Q4/FY 2022 Financial Results and Business Update

March 22, 2023

Forward Looking Statements

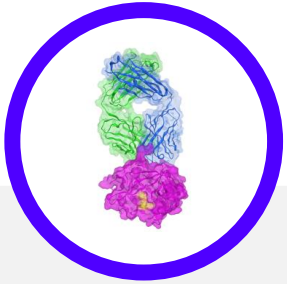
This presentation and various remarks we make during this presentation contain forward-looking statements within the meaning of applicable securities laws and regulations including, but not limited to, statements regarding: expectations regarding the potential significance of the preliminary and initial results from the Phase 1a STAR-0215 trial and the anticipated nature and timing of receipt of the data from the two additional cohorts in such trial; expectations regarding the timing and nature of the anticipated proof of concept results from the ALPHA-STAR Phase 1b/2 clinical trial of STAR-0215; the longer term development plans for STAR-0215, including the plan, assuming positive results, to move directly from the ALPHA-STAR trial into a pivotal trial; the potential attributes and differentiated profile of STAR-0215 as a treatment for HAE, including those suggested by the preliminary and initial results from the STAR-0215 Phase 1a trial and market research, and our goals and vision for STAR-0215; the potential commercial opportunity for STAR-0215 in HAE and the likelihood that it can effectively compete and gain market share in HAE, assuming its approved; the need for effective treatments for HAE; the potential for six-month dosing of STAR-0215; the Company's anticipated cash runway; and the Company's goal to meet the unmet needs of patients with rare and niche allergic and immunological diseases. The use of words such as, but not limited to, "anticipate," "believe," "continue," "could," "estimate," "expect," "goals," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "target," "will," or "would" and similar words expressions are intended to identify forward-looking statements. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based on the Company's current beliefs, expectations and assumptions regarding the future of its business, future plans and strategies, future financial performance, results of pre-clinical and clinical results of the Company's product candidates and other future conditions. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including risks and uncertainties: changes in applicable laws or regulations; the possibility that we may be adversely affected by other economic, business, and/or competitive factors, including the COVID-19 pandemic; risks inherent in pharmaceutical research and development, such as: adverse results in our drug discovery, preclinical and clinical development activities, the risk that the results of pre-clinical studies may not be replicated in clinical studies, that the preliminary results from the Phase 1a trial may not be indicative of the final results, that the results of early stage clinical studies, such as the preliminary results from the Phase 1a trial, may not be replicated in later stage clinical studies, including the ALPHA-STAR trial, the risk that we may not be able to enroll sufficient patients in our clinical trials on a timely basis, and the risk that any of our clinical trials may not commence, continue or be completed on time, or at all; decisions made by, and feedback received from, the U.S. Food and Drug Administration and other regulatory authorities on our regulatory and clinical trial submissions and other feedback from potential clinical trial sites, including investigational review boards at such sites, and other review bodies with respect to STAR-0215 and any other future development candidates; our ability to manufacture sufficient quantities of drug substance and drug product for STAR-0215 and any other future product candidates on a cost-effective and timely basis, and to develop dosages and formulation for STAR-0215 and any other future product candidates that are patient-friendly and competitive; our ability to develop biomarker and other assays, along with the testing protocols therefore; our ability to obtain, maintain and enforce intellectual property rights for STAR-0215 and any other future product candidates; our potential dependence on collaboration partners; competition with respect to STAR-0215 or any of our other future product candidates; the risk that survey results and market research may not be accurate predictors of the commercial landscape for HAE, the ability of STAR-0215 to compete in HAE and the anticipated position and attributes of STAR-0215 in HAE based on its clinical data to date, pre-clinical profile, pharmacokinetic modeling, market research and other data; our ability to manage our cash usage and the possibility of unexpected cash expenditures; our ability to obtain necessary financing to conduct our planned activities and to manage unplanned cash requirements; the risks and uncertainties related to our ability to recognize the benefits of any additional acquisitions, licenses or similar transactions; and general economic and market conditions; as well as the risks and uncertainties discussed in the "Risk Factors" section of our Annual Report on Form 10-K for the period ended December 31, 2021 and in other filings that we may make with the Securities and Exchange Commission ("SEC"), including our Current Report on Form 8-K filed on December 15, 2022. New risks and uncertainties may emerge from time to time, and it is not possible to predict all risks and uncertainties. The Company may not actually achieve the forecasts or expectations disclosed in our forward-looking statements, and investors and potential investors should not place undue reliance on the Company's forward-looking statements. Neither the Company, nor its affiliates, advisors or representatives, undertake any obligation to publicly update or revise any forward-looking statement, whether as result of new information, future events or otherwise, except as required by law. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date hereof.

“

Normal would look like not swelling. I would just ideally not have to worry about it, not even have to think about it. The less time I have to worry about taking medication, the better.

—***Jasmine**, living with HAE*

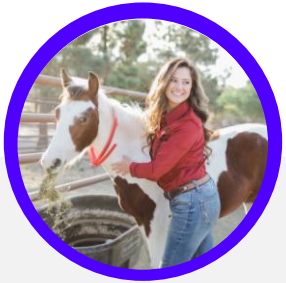
Our Vision for STAR-0215



First-choice preventative treatment for HAE

2x or 4x
per year

Q3 or Q6 month administration



Normalize the lives of people with HAE

Allow patients to focus their time and energy on what matters most to them

Plans for STAR-0215 Development

1 Transform treatment paradigm with Q3 month dosing

- ✓ Evaluated safety, PK, and PD in healthy subjects
- ✓ Confirmed strong demand with patients and physicians
- Evaluate safety and efficacy in patients
  - *In progress, initial results expected mid-2024*

2 Explore Q6 month dosing interval

- Evaluate safety, PK, and PD in healthy subjects
  - *In progress, initial results expected Q4 2023*
- Understand patient and physician interest
  - *In progress in 2023*
- Evaluate safety and efficacy in patients
  - *In progress, initial results expected mid-2024*

Recent Accomplishments Have Set Astria Up For Success

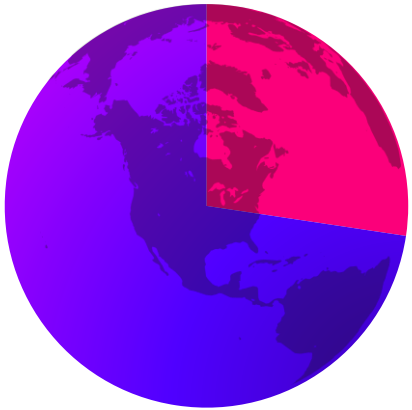
- Positive STAR-0215 Phase 1a Results Demonstrated
- ALPHA-STAR Phase 1b/2 Trial in HAE Patients Underway
- Strong Financial Foundation Established

Global HAE Treatment Market is Substantial and Growing

The HAE market is expected to grow substantially by 2028,[1,2] driven by:

- Patients being diagnosed earlier[3]
- More patients taking preventative treatments[4]
- Geographic expansion for currently available therapies[5]

2022 HAE Market[1]

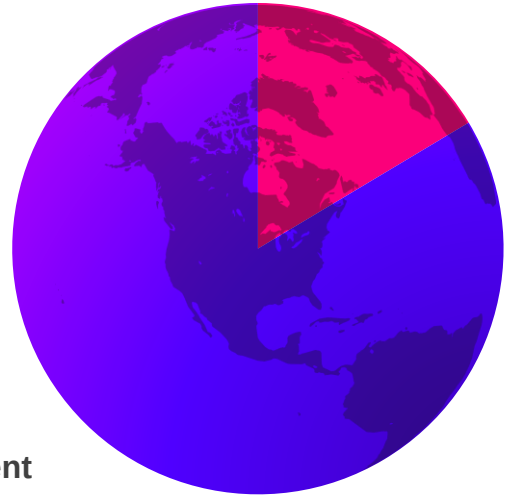


$2.6B

HAE Treatment

- Preventative
- On-Demand

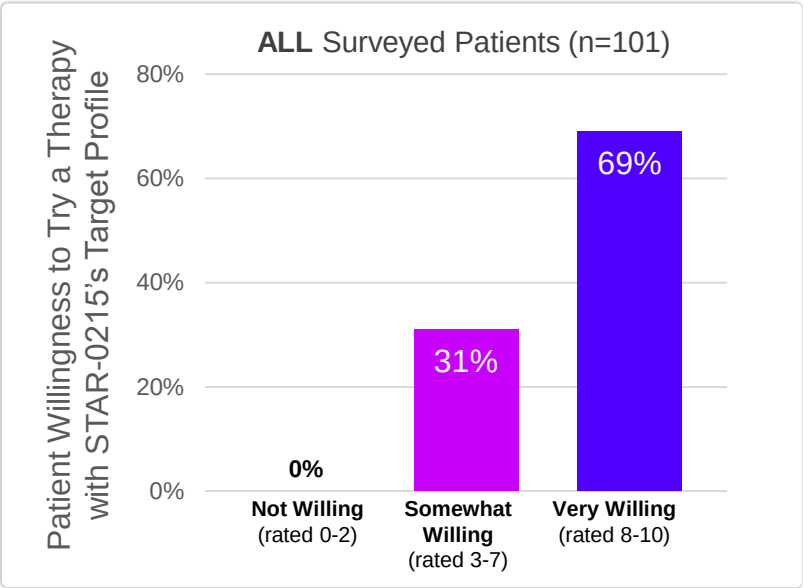
2028 Estimated HAE Market[1,2]



$4.2B

1. Company-reported sales (Takeda, CSL Behring, Pharming, BioCryst)
2. Analyst consensus forecasts compiled by Clarivate's Cortellis, Astria company research and analysis.
3. Zanichelli A. Clin Transl Allergy. 2018: doi: 10.1186/s13601-018-0229-4
4. Astria company research and analysis
5. Company-reported expectations (Takeda, CSL Behring, BioCryst)

All Surveyed HAE Patients Were Willing to Try an Effective Q3 Month Product



100%

of surveyed patients on **daily oral** prophylaxis

Surveyed Patients on Orladeyo (n=8)

&

100%

of surveyed patients on **monthly injectable** prophylaxis

Surveyed Patients on Takhzyro q4wk (n=22)

were willing to try a therapy with STAR-0215's Target Profile

Results suggest that STAR-0215 would gain strong patient share in a future HAE market

Astria proprietary blinded quantitative market research study (2022) with 101 HAE patients recruited by HAEA patient organization. Patients were screened for those currently taking preventative HAE therapy or having at least 1 attack every 3 months. Survey respondents were shown a blinded product profile that included: a monoclonal antibody inhibitor of plasma kallikrein that helps prevent HAE attacks by suppressing the pathway that generates bradykinin and causes excessive swelling, efficacy on par with current subcutaneous therapies, and dosing once every 3 months or longer. Willingness rated on a scale where "0" indicates "Not at all willing," and "10" indicates "Extremely willing." Surveyed patients taking Takhzyro q4wk reported having a median of 0.1 attacks per month over the past 12 months, those taking Orladeyo reported having 2.8 attacks per month.

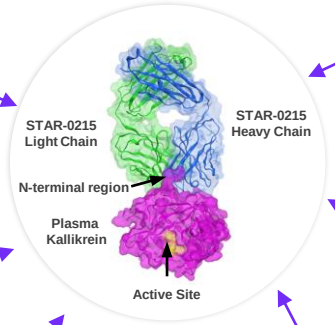
STAR-0215
Potential for Best-in-Class in HAE

Preclinical Profile of STAR-0215

Novel CDRs with patent pending

Fc engineered with YTE modifications for half-life extension

High concentration formulation supports SC dosing



Potent allosteric inhibition of plasma kallikrein activity

High selectivity for plasma kallikrein

Formulated to reduce pain

Encouraging initial clinical results
Demonstrated best-in-class PK profile with long plasma half-life and sustained inhibition of plasma kallikrein

Differentiated profile
Potential benefits include long duration without breakthrough attacks and infrequent SC dosing- once every 3 months or longer

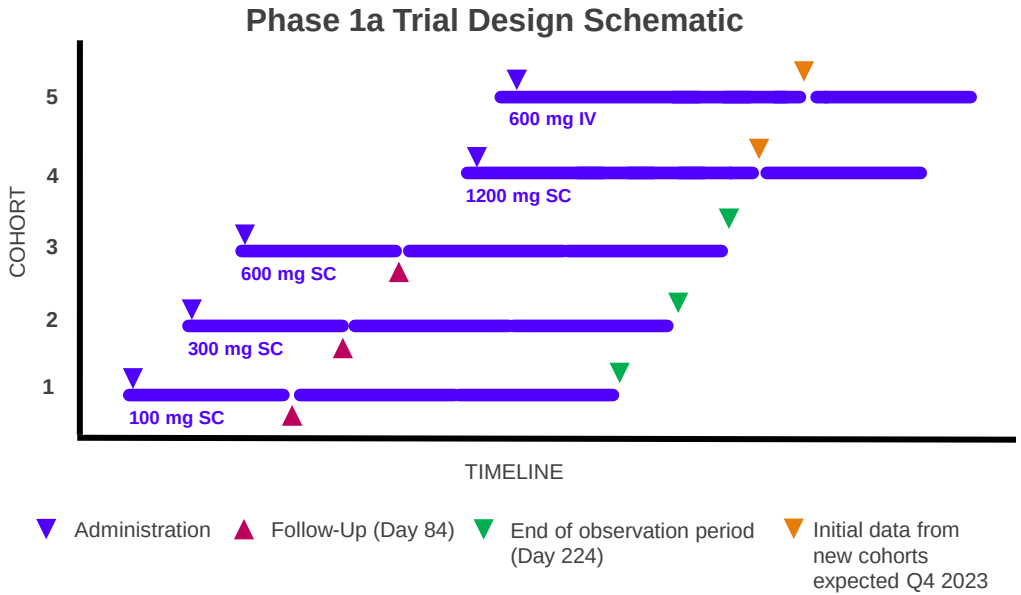
Trusted modality
Monoclonal antibody inhibitors of plasma kallikrein are clinically and commercially validated in HAE[2,3]

Astria wholly owns an international patent application directed to STAR-0215. If nationalized in the U.S. and granted, the patent would expire in 2042, excluding any potential patent term extension[1]

1. If this application is nationalized in PCT member states ex-U.S., the term of any resulting patents would also be to 2042, exclusive of any available patent term extensions.
2. Chyung et al, 2014
3. TAKEDA Annual Integrated Report, 2022

STAR-0215 Phase 1a Trial

- **Randomized, double-blind, placebo-controlled**
  - Healthy adult subjects
  - 5 single ascending doses
  - 6 active to 2 placebo randomization
  - 19 subjects have received STAR-0215 and 6 received placebo.
- **Initial data include 84 days of safety, ADA, PK, and PD for first 3 cohorts**



SC = subcutaneous; PK = pharmacokinetic; PD = pharmacodynamic

Initial Results Suggest that STAR-0215 is Well-Tolerated and Has a Favorable Safety Profile

Cohorts 1-3 through 3-Month Timepoint

STAR-0215[1]:

- Related TEAEs were seen in 8 subjects (STAR-0215 n=7; placebo n=1),
- 6 subjects (STAR-0215) had ISRs (all mild), most commonly site redness; no reports of pain
- All related TEAEs were mild (Grade 1) and resolved. No Grade 2, 3, or 4 TEAEs. There were no SAEs and no discontinuations due to TEAEs.

Immunogenicity: No treatment-emergent ADAs were detected

Lanadelumab[2]:

The most common adverse reactions associated with lanadelumab are:

- Injection site reactions, most commonly pain (52%)
- Upper respiratory tract infection (29%)
- Headache (21%)

TEAE= Treatment-emergent adverse event; ISR = injection site reaction; SAE = serious adverse events: ADA = anti-drug antibody

1. Other related TEAEs were headache (1 subject receiving placebo) and unexplained weight gain (1 subject receiving STAR-0215), both in Cohort 1 (100 mg). .
15 Grade 1 (mild) ISRs occurred in 6 subjects, including erythema (site redness), pruritus, swelling and inflammation.
There were no clinically relevant changes in vital signs, ECG parameters, or laboratory values. No clinically relevant changes in liver enzymes or coagulation parameters. No deaths, or adverse events leading to study discontinuation.

2. TAKHZYRO US Prescribing Information, Feb 2022.
The comparison presented between STAR-0215 and lanadelumab represents a cross-trial comparison and does not involve data from a head-to-head clinical trial
Data cutoff is Day 84.

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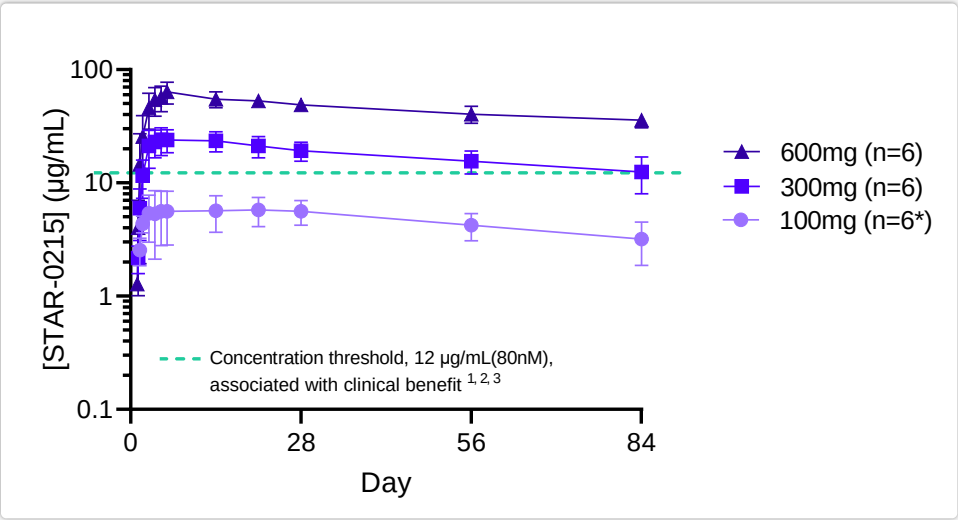
Initial Results Show STAR-0215 Has a Potential Best-In-Class PK Profile



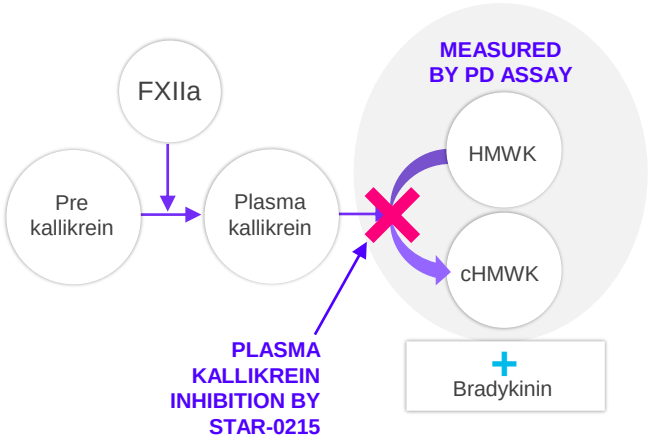
STAR-0215:

- Results show rapid and sustained STAR-0215 concentrations after single subcutaneous doses
- Concentrations are proportional to dose
- Estimated half-life is **up to 117 days**, >5 times longer than lanadelumab
- Long elimination phase consistent with YTE-modification

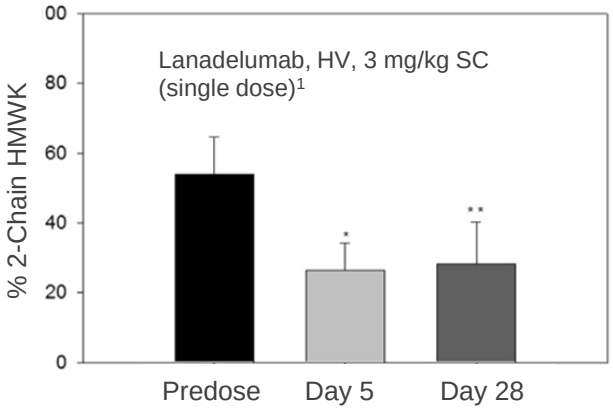
1. Kaufman 1991 June 15. Blood 77(12): 2660-2667
2. Wang et al. Clin Transl Sci. 2020 Nov, 13(6): 1208-1216. doi 10-1111/cts. 12806 Epub 2020 May 26.
3. Ecallantide EMA Assessment Report. 2011 June 23. EMA/CHMP/476618/2011

Mean (SD) concentrations over time. Estimated half-life of up to 117 days is for the 600 mg dose. Data cutoff is Day 84. Results will be finalized after the end of the observation period
*One subject excluded from the analysis due to partial dose administered.
The comparison presented between STAR-0215 and lanadelumab represents a cross-trial comparison and does not involve data from a head-to-head clinical trial

Assessing Plasma Kallikrein Target Engagement

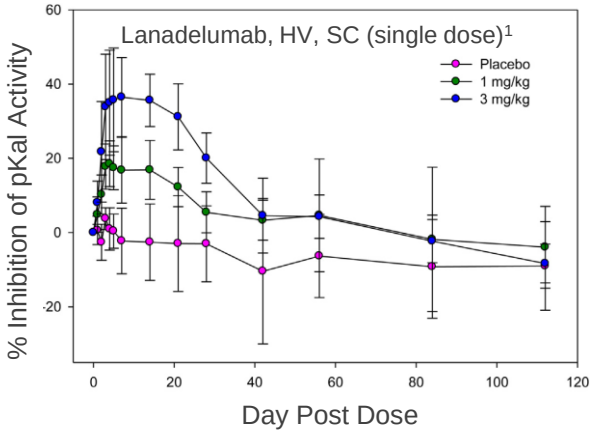


Western Blot Assay
Cleavage of HMWK



*p = 0.001; **p = 0.003

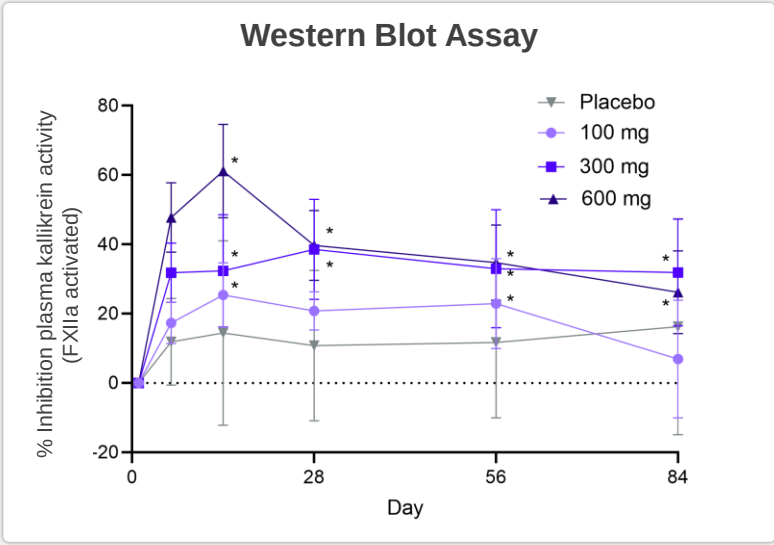
Reporter-Substrate Assay
Cleavage of Peptide Substrate



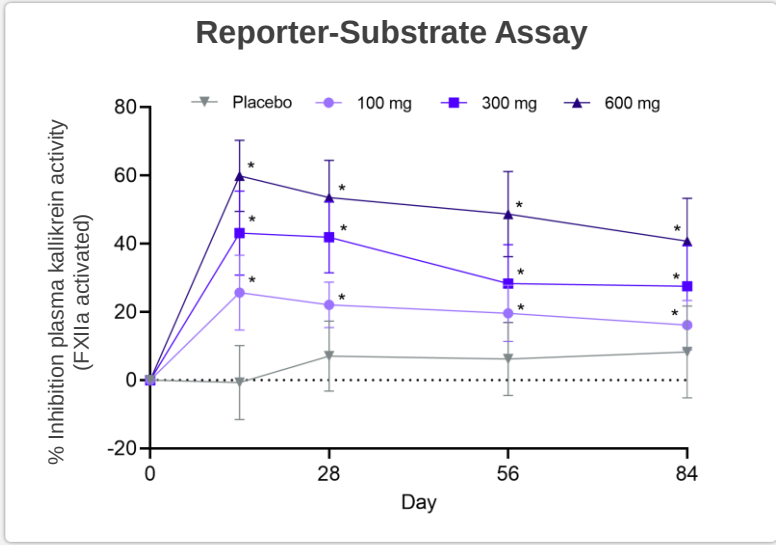
HMWK = high molecular weight kininogen
cHMWK = cleaved high molecular weight kininogen
FXIIa = activated Factor XII

1. Chyung et al, 2014
HV = healthy volunteer; pkal = plasma kallikrein

Initial Results Show STAR-0215 Achieves Sustained Inhibition of Plasma Kallikrein



Significant inhibition of plasma kallikrein activity at all post-dose timepoints for 300 mg and 600 mg



Significant inhibition of plasma kallikrein activity at all post-dose timepoints for 100 mg, 300 mg, and 600 mg

Data are Mean ± SD. One subject excluded from the analysis due to partial dose administered.

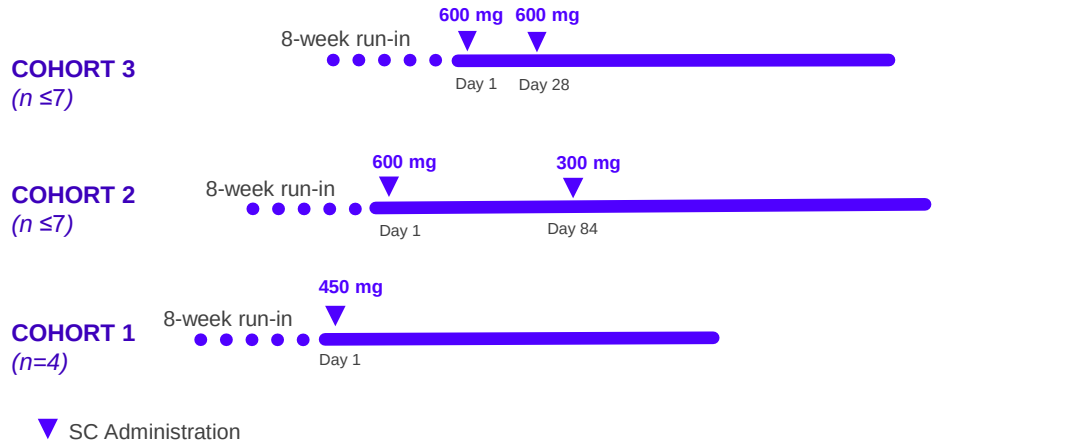
- * = p < 0.05 from pre-dose at indicated doses and timepoints; non-significant (ns) difference at all timepoints for placebo
- Statistical Test: 2-Way ANOVA with Dunnett's test for multiple comparisons

The comparison presented between STAR-0215 and the lanadelumab data on the prior slide represents a cross-trial comparison and does not involve data from a head-to-head clinical trial.

ALPHA-STAR Trial Currently Enrolling HAE Patients

Planned Amendment to Inform 6-Month Dose Administration

ALPHA-STAR Phase 1b/2 Proof-of-Concept Trial Design Schematic



Planned Long-Term Open-Label Trial

- **Three dose-ranging cohorts to inform pivotal trial design**
- **Efficacy assessed at 3 and 6 months after last STAR-0215 dose administered**
- **Initial proof-of-concept results expected in mid-2024**
  - Results expected from all 3 cohorts
  - Assessing safety and tolerability, PK, PD, attack rate, and QOL
  - Goal: significant reduction in attacks following STAR-0215 treatment

Cohorts planned to be opened sequentially
Additional participants or additional cohorts may be added.
For more detailed information, visit www.clinicaltrials.gov, NCT05695248

Astria (Nasdaq ATXS) Well-Positioned for the Future

STRONG FINANCIAL FOUNDATION

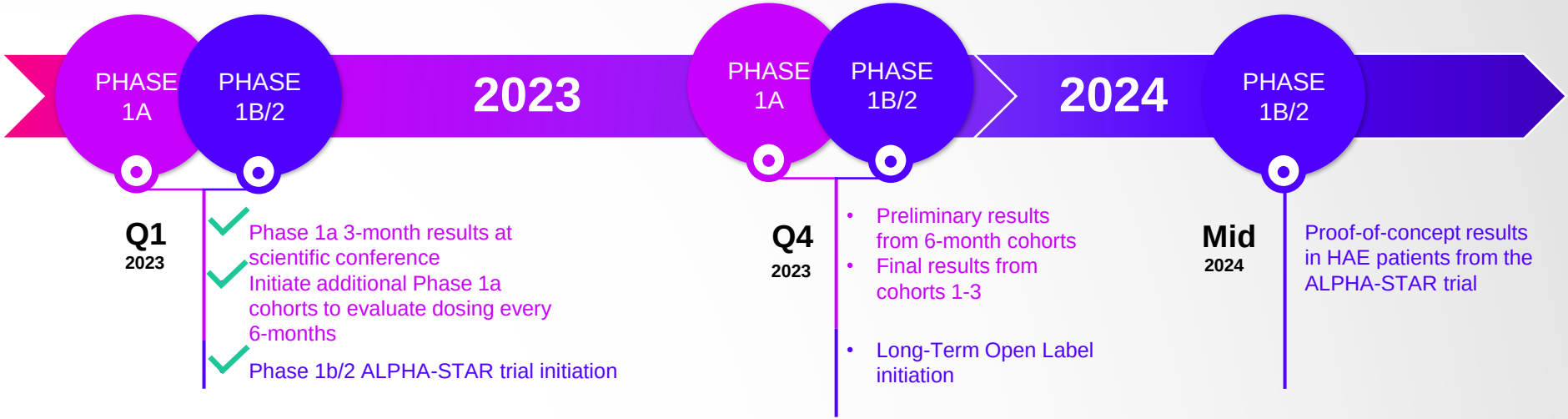
- As of 12/31/2022, the Company had cash, cash equivalents and short-term investments of $226M. Expected cash runway through H1 2025 based on current operating plan.

CAPITALIZATION STRUCTURE

Company Capitalization Structure as of December 31, 2022	As Converted Common Shares
Common stock outstanding	27,970,516
Common stock underlying outstanding Series X Preferred Stock	5,185,591
Adjusted Common stock outstanding[1]	33,155,107

1. Assumes 100% conversion of all outstanding Series X Preferred Stock.

Completed and Expected Upcoming Milestones



What Does “Normalize” Mean to You?

“Not having to think about [my HAE] for even a month would be pretty great. It would change my way of thinking and my lifestyle.

—***Melissa***

“Normalcy with preventative treatment would be no attacks and not having it in the back of my mind.

—***Kim***

Normal would feel like just not having that thought in the back of your head all the time.

—***Hannah***”

I’d feel like that little girl, before high school again, where I don’t really have a care in the world.

—***Jasmine***”

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Recent Accomplishments Have Set Astria Up For Success

- Positive STAR-0215 Phase 1a Results Demonstrated
- ALPHA-STAR Phase 1b/2 Trial in People with HAE Underway
- Strong Financial Foundation Established

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