Corporate Presentation

March 2023

Forward Looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements of Astria Therapeutics, Inc. (“Astria,” the “Company,” “we”, “our” or “us”) within the meaning of applicable securities laws and regulations, including statements with respect to: the Company’s projected cash runway and cash, cash equivalents and short-term investments; expectations regarding the nature and potential significance of the preliminary results from the Phase 1a STAR-0215 trial, and the anticipated nature and timing of receipt of the data from the additional cohorts in such trial; expectations regarding the design, timing and nature of the Phase 1b/2 clinical trial of STAR-0215, and the nature and timing of the anticipated proof of concept results from such trial; the longer term development plans for STAR-0215, including that we may be able to commence a pivotal trial if we achieve positive results in the Phase 1b/2 trial; the potential attributes and differentiated profile of STAR-0215 as a treatment for HAE, including its potential best-in-class pharmacokinetic profile, potential dosing frequency, clinical benefit and those suggested by the preliminary results from the STAR-0215 Phase 1a trial, preclinical and pharmacokinetic modeling data; the potential commercial opportunity for STAR-0215 in HAE, including its potential to be a best-in-class and most patient friendly treatment option for HAE; the need for effective treatments for HAE; the size and anticipated growth of the HAE market; the expected patent protection of patents directed at STAR-0215; potential every six-month dosing for STAR-0215; and the Company’s goal to meet the unmet needs of patients with rare and niche allergic and immunological diseases, and expand its pipeline. We use words such as "aims," “anticipate,” “believe,” “estimate,” “expect,” "goals," “hope,” “intend,” “may,” "opportunity," “plan,” “predict,” “project,” “target,” “potential,” “would,” "vision," “can,” “could,” “should,” “continue,” and other words and terms of similar meaning to help identify forward-looking statements, although not all forward-looking statements contain these identifying words. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including risks and uncertainties related to: 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 initial results from the Phase 1a trial may be change once the final results are received and analyzed, that the results of early stage clinical studies may not be replicated in later stage clinical studies, 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. FDA (“FDA”) 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 and the anticipated position and attributes of STAR-0215 in HAE based on its clinical data to date, pre-clinical profile, pharmacokinetic modeling 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 risk that our final audited cash, cash equivalents and short-term investments as of 12/30/2022 may differ materially from the preliminary and unaudited amount reported in this presentation; 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 those set forth in our Current Report on Form 8-K filed on December 15, 2022. These forward-looking statements should not be relied upon as representing our view as of any date subsequent to the date of this presentation, and we expressly disclaim any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

This presentation contains estimates and other statistical data made by independent parties and by us relating to market size and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data and estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

Investment Highlights

Astria (Nasdaq: ATXS) is developing differentiated therapeutics for patients with rare and niche allergic and immunological diseases

Our lead program, **STAR-0215**, is a monoclonal antibody inhibitor of plasma kallikrein for the preventative treatment of Hereditary Angioedema (HAE)

- STAR-0215 has shown early proof of concept for its target profile: long-acting preventative therapy, best-in-class PK profile, and dosing once every 3 months or less frequently
- HAE market is large and growing, expected to reach $4.2B by 2028[1,2]

Initiated Phase1b/2 ALPHA-STAR trial in HAE patients in Q1 2023 with initial proof-of-concept results expected in mid-2024

Pursuing opportunities to expand our pipeline in allergic and immunological diseases

Cash, cash equivalents and short-term investments of $226M[3]
Expected cash runway through H1 2025 based on current operating plan

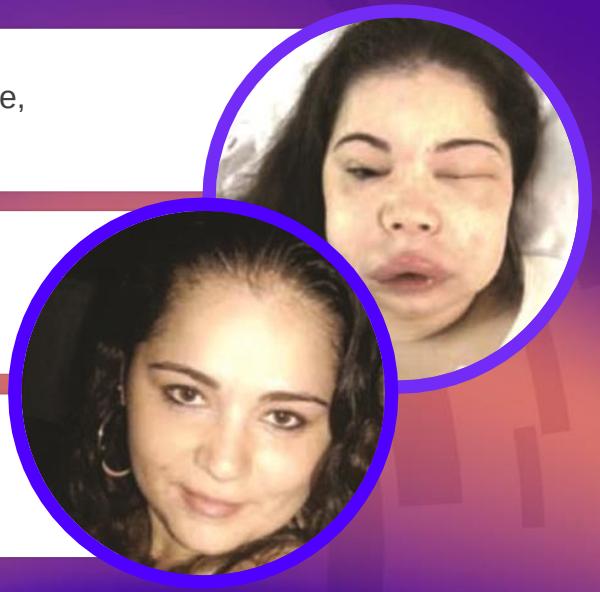
1. Analyst consensus forecasts compiled by Clarivate's Cortellis, Astria company research and analysis
2. Company-reported sales (Takeda, CSL Behring, Pharming, BioCryst)
3. As of 12/31/2022, unaudited and preliminary

Hereditary Angioedema (HAE): A Rare, Disfiguring, and Potentially Life-Threatening Disease

Rare genetic disorder charactered by severe, unpredictable, sometimes **life-threatening** swelling[1]

Affects **<8,000 in the U.S. and <15,000 in Europe,**[2, 3, 4] average age of onset is 11 years old[5]

Standard of care has evolved to both **on-demand** and **preventative treatments** with room for improvement



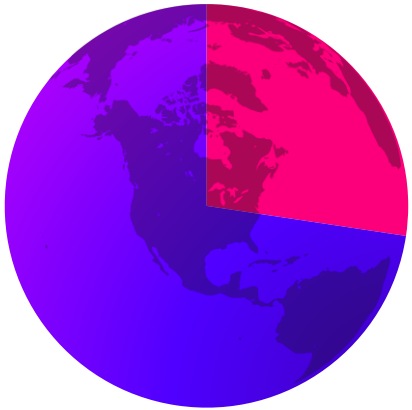
1. Zuraw BL. N Engl J Med. 2008;359:1027-36.
2. Busse, P.J. et al. N Engl J Med. 2021; 132-150.
3. Lumry, W.R. Front Med. 2018; 5, 22.
4. Aygören-Pürsün, E. et.al. Orphanet j Rare Dis. 2018; 13:73.
5. Bork K, et al. Am J Med. 2006;119;267-274.
6. Images obtained by haeimages.com

Global HAE Treatment Market is Substantial and Growing

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

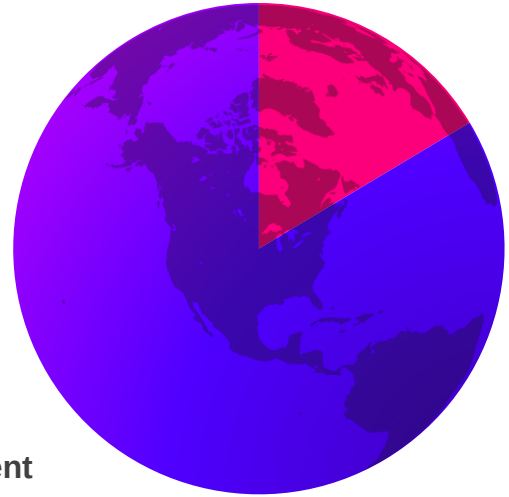
- Patients being diagnosed earlier[3]
- More patients taking preventative treatments[4]
- Geographic expansion for currently available therapies[5]

2022 HAE Market[1]



$2.6B

2028 Estimated HAE Market[1,2]



$4.2B

HAE Treatment

- Preventative
- On-Demand

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)

Approved and Late-Stage Preventative HAE Treatments

Approved Therapies

Product	Mechanism of Action	Administration	Mean Attack Reduction*	% of Attack- Free Patients
CINRYZE	Plasma derived C1-INH	2x/week	52%	18% (12 weeks)[1]
HAEGARDA	Plasma derived C1-INH	2x/week	88%	40% (16 weeks)[2]
TAKHZYRO *(lanadelumab)*	Plasma kallikrein inhibitor	1-2x/month	73-87%	31-44% (26 weeks)[3]
ORLADEYO *(berotralstat)*	Plasma kallikrein inhibitor	1x/day	30-44%	2-8% (24 weeks)[4]

Late-Stage Development Programs

Program	Mechanism of Action	Administration	Mean Attack Reduction*	% of Attack- Free Patients
garadacimab	Factor XIIa inhibitor	1x/month	87%	62% (26 weeks)[5]
donidalorsen	Prekallikrein inhibitor	1x/1-2 months	TBD	TBD[6]

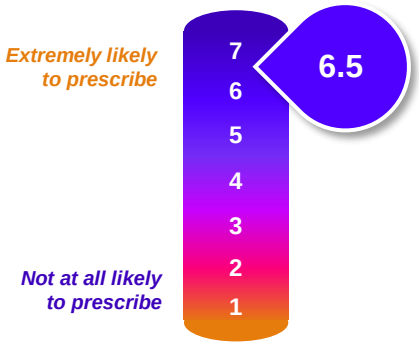
There remains a need for an effective, infrequent treatment that can help normalize the lives of people with HAE

*Efficacy quoted as reduction in mean attack rate vs placebo; data from respective products' Prescribing Information[1,2,3,7].

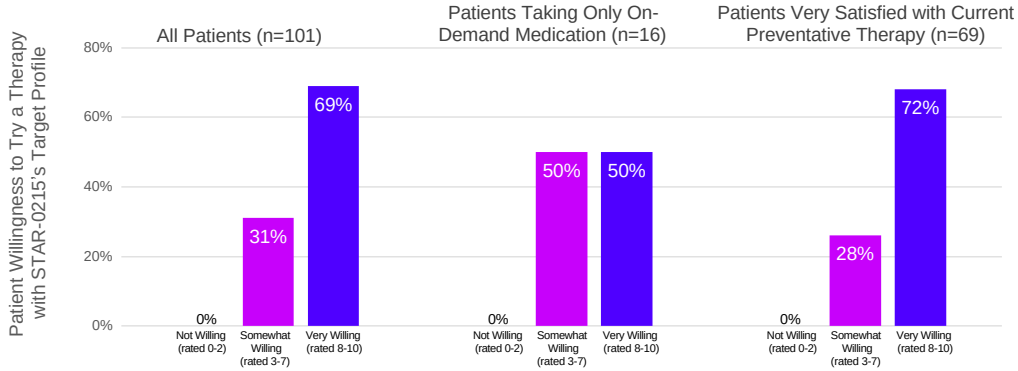
1. CINRYZE Prescribing Information, 2021.
2. HAEGARDA Prescribing Information, 2020.
3. TAKHZYRO Prescribing Information, 2018.
4. Center for Drug Evaluation and Research. NDA/BLA Multidisciplinary Review and Evaluation NDA 214094. Washington DC: CDER (US); 2020.
5. Craig et al. 2023. The Lancet https://doi.org/10.1016/S0140-6736(23)00350-1
6. IONIS 2021 Nov 18, Press Release. https://ir.ionispharma.com/news-releases/news-release-details/ionis-initiates-phase-3-clinical-program-donidalorsen-patients
7. ORLADEYO Prescribing Information 2020.

STAR-0215's Target Efficacy and Dosing is Compelling to Surveyed HAE Treatment Providers and Patients

Surveyed Prescribers Were Highly Motivated to Prescribe a Product with STAR-0215's Target Profile[1]



All Surveyed Patients Were Willing to Try a Product with STAR-0215's Target Profile[2]



Willingness rated on a scale where "0" indicates "Not at all willing," and "10" indicates "Extremely willing." Satisfaction with current treatment rated on a scale where "0" indicates "Not at all satisfied," and "10" indicates "Extremely satisfied." Ratings of 8-10 grouped as "Very Satisfied."

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, dosing once every 3 months or longer

1. Astria proprietary blinded qualitative market research study (2021) with 20 HAE treatment providers (screened for those treating at least 5 Type 1 & 2 HAE patients per year). 2. 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.

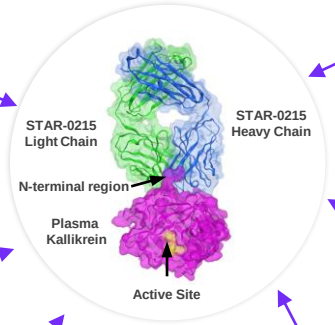
STAR-0215
Potential for Best-in-Class Profile in HAE

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 high potency for plasma kallikrein and long plasma half-life

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

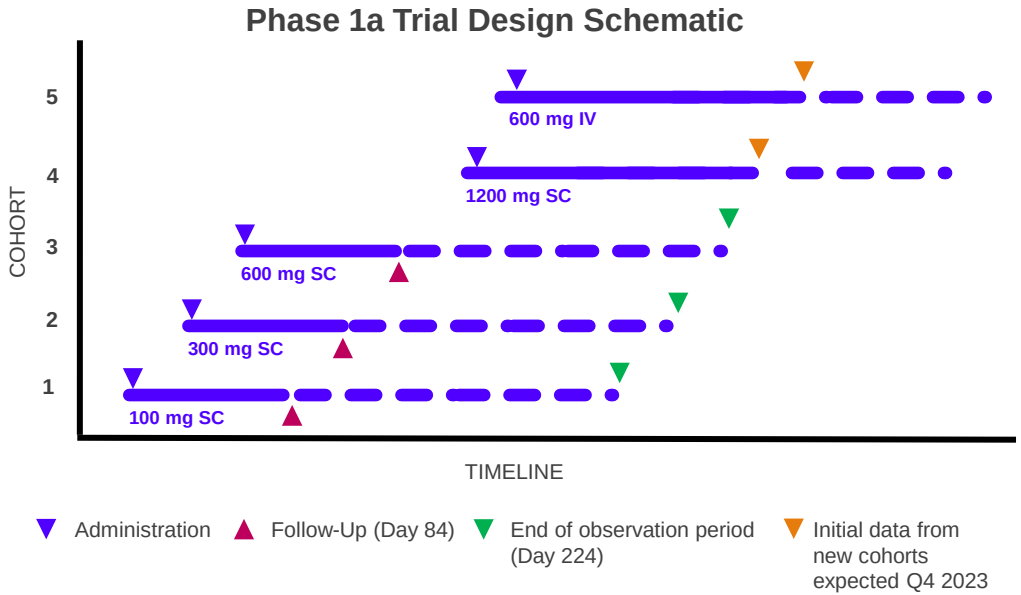
Trusted modality
To provide patients with improved quality of life

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 term extensions.

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]:

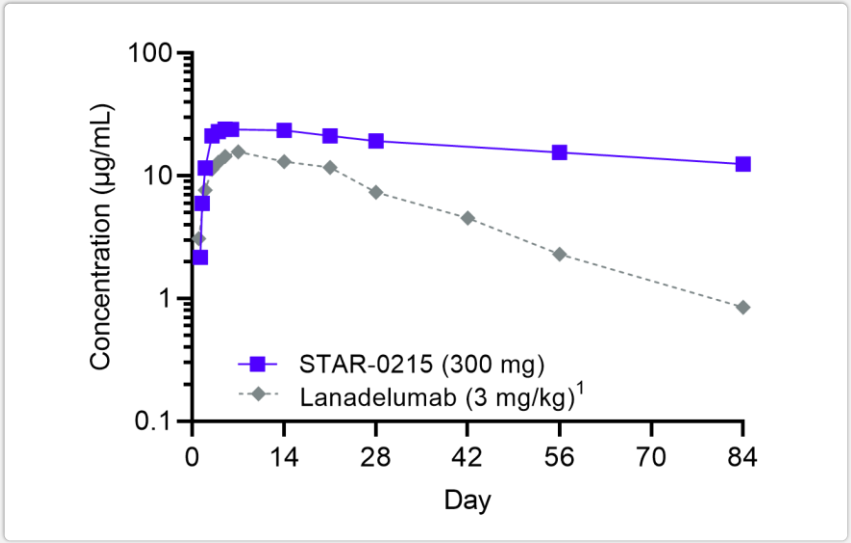
The most common adverse reactions associated with lanadelumab are:

- 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

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

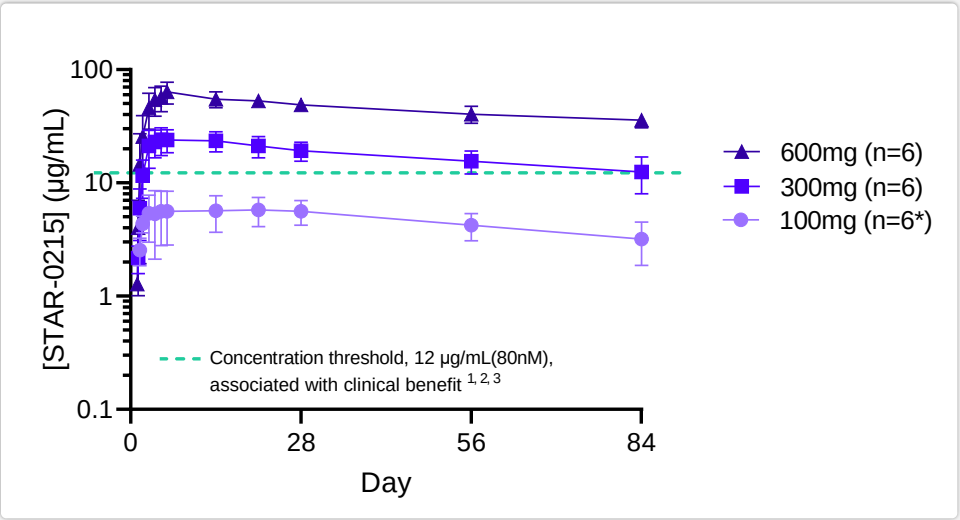


STAR-0215:

- Estimated half-life is **up to 117 days**, >5 times longer than lanadelumab
- Rapid achievement of maximum concentration
- Sustained concentrations at levels consistent with clinical benefit

Results will be finalized after the end of the observation period
1. Chyung et al 2014. Weight (SD) in this dose cohort = 83.08 (9.459) kg. Mean dose is 249.2 mg SC.
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.
Estimated half-life of up to 117 days is for the 600 mg dose.

Results Show Rapid and Sustained STAR-0215 Concentrations After Single Subcutaneous Doses



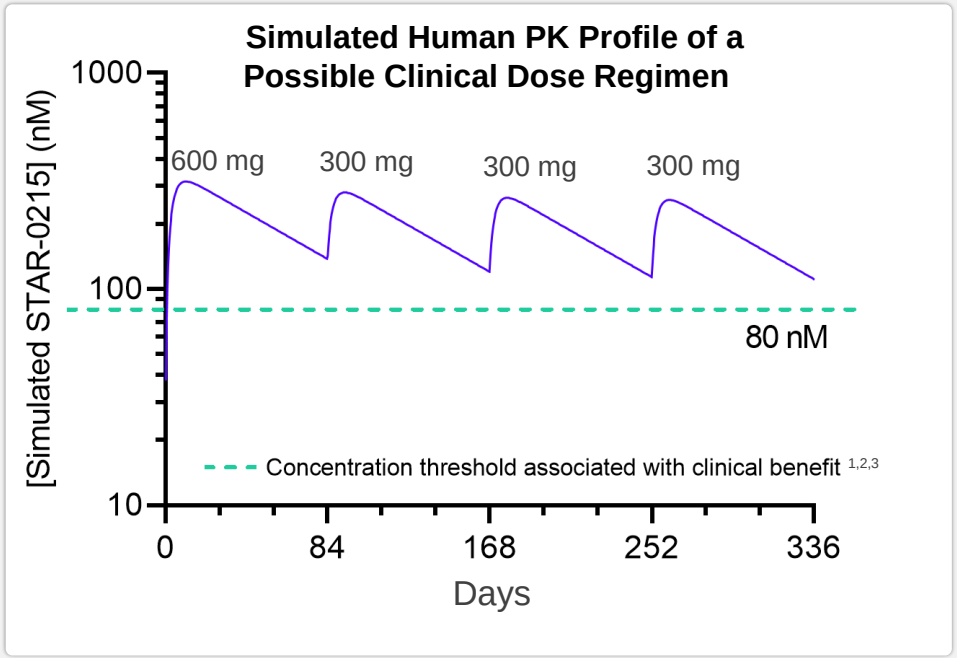
STAR-0215:

- Concentrations are proportional to dose
- Long elimination phase consistent with YTE-modification
- Estimated half-life of up to 117 days

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
Results will be finalized after the end of the observation period
*One subject excluded from the analysis due to partial dose administered
Estimated half-life of up to 117 days is for the 600 mg dose.

Modeling Supports Potential for Clinical Benefit with Infrequent Dosing



1. Kaufman 1991 June 15. Blood 77(12): 2660-2667
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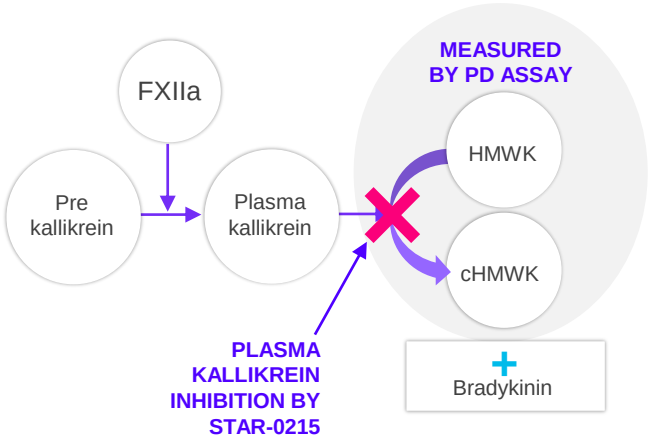
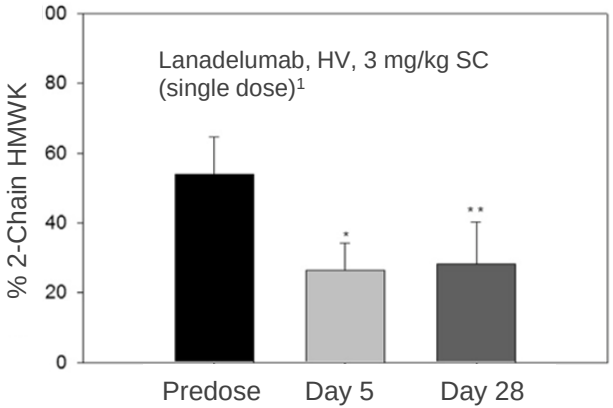
3. Ecallantide EMA Assessment Report. 2011 June 23. EMA/CHMP/476618/2011

Assessing Plasma Kallikrein Target Engagement

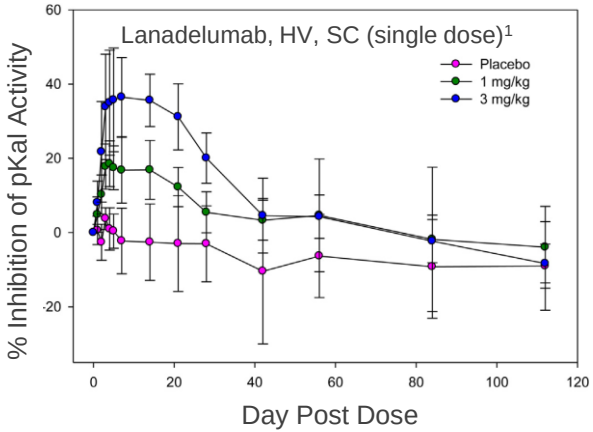


Western Blot Assay
Cleavage of HMWK



*p = 0.001; **p = 0.003

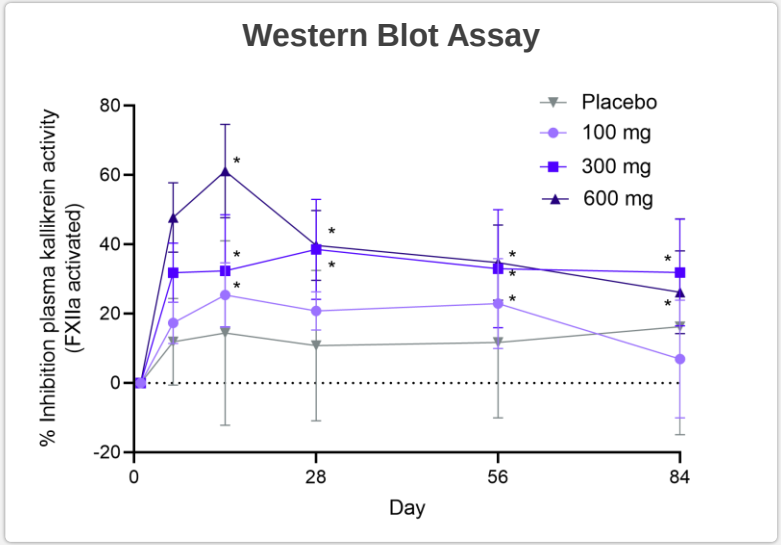
Reporter-Substrate Assay
Cleavage of Peptide Substrate



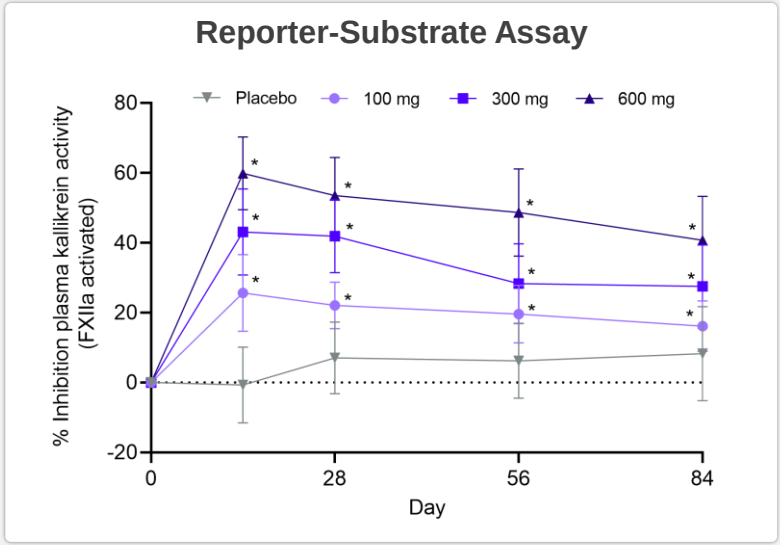
HMWK = high molecular weight kininogen
cHMWK = cleaved high molecular weight kininogen
FXIIa = activated Factor XII

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

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
- * = 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

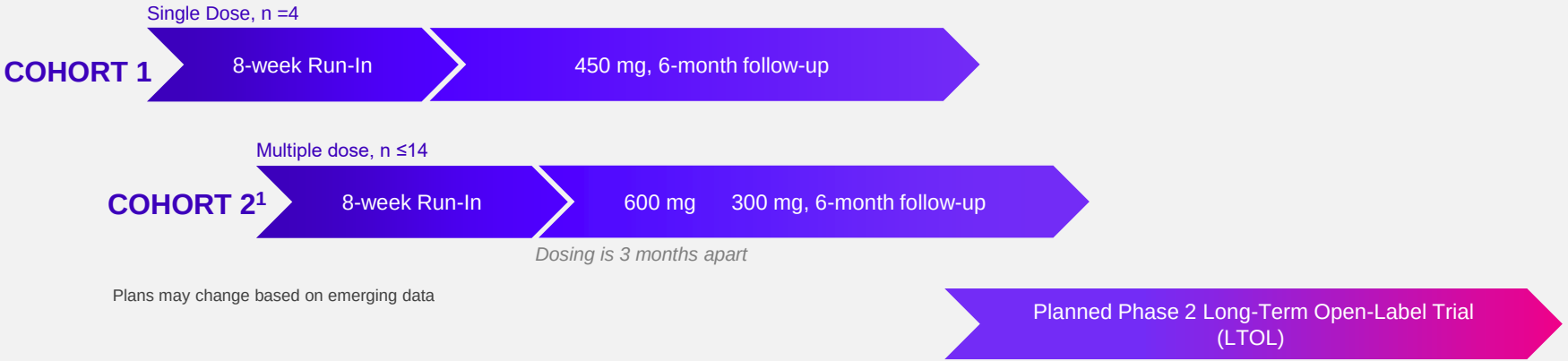
The comparison presented between STAR-0215 and the lanadelumab data on the prior slide represents a cross-trial comparison and does not involve data from a head-to-head clinical trial.
One subject excluded from the analysis due to partial dose administered.

ALPHA-STAR Trial Currently Enrolling

Open-Label Single and Multiple Dose Phase 1b/2 POC Clinical Trial in HAE

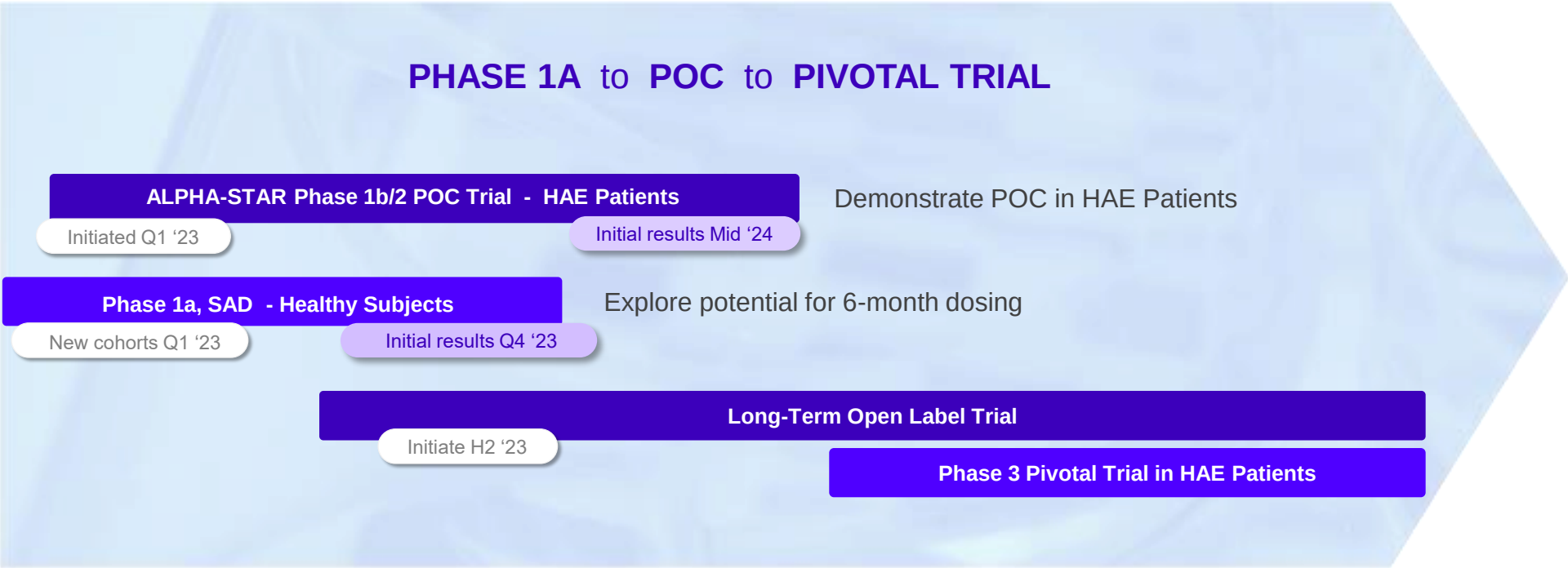
PROOF OF CONCEPT ENDPOINTS:

PRIMARY:	Safety and tolerability
SECONDARY:	Change from baseline in HAE attacks, PK, and PD
EXPLORATORY:	Angioedema Quality of Life Patient Reported Outcome Assessment



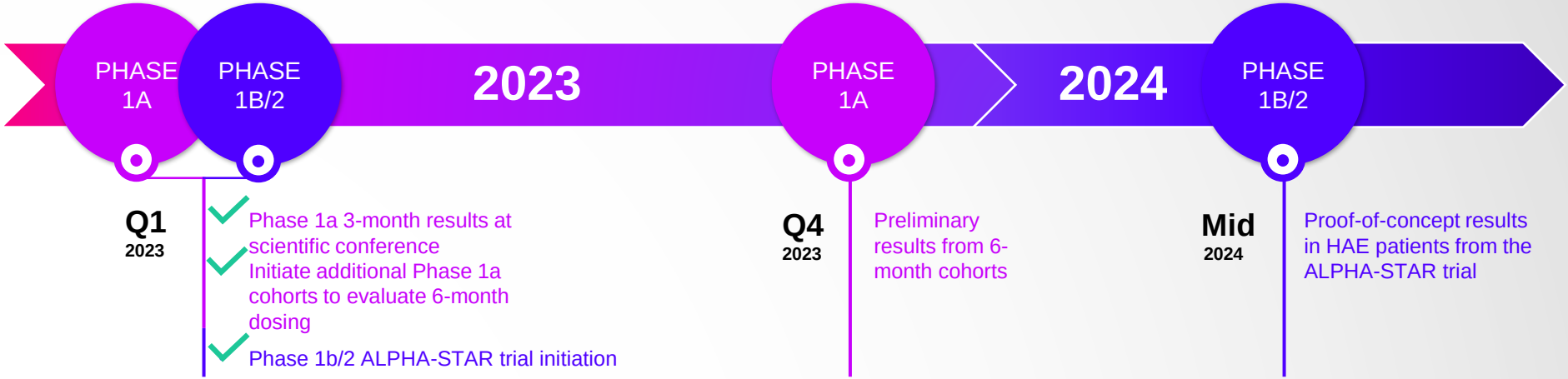
1. This cohort is expected to commence after an initial safety assessment

Overview of the Expected Clinical Development Plan



Astria (Nasdaq ATXS) Well-Positioned for the Future

Expected Upcoming Milestones



- Cash, cash equivalents and short-term investments of $226M[1]
- Expected cash runway through H1 2025 based on current operating plan
- Common stock outstanding on an as-converted basis[2]: 32.7M
  - 27.5M common stock outstanding and 5.2M series X preferred

1. As of 12/31/2022, unaudited and preliminary
2. As of 12/30/2022


astria
THERAPEUTICS