

A large, circular graphic on the left side of the slide. It features a silhouette of a person standing on a rock, pointing upwards towards a vibrant, colorful nebula or galaxy in the night sky. The colors range from deep purple and blue at the top to bright orange and yellow at the bottom. The graphic is partially overlaid by a large, semi-transparent blue circle.

# Corporate Presentation

January 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 as of 12/30/2022; expectations regarding the nature, timing and potential significance of the preliminary results from the Phase 1a STAR-0215 trial, the plans to add additional cohorts to the trial and the anticipated nature and timing of receipt of the data from such additional cohorts; expectations regarding the timing of initiation, design and timing and nature of the anticipated proof of concept results from the planned Phase 1b/2 clinical trial of STAR-0215; the longer term development plans for STAR-0215; 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 preliminary 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”). 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 \$4.5B by 2027<sup>1,2</sup>



Initiating Phase 1b/2 ALPHA-STAR trial in HAE patients, expected in Q1 2023 with initial proof of concept results expected by mid-2024



Pursuing opportunities to expand our pipeline in allergic and immunological diseases



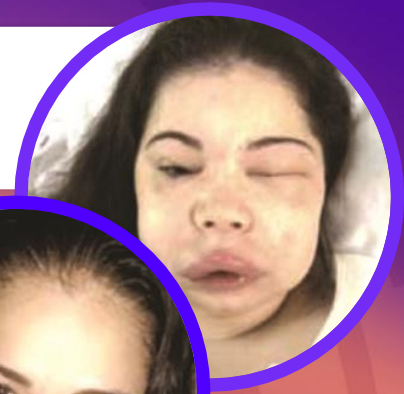
Cash, cash equivalents and short-term investments of \$226M<sup>3</sup>  
Expected cash runway through H1 2025 based on current operating plan

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

Rare genetic disorder characterized by severe, unpredictable, sometimes **life-threatening** swelling<sup>1</sup>

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

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.

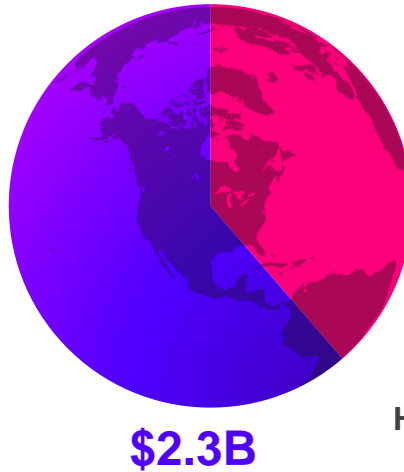
5. Bork K, et al. Am J Med. 2006;119:267-274.
6. Images obtained by haeimages.com

# Global HAE Treatment Market is Substantial and Growing

The HAE market is expected to nearly double by 2027<sup>1,2</sup>, driven by:

- Patients being diagnosed earlier<sup>3</sup>
- More patients taking preventative treatments<sup>4</sup>
- Geographic expansion for currently available therapies<sup>5</sup>

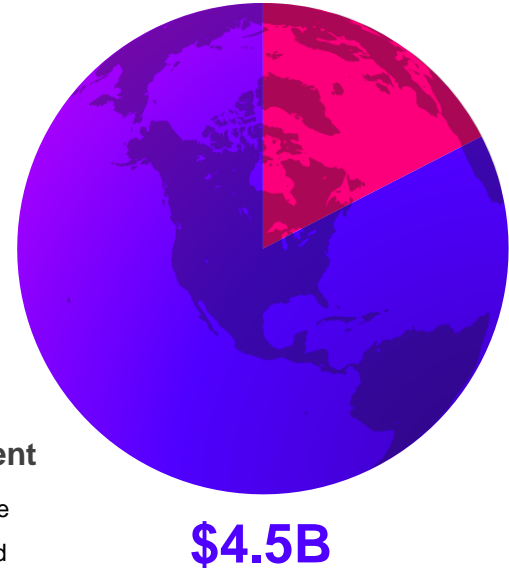
2021 HAE Market<sup>1</sup>



2027 Estimated HAE Market<sup>1,2</sup>





HAE Treatment

- Preventative
- On-Demand





# Approved and Late-Stage Preventative HAE Treatments

## Approved Therapies

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

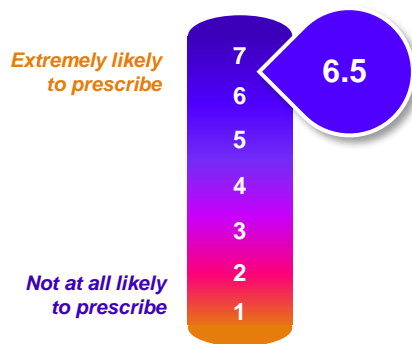
## Late-Stage Development Programs

Program	Mechanism of Action	Administration	Development Phase	Efficacy
<b>garadacimab</b>	Factor XIIa inhibitor	1x/month 	3	TBD <sup>5</sup>
<b>donidalorsen</b>	Prekallikrein inhibitor	1x/1-2 months 	3	TBD <sup>6</sup>

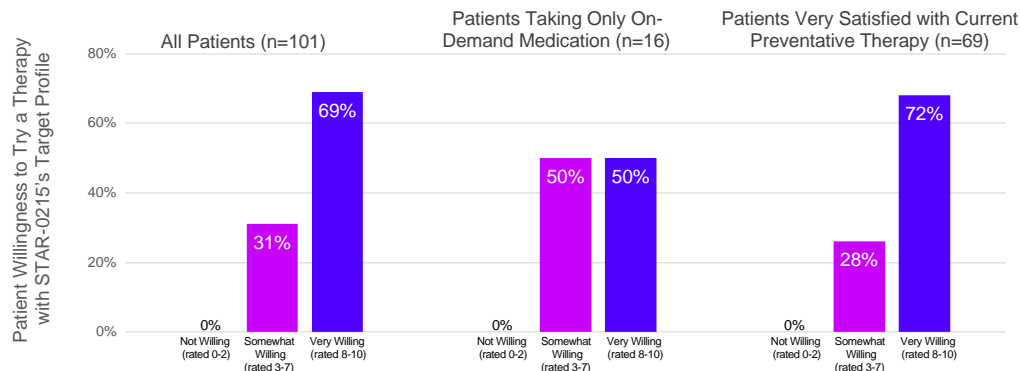
There remains a need for an effective, infrequent treatment that can help normalize the lives of people with HAE

# 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<sup>1</sup>



All Surveyed Patients Were Willing to Try a Product with STAR-0215's Target Profile<sup>2</sup>

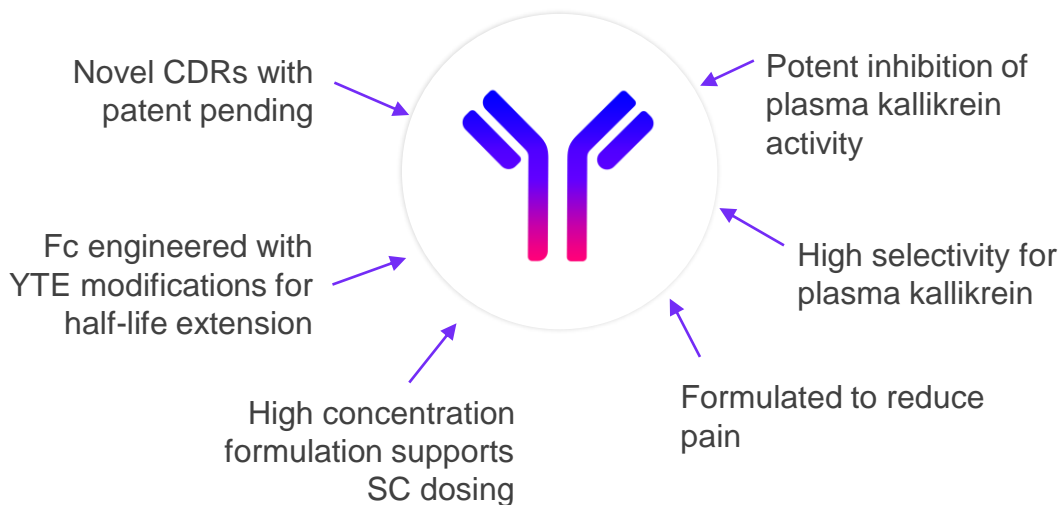


Willingness rated on a scale where "0" indicates "Not at all willing," and "10" indicates "Extremely willing."  
Satisfaction with current treatment rated on a scale where "0" indicates "Not at all satisfied," and "10" indicates "Extremely satisfied." Ratings of 8-10 grouped as "Very Satisfied."

# STAR-0215

## Potential for Best-in-Class Profile in HAE

### Preclinical Profile of STAR-0215



#### Encouraging preliminary 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

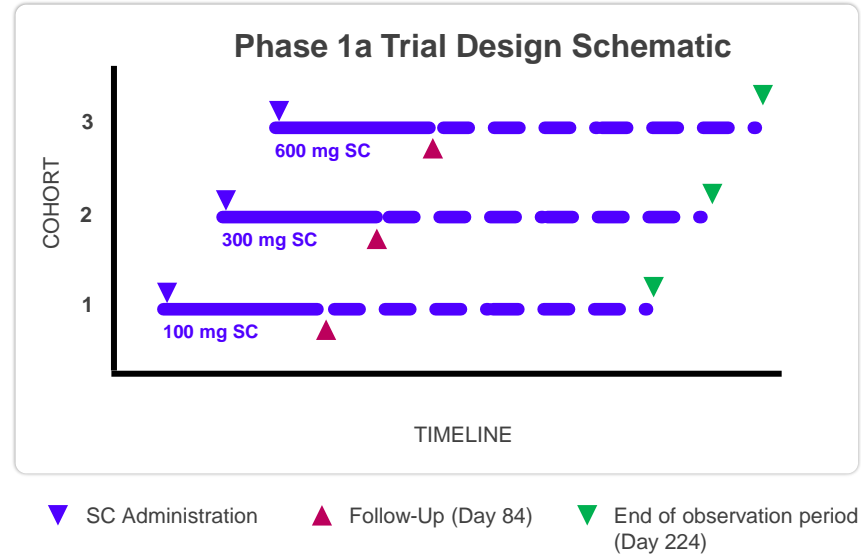
To provide patients with improved quality of life

*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<sup>1</sup>*



# STAR-0215 Phase 1a Trial

- **Randomized, double-blind<sup>1</sup>, placebo-controlled**
  - Healthy adult subjects
  - 3 single ascending doses, delivered SC
  - 6 active to 2 placebo randomization
- **Preliminary data include safety (84 days for 3 cohorts), PK and PD (84 days for cohorts 1 and 2; 56 days for cohort 3)**



Preliminary, blinded data, cut-off Dec 5, 2022

# Results Suggest that **STAR-0215** is Well-Tolerated and has a Favorable Safety Profile

## 3-Month Timepoint Blinded Adverse Event Results

### STAR-0215<sup>1</sup>:

- 8 (32%) subjects (STAR-0215 or placebo) had related TEAEs
- No SAEs and all related TEAEs were mild (Grade 1) and resolved. No Grade 2, 3, or 4 TEAEs.
- 6 subjects had ISRs (all mild), most commonly site redness; no reports of pain

### Lanadelumab<sup>2</sup>:

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

1. Other related TEAEs were headache (1 subject) and unexplained weight gain (1 subject), both in Cohort 1 (100 mg). There were no clinically relevant changes in vital signs, ECG parameters, or laboratory values.

15 Grade 1 (mild) ISRs occurred in 6 subjects, including erythema (site redness), pruritus, swelling and inflammation.

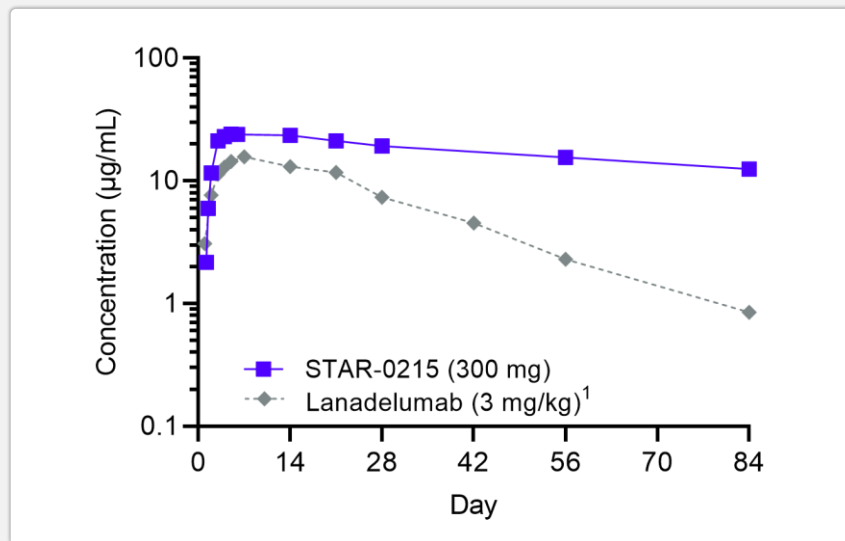
No clinically relevant changes in liver enzymes or coagulation parameters. No deaths, or adverse events leading to study discontinuation.

Results will be finalized after the end of the observation period

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

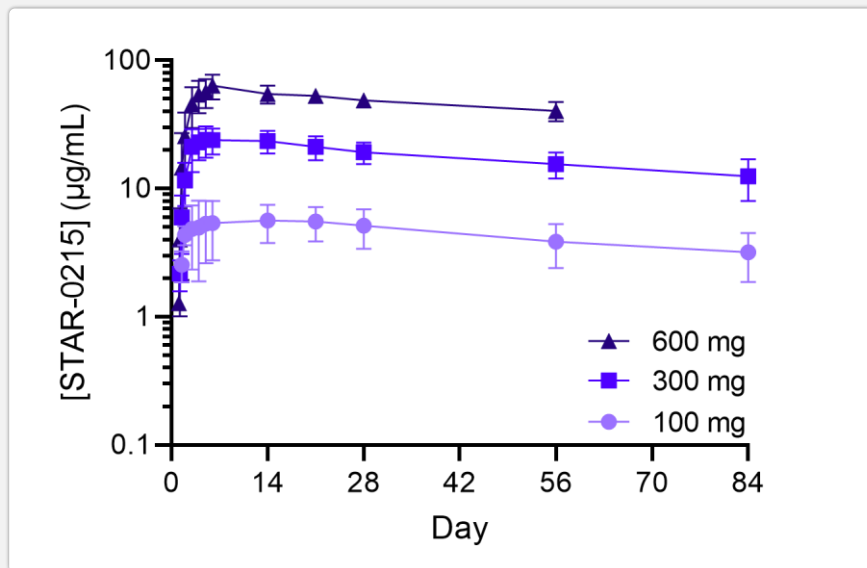
# Results Show **STAR-0215** has a Potential Best-In-Class PK Profile



## STAR-0215:

- Estimated half-life is **up to 110 days**, >5 times longer than lanadelumab
- Rapid achievement of maximum concentration
- Sustained concentrations at levels consistent with clinical benefit

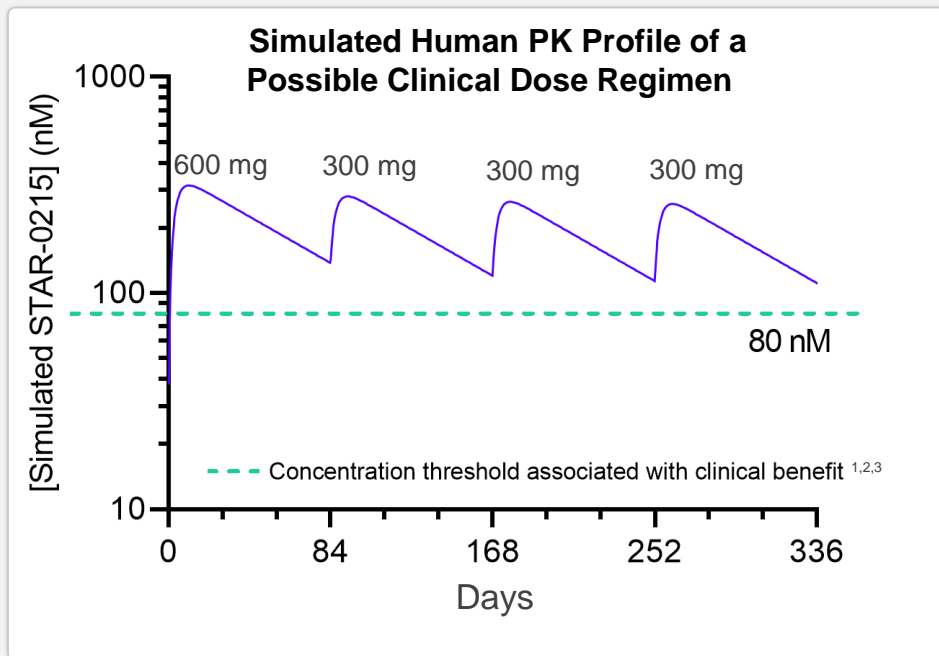
# Results Show Rapid and Sustained **STAR-0215** Concentrations After Single Subcutaneous Doses



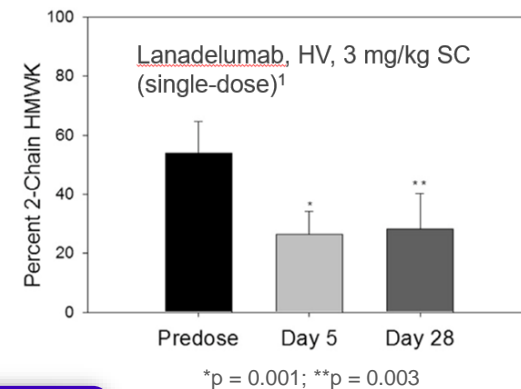
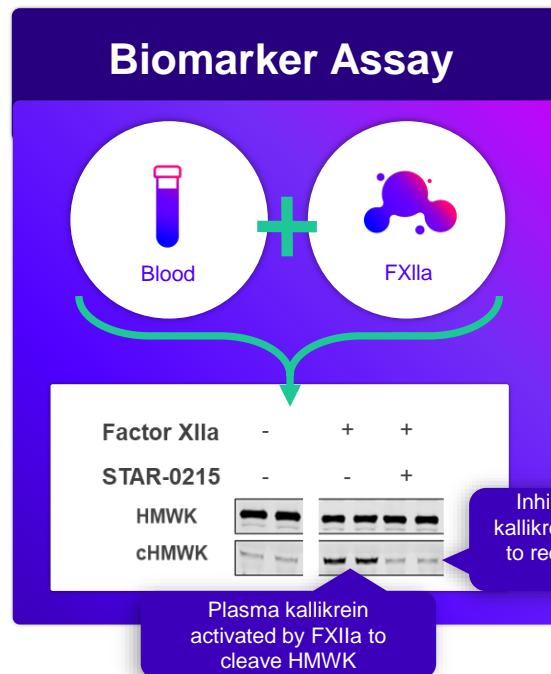
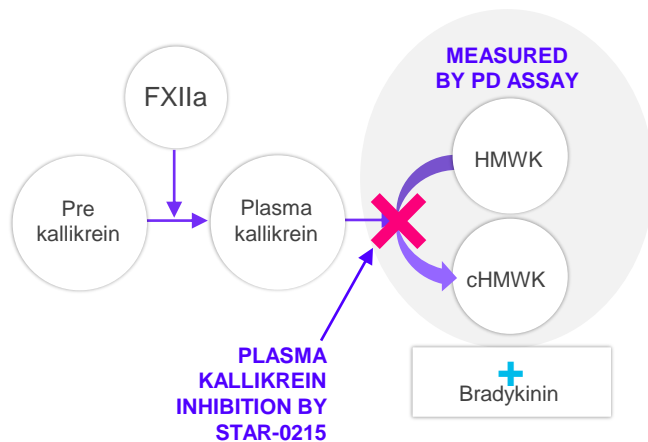
## STAR-0215:

- Concentrations are proportional to dose
- Long elimination phase consistent with YTE-modification
- Estimated half-life of up to 110 days

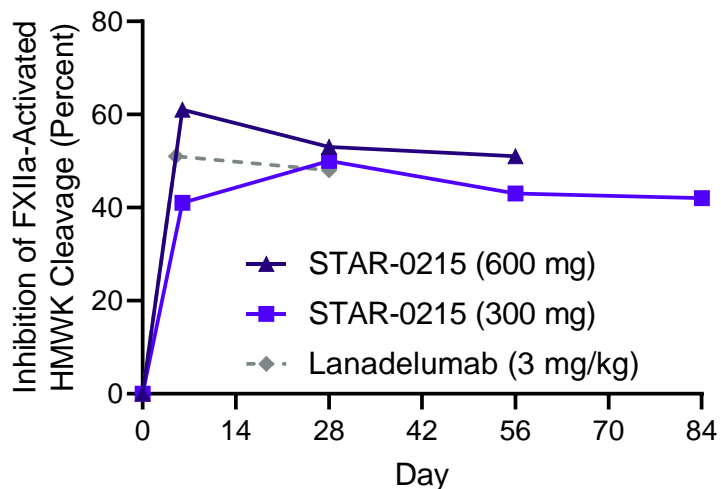
# Modeling Supports Potential for Clinical Benefit with Infrequent Dosing



# Target Engagement is Assessed by Change in FXIIa-Activated cHMWK



# Results Show **STAR-0215** Achieves Sustained Inhibition of Plasma Kallikrein



- Levels of inhibition achieved (40-60% decreases in FXIIa-activated cHMWK) are consistent with the levels shown to prevent attacks in patients<sup>1</sup>
- Single dose of 300 mg leads to significant durable inhibition of plasma kallikrein observed through 3 months

# Proposed ALPHA-STAR Trial Design

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

## PROOF OF CONCEPT ENDPOINTS:

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



Doses may change based on emerging data

Planned Phase 2 Long-Term Open-Label Trial  
(LTOL)



# Overview of the Expected Clinical Development Plan

## PHASE 1A to POC to PIVOTAL TRIAL

### ALPHA-STAR Phase 1b/2 POC Trial - HAE Patients

Initiate Q1 '23

Initial results Mid '24

Demonstrate POC in HAE Patients

### Phase 1a, SAD - Healthy Subjects

New cohorts Q1 '23

Initial results Q4 '23

Explore potential for 6-month dosing

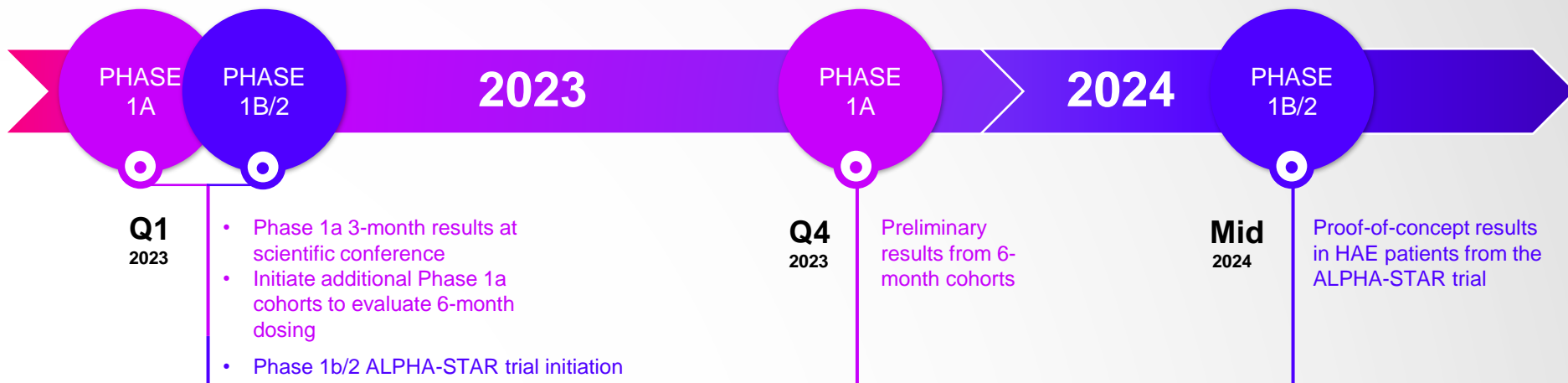
### Long-Term Open Label Trial

Initiate H2 '23

### Phase 3 Pivotal Trial in HAE Patients

# Astria (Nasdaq ATXS) Well-Positioned for the Future

## Expected Upcoming Milestones



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



**astria**  
THERAPEUTICS