor Statement

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Barzolvolimab GUF 2022 Update - Agenda & Speakers

Agenda	Speakers & Management
• Phase 1b Single Dose 1.5 mg/kg IV Cold Urticaria Study Results • Phase 1b Single Dose 3.0 mg/kg IV Cold Urticaria and Symptomatic Dermographism Long Term Follow Up Data • 6-month Chronic Toxicology Study	**Anthony S. Marucci** Founder, President, Chief Executive Officer & Director **Diane C. Young** Chief Medical Officer & Senior Vice President **Tibor Keler** Founder, Executive Vice President & Chief Scientific Officer **Margo Heath Chiozzi** Senior Vice President, Regulatory Affairs **Diego Alvarado** Executive Director of Research **Sarah Boylan Cavanaugh** Senior Vice President, Corporate Affairs & Administration

Barzolvolimab Phase 1b Single Dose 1.5 mg/kg IV Cold Urticaria Study Results

Cold Urticaria Patients Achieve Complete Response with Single Dose of 1.5 mg/kg Barzolvolimab

- All 9/9 (100%) patients treated at 1.5 mg/kg experienced a complete response as assessed by provocation threshold testing, including the 4 patients with disease refractory to omalizumab
- Rapid onset of responses after dosing and sustained durability
- As expected, the duration of response was dose dependent
- The median duration of response for patients treated at 1.5 mg/kg was 51+ days (7+ weeks) compared to 77+ days (11+ weeks) for the patients with cold urticaria treated at 3.0 mg/kg
- A single dose resulted in rapid, marked and durable suppression of serum tryptase
- The kinetics of tryptase depletion mirrored changes in provocation threshold and UCT
- Barzolvolimab was generally well tolerated

Phase 1b Single Dose of Barzolvolimab Trial Design
CIndU Patients Refractory to Antihistamines

Phase 1b CIndU Trial Size:
Cohort 1: ColdU 10 patients
Cohort 2: SD 10 patients
Cohort 3: CholU[1] 10 patients
Cohort 4: ColdU[2] 10 patients
Total patients: 40

→ 2-week screening → Barzolvolimab 3 mg/kg Single Dose[2] → **12 Week Follow Up Period:** Pts seen weekly for first 2 weeks and then every other week until week 8 and then at week 12. Biopsies at baseline, week 1, 4, 8 and 12 → End of Study

[1]CholU cohort added in March 2021; [2]Cohort 4 of ColdU dosed at 1.5 mg/kg added in June 2021

Population:
Cold Urticaria (ColdU)
Symptomatic Dermographism (SD)
Cholinergic Urticaria (CholU)
All patients refractory to antihistamines

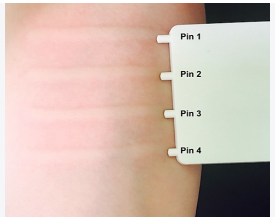
Design: Single dose with 12 week follow up

Primary Endpoint: Safety and Tolerability

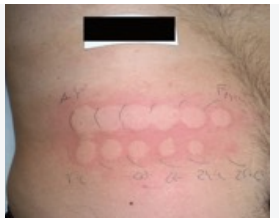
Secondary Endpoints: Activity, PK, PD

Provocation Testing - Clinical Effect Evaluation:

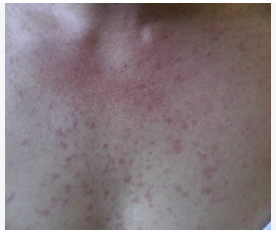
Symptomatic Dermographism (SD)
FricTest®



Cold Urticaria (ColdU)
TempTest®

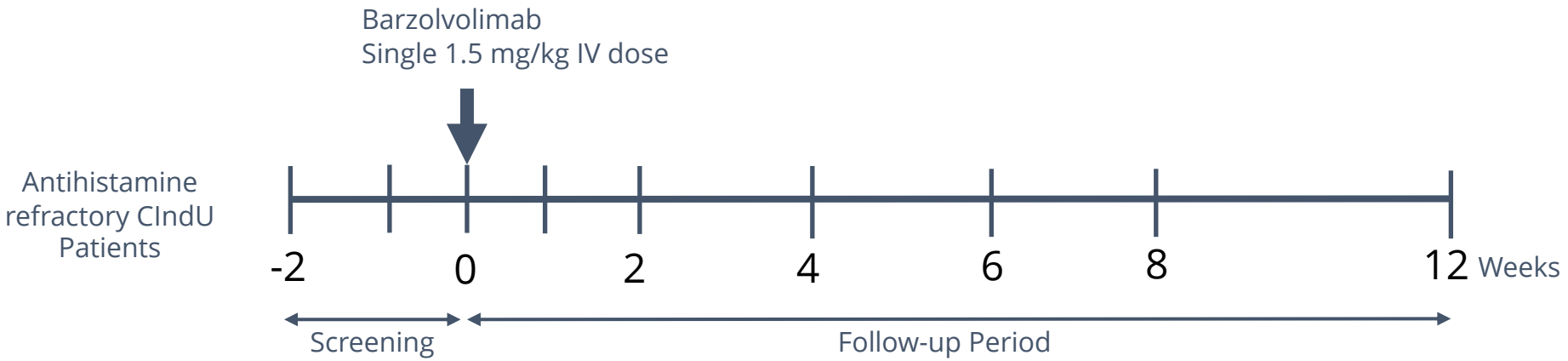


Cholinergic Urticaria (CholU)
Pulse-controlled ergometry testing



Barzolvolimab Phase 1b Single Dose 1.5 mg/kg IV Cold Urticaria Study

- All patients (N=10) have completed the 12-week follow-up and are included in the safety analysis
- One patient excluded from activity analysis due to receipt of partial dose



Assessments included adverse events, clinical laboratory testing, provocation testing (TempTest®), UCT, and circulating tryptase.

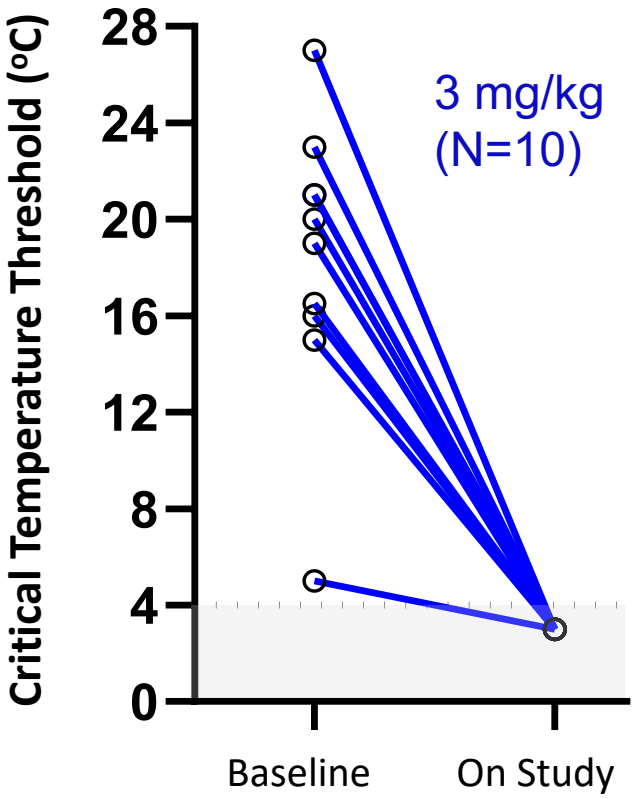
- Previously reported data for barzolvolimab 3 mg/kg included for comparison

Demographics and Baseline Characteristics

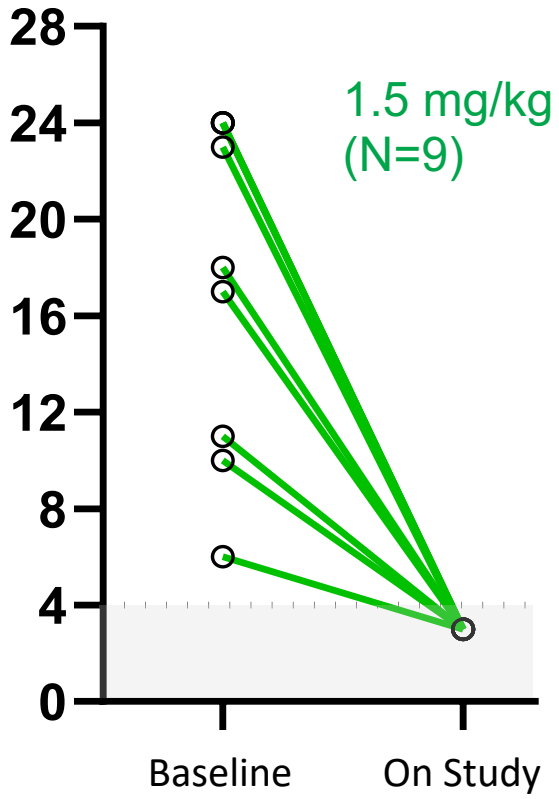
		ColdU 3 mg/kg (N=11)*	ColdU 1.5 mg/kg (N=10)*	All (N=21)
Age median (range) years		43 (27- 65)	51.5 (19- 69)	48 (19-69)
Gender Female, n (%)		6 (54.5%)	6 (60.0%)	12 (57.1 %)
Race	White, n (%)	10 (90.9%)	9 (90%)	19 (90.5%)
	Asian, n (%)	1 (9.1%)	0 (0%)	1 (4.8%)
	Black, n (%)	0 (0%)	1 (10%)	1 (4.8%)
Ethnicity	Hispanic or Latino	1 (9.1%)	0 (0%)	1 (4.8%)
Weight median (range) kg		77.0 (61.0 – 93.0)	97.8 (63.0 – 126.6)	85.4 (61.0 – 126.6)
Disease Duration	< 5 yr, n (%)	5 (45.5%)	6 (60%)	11 (52.4%)
	≥ 5 yr, n (%)	6 (54.5%)	4 (40%)	10 (47.6%)
History of Angioedema		6 (54.5%)	4 (40%)	10 (47.6%)
Prior Medication H1 Antihistamines		11 (100%)	10 (100%)	21 (100%)
Biologics (omalizumab)		1 (9%)	5 (50%)	6 (28.6%)†
Provocation Threshold Mean (range)		18.9 (5-27) °C	18.4 (6-27) °C	18.6 (5-27) °C
UCT Mean (range)		7.0 (2-13)	5.9 (1-11)	6.5 (1-13)
Tryptase median (range) ng/mL		3.7 (2.4-5.5)	4.5 (2.2-10.6)	3.8 (2.2-10.6)

* All patients are included in the safety analysis. 2 patients, one in each cohort, did not receive a full dose and are not included in the clinical/PD analysis
†All 6 patients reported inadequate response (defined as biologic refractory)

100% Complete Response with Single Dose of Barzolvolimab



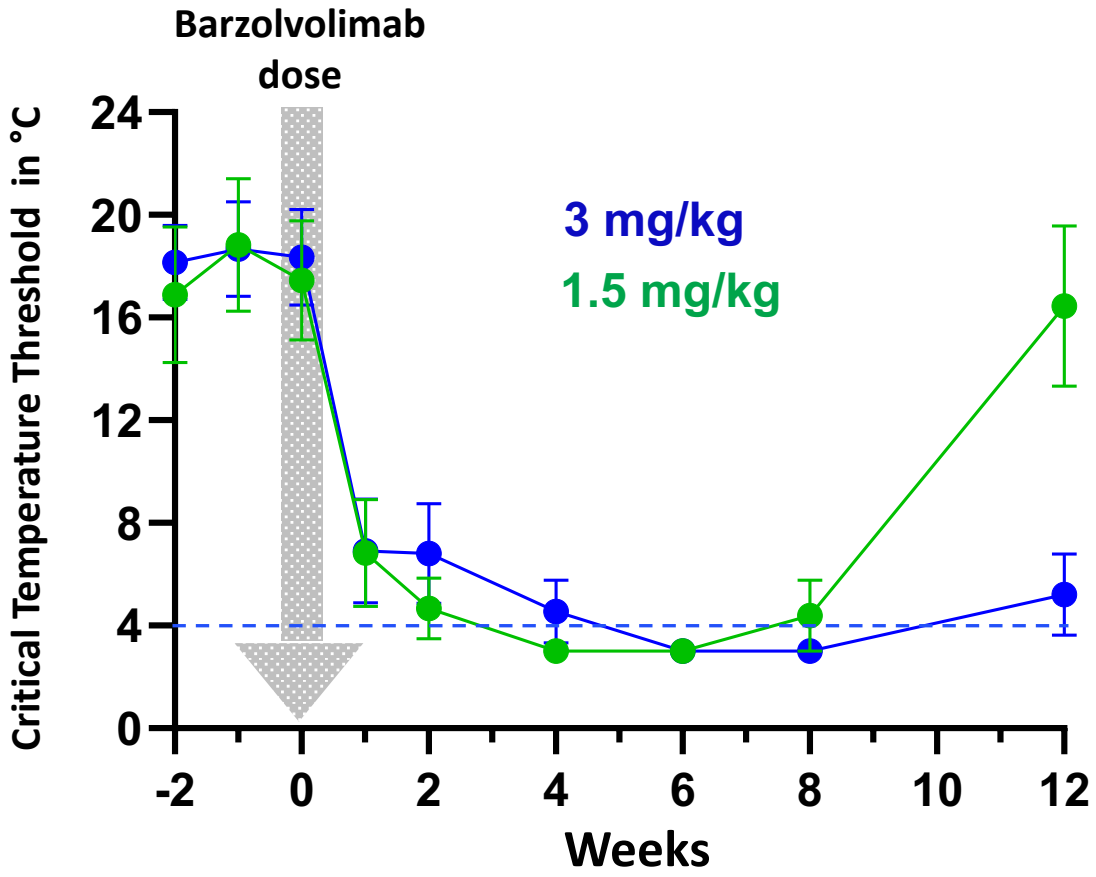
All biologic refractory (omalizumab) patients had a complete response (1/1)



All biologic refractory (omalizumab) patients had a complete response (4/4)

CR=negative provocation test at ≤4°C

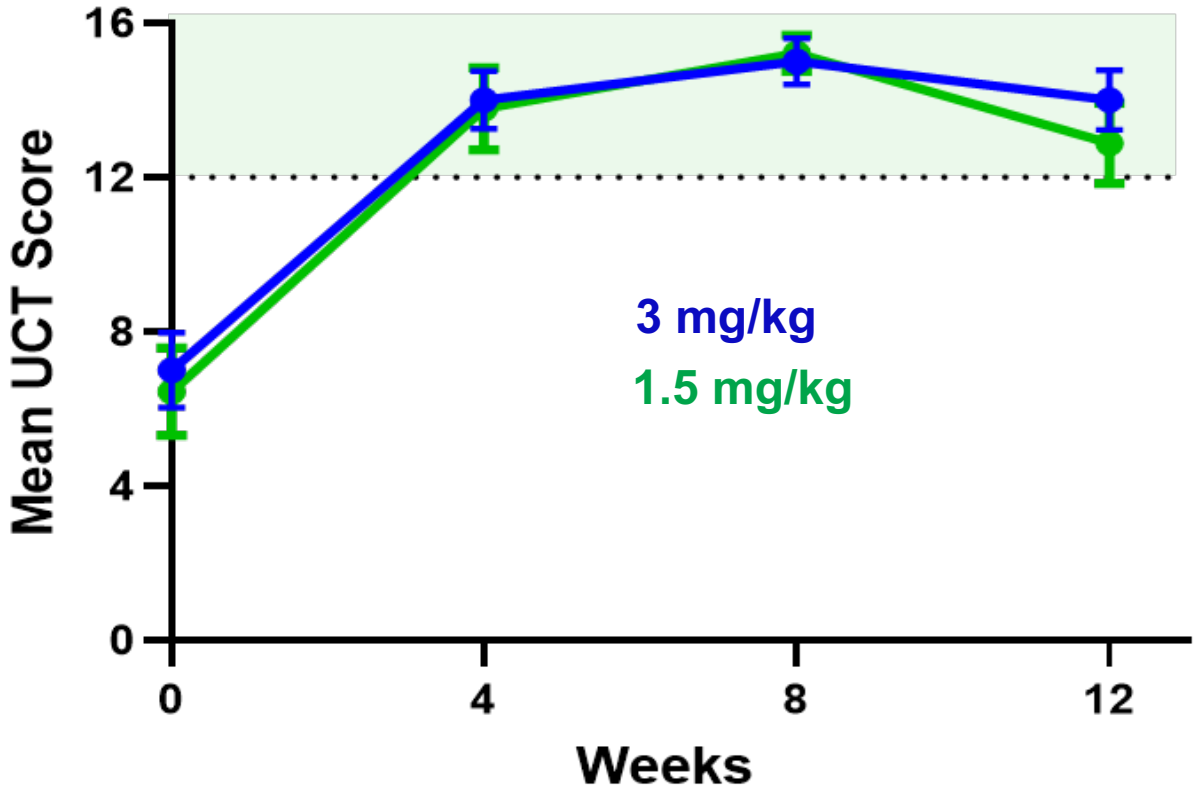
A Single Dose Results in Rapid and Durable Clinical Response



- 68% patients achieved CR within 1 week
- Duration of response is dose proportional

*Critical temperature threshold values below 4°C (negative test) assigned a value of 3°C

100% Well Controlled Urticaria following Single Dose of Barzolvolimab



UCT= 16
Complete Control

UCT≥ 12
Well Controlled

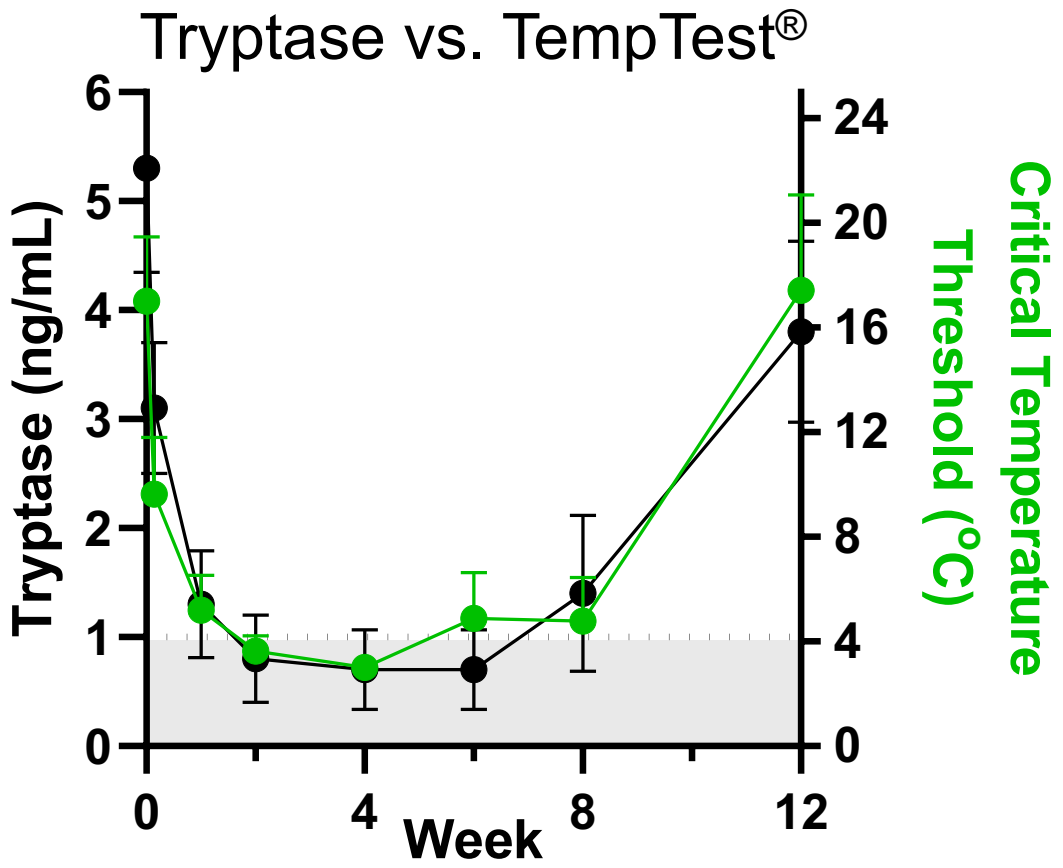
UCT< 12
Poorly Controlled

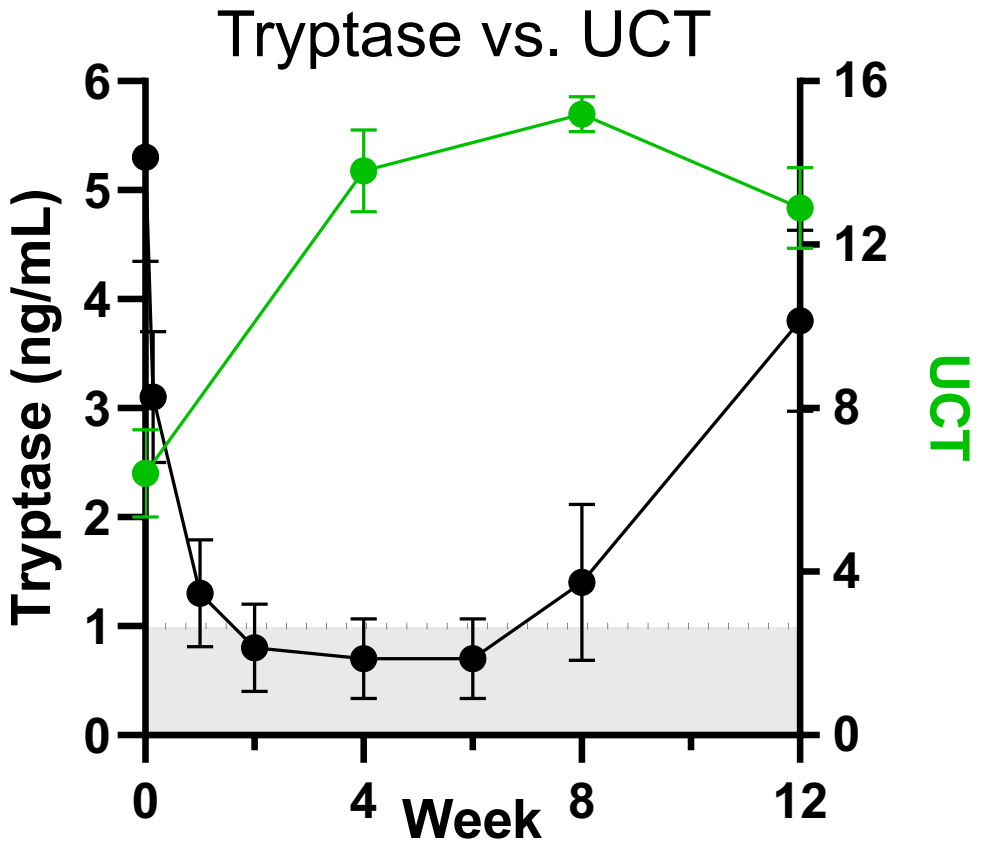
% Patients with UCT ≥ 12

3 mg/kg barzolvolimab	Predose	4 week	8 week	12 week
UCT=16 n (%)	0	5/10 (50)	7/10 (70)	4/10 (40)
UCT≥12 n (%)	1/10 (10)	9/10 (90)	10/10 (100)	8/10 (80)

1.5 mg/kg barzolvolimab	Predose	4 week	8 week	12 week
UCT=16 n (%)	0	5/9 (56)	6/9 (67)	3/9 (33)
UCT≥12 n (%)	0	7/9 (78)	9/9 (100)	7/9 (78)

Kinetics of Tryptase Depletion Mirror Changes in Provocation Threshold and UCT





- Data shown for 1.5 mg/kg only; similar kinetics observed at 3 mg/kg

•Tryptase values below LLoQ normalized to 0.
•Critical temperature threshold values below 4°C (negative test) assigned a value of 3°C.

Barzolvolimab Demonstrates Favorable Safety and Tolerability

Adverse Events Reported in at least 3 Patients

Adverse Event n (%)	ColdU 3 mg/kg N=11	ColdU 1.5 mg/kg N=10	Total N=21
Any adverse event	11 (100)	9 (90)	20 (95)
Hair color changes	8 (73)	2 (20)	10 (48)
Infusion related reactions	8 (73)	2 (20)	10 (48)
Taste changes	4 (36)	2 (20)	6 (29)
Malaise	4 (36)	1 (10)	5 (24)
Headache	3 (27)	0 (0)	3 (15)
COVID-19	0 (0)	3 (30)	3 (15)

- AEs were similar across dose groups and mainly mild
- Hematology parameters generally remained within the normal ranges. Mild, transient, and asymptomatic decreases in hemoglobin and WBC parameters were noted

Barzolvolimab Phase 1b Single Dose 3.0 mg/kg IV Chronic Inducible Urticaria Long Term Follow Up Data

Barzolvolimab-induced Response and Mast Cell Suppression are Durable and Linked

- Of 21 ColdU and SD patients treated with a single 3 mg/kg dose of barzolvolimab, 14 consented to the optional long term follow-up evaluation (6 ColdU, 8 SD). Data were collected at one or more timepoints beyond week 12 through week 36

- Most patients had return of symptoms and/or loss of urticaria control between 12 and 36 weeks. Two patients remained provocation negative at 36 weeks, and four had well controlled disease (UCT ≥ 12) 36-week post dosing

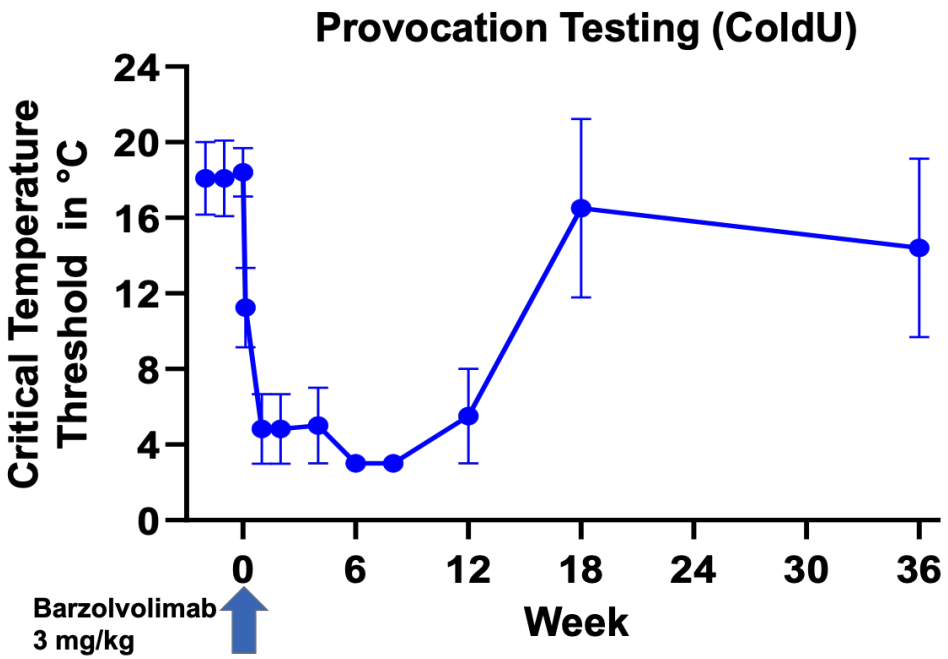
- Serum tryptase exhibits a similar rate of recovery as clinical symptoms, while skin mast cells return at a slower rate
  - Tissue KIT signaling, as approximated by SCF levels, was rapidly inhibited after dose administration and fully reactivated ~18 weeks after dosing
  - Tryptase levels return to pretreatment levels during follow up, while mast cells continue to recover

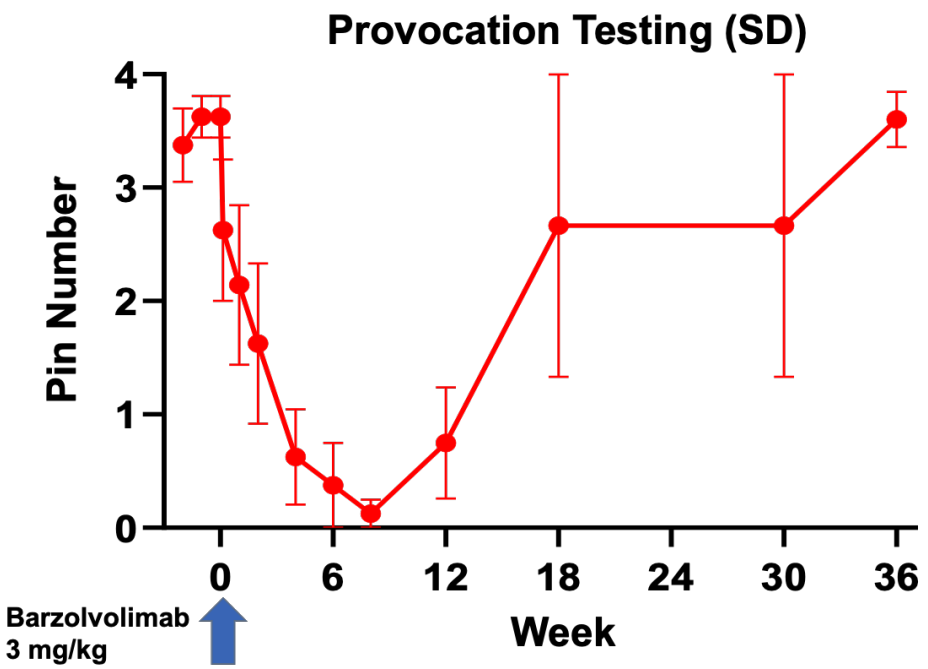
- All drug related adverse events noted during the study resolved

Demographics and Baseline Characteristics

DEMOGRAPHICS AND BASELINE DISEASE CHARACTERISTICS			
		All (N=21)	LTFU (N=14)
Age median (range) years		41 (25 - 65)	44 (25 - 65)
Gender Female, n (%)		10 (48%)	6 (42.9%)
Race	White, n (%)	20 (95%)	14 (100%)
	Asian, n (%)	1 (5%)	0 (0%)
Ethnicity	Hispanic or Latino	1 (5%)	1 (7.1%)
Weight median (range) kg		81.5 (57.0 - 122.0)	85.5 (57.0 - 122.0)
Disease Duration	< 5 yr, n (%)	9 (43%)	7 (50%)
	≥ 5 yr, n (%)	12 (57%)	7 (50%)
History of Angioedema		6 (29%)	3 (21%)
Prior Medication	H1 Antihistamines	21 (100%)	14 (100%)
	Biologics (omalizumab)	3 (14%)	2 (14%)
Provocation Threshold mean (range) CTT Number of Pins		ColdU (n=11), SD (n=10) 18.9 (5-27) °C 3.5 (2-4) Pins	ColdU (n=6), SD (n=8) 18.4 (15-23) °C 3.4 (2-4) Pins
UCT median (range)		5 (0-13)	6 (2-13)
Tryptase median (range) ng/mL		4.2 (1.3-8.6)	4.2 (1.3-5.7)

Single Dose Induces Rapid and Durable Clinical Response





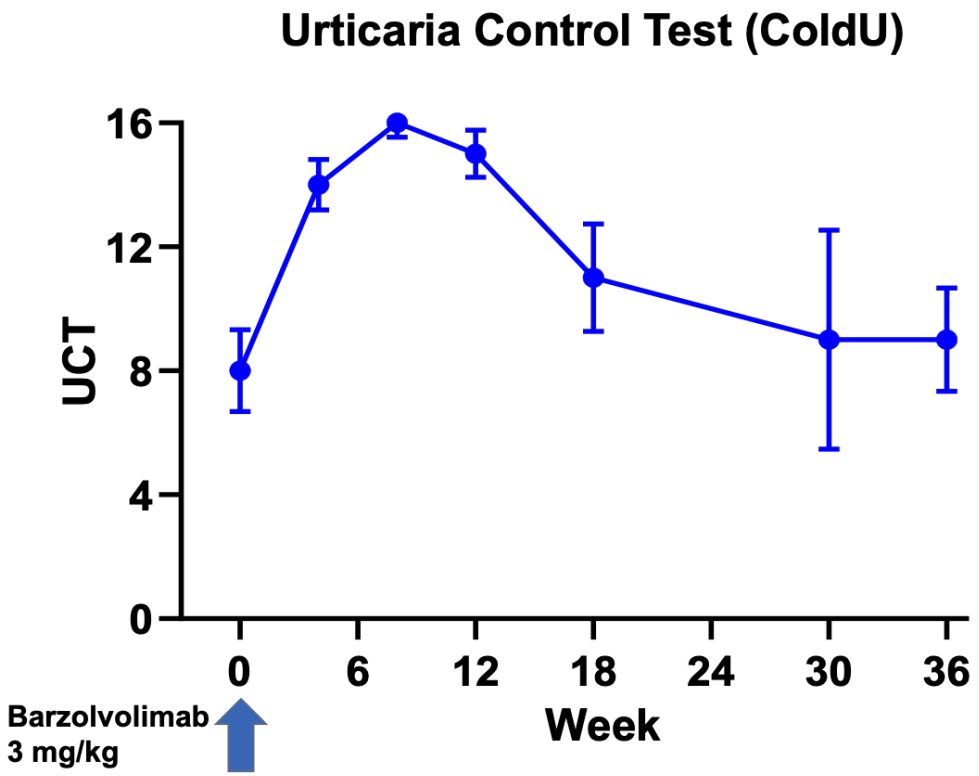
- Critical temperature threshold values below 4°C (negative test) assigned a value of 3°C.
- Visit timepoints with only 1 patient were excluded

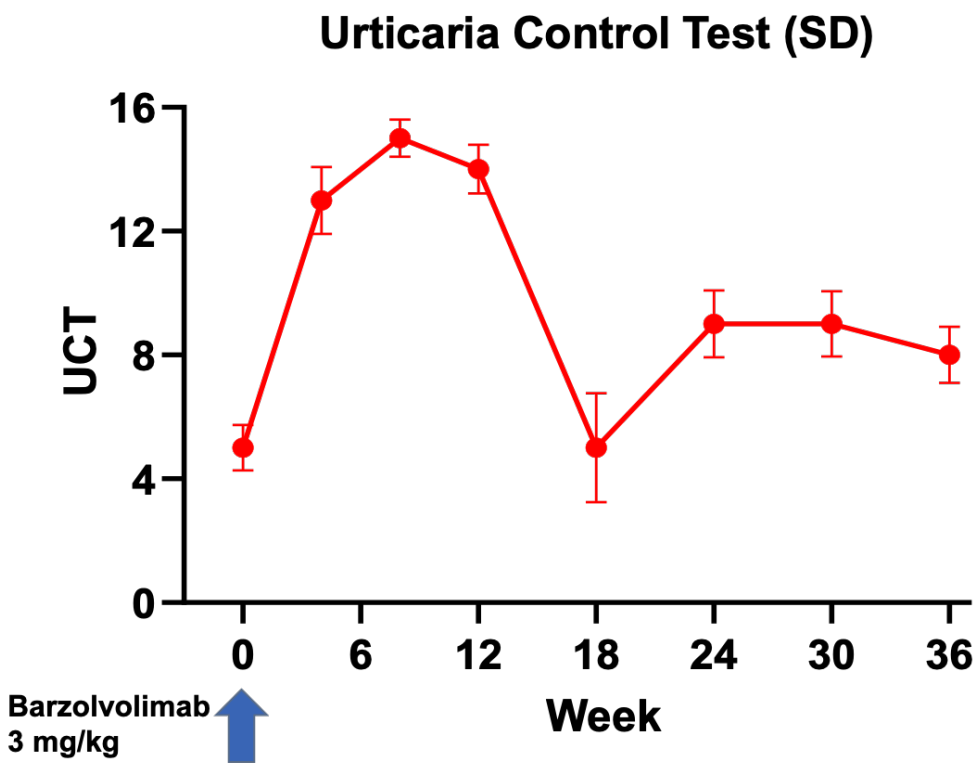
% Patients with Complete Response

Week	0	12	36
		ColdU	
CR (%)	0 (0)	5/6 (83)	2/5 (40)
		SD	
CR (%)	0 (0)	5/8 (63)	0/5 (0)

Complete Response (CR) = negative provocation test, ≤4°C or 0 pins

Improved Urticaria Control with Sustained Results for 12-36 Weeks





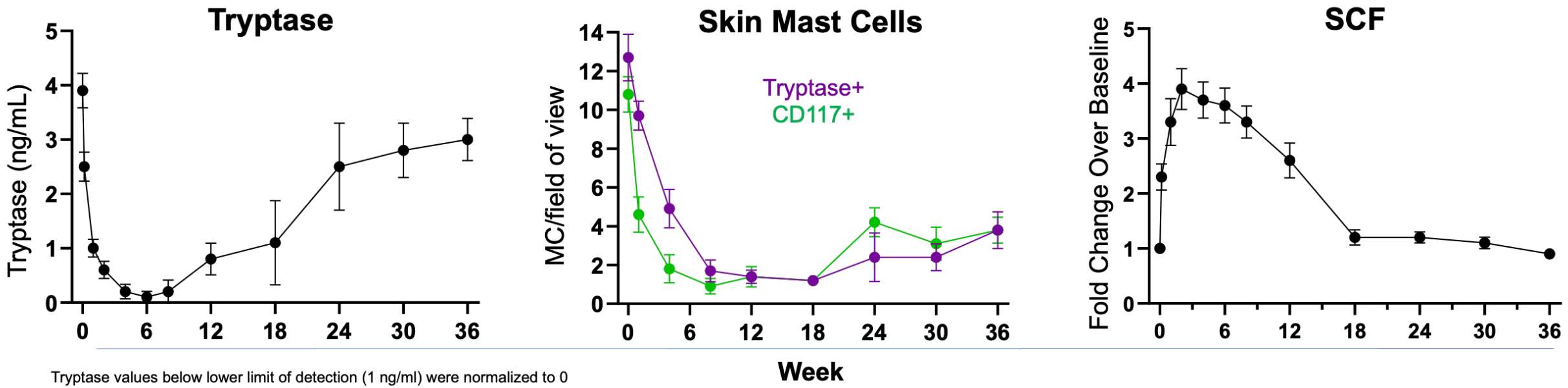
- Visit timepoints with only 1 patient were excluded

% Patients with Well Controlled Urticaria

Week	0	12	36
		ColdU	
UCT≥ 12 (%)	1/6 (17)	5/6 (83)	3/6 (50)
		SD	
UCT≥ 12 (%)	0 (0)	6/8 (75)	1/8 (13)

UCT≥ 12 = Well controlled urticaria

Recovery Kinetics of Tryptase, Skin MCs and SCF

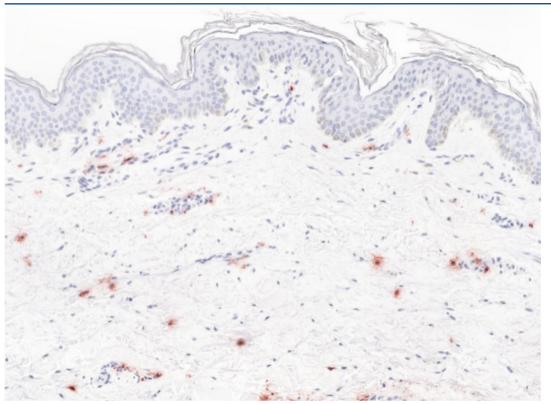


Tryptase values below lower limit of detection (1 ng/ml) were normalized to 0

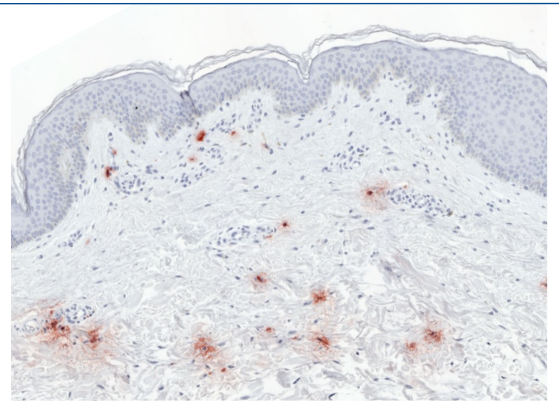
- Tryptase levels return to pretreatment levels during follow-up, while mast cells continue to recover
- Tissue KIT signaling, as approximated by SCF levels, is rapidly inhibited and fully reactivated at ~18 weeks after dosing

Representative Micrographs of MC reduction and recovery

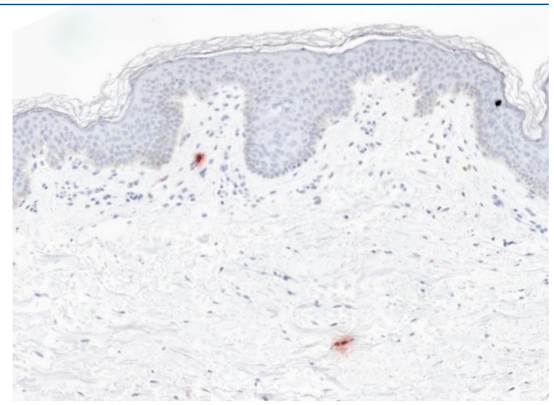
Tryptase IHC



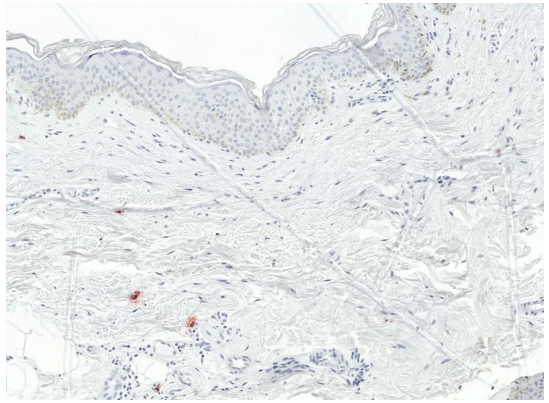
Baseline



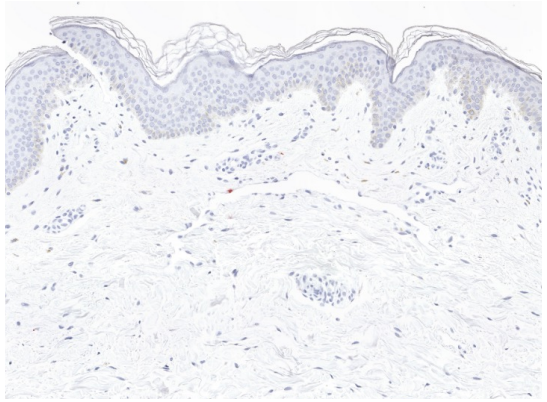
Week 1



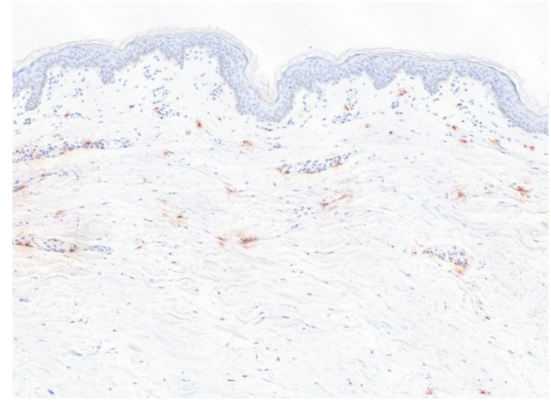
Week 4



Week 8



Week 12



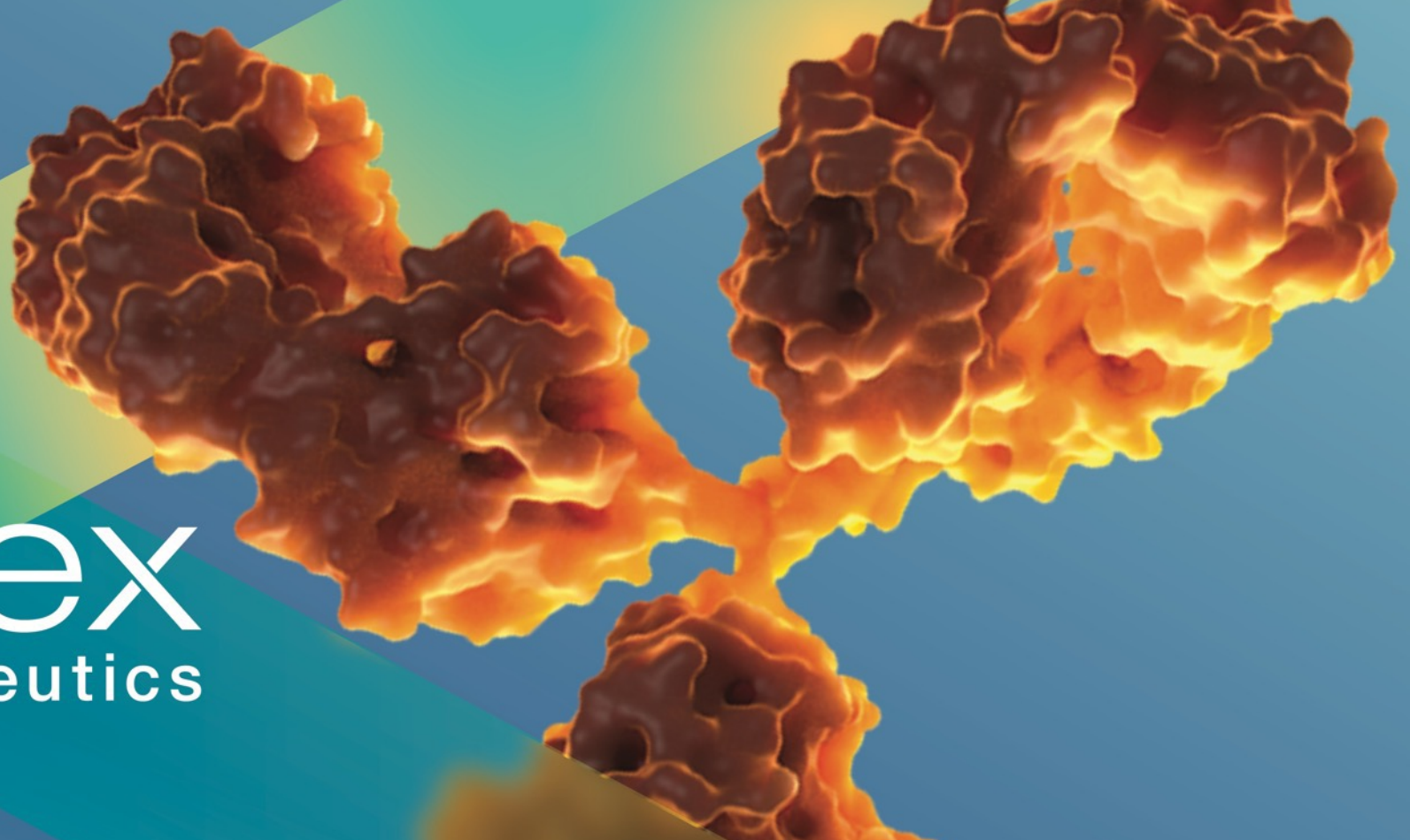
Week 28

6-month Chronic Toxicology Study Update

Chronic Toxicology Study Recovery Results

- As discussed last February in our year-end call, in support for our Phase 2 urticaria program with long-term dosing, we conducted a six-month chronic toxicology study
- Study was conducted in sexually mature non-human primates to allow us to also capture data on potential impact on reproductive organs. Barzolvolimab was dosed every two weeks at 10 or 75 mg/kg for 6 months, resulting in very high exposure
- As previously reported, the only clinically adverse finding reported at the completion of dosing was a profound impact on spermatogenesis, an expected and well understood effect of KIT inhibition
- As expected, based on previous findings with KIT blocking antibodies, we confirmed that during this recovery period spermatogenesis fully recovered as measured by both sperm count and motility in all male animals

Celldex therapeutics



Barzolvolimab Planned Development Timeline

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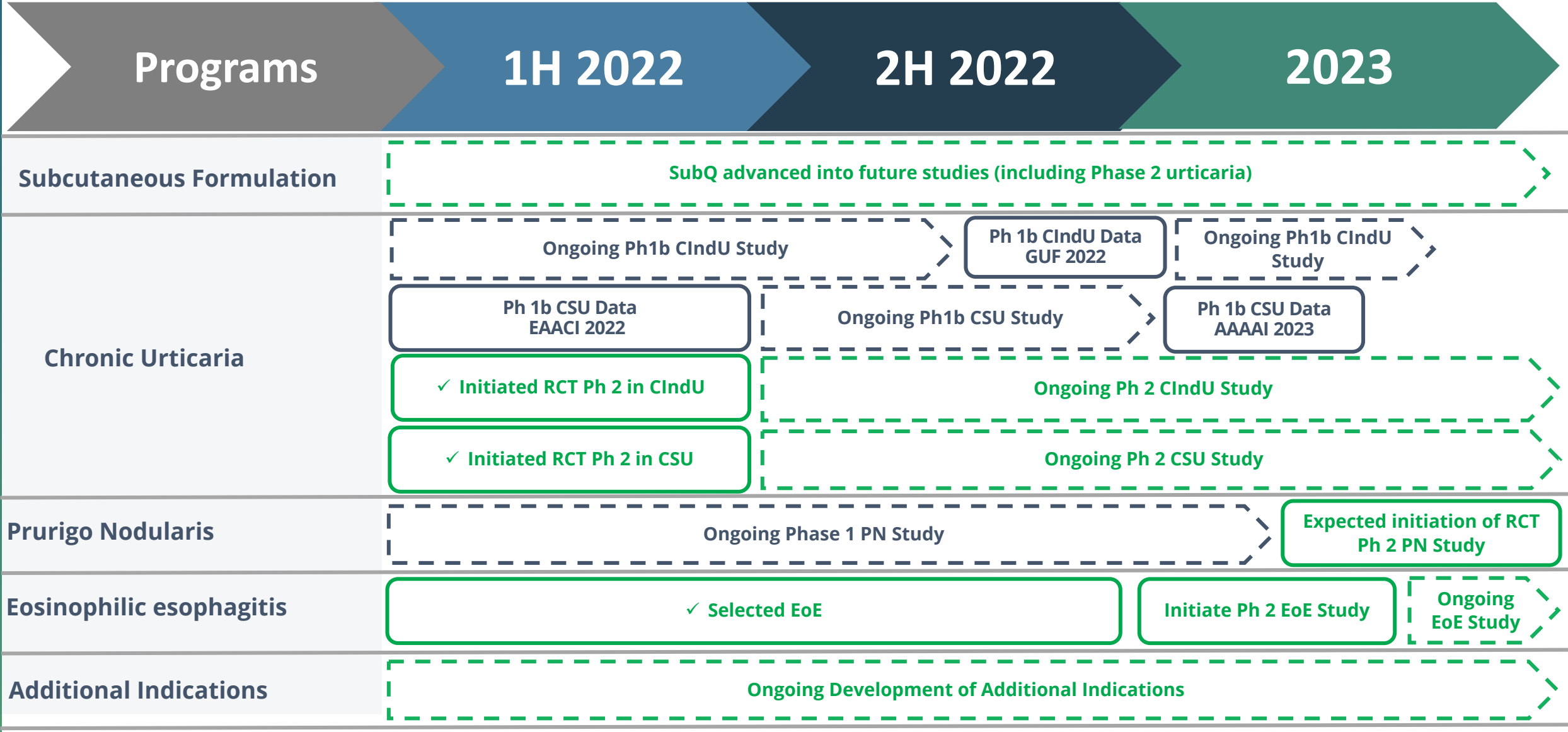

SubQ Formulation | IV Formulation

RCT – randomized controlled trial

Driving Value Through Expected 2022 & 2023 Milestones

Programs and Anticipated Milestones

Inflammation

Barzolvolimab (CDX-0159)

- ✓ 4Q 2022 – CIndU data (1.5 mg/kg ColdU)
- Q1 2023 – CSU data (including data through 12 weeks for 3 and 4.5 mg/kg dose cohorts)
- 1H 2023 – Initiate Phase 2 EoE study
- 2023 – CIndU data (3.0 mg/kg CholU)
- 2023 – PN Phase 1 data/Initiate Phase 2 PN study

Bispecific Platform - Next Generation Inflammation & Oncology

CDX-585 (ILT4XPD1)

- 2023 – Initiate Phase 1 study

CDX-622 (SCFXTSLP)

- Advance inflammatory platform

Financial Overview (as of 9/30/2022)
Well-capitalized through cash

$323.5M	$0.0	47.1M
Cash	Debt	Shares Outstanding

Cash runway through 2025

Celldex therapeutics

Questions