Corporate Presentation

November 2022

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; the expected timing, scope, goals and nature of the preliminary results from the Phase 1a clinical trial for STAR-0215, including the expectation that the results will inform on STAR-0215's profile to prevent attacks in HAE and validate STAR-0215's differentiated best-in-class profile; the planned timing of initiation of a Phase 1b/2 proof-of-concept trial of STAR-0215 in patients with HAE; the potential attributes and differentiated profile of STAR-0215 as a treatment for HAE and the potential commercial opportunity for STAR-0215 in HAE, including that STAR-0215 has the potential to reduce treatment burden for patients with HAE with dosing once every three months or longer; the need for effective treatments for HAE; and the Company's broader 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: related to changes in applicable laws or regulations; the possibility that the Company 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 and modeling data may not be replicated in clinical studies, the risk that early data from the initial cohorts in the Phase 1a trial of STAR-0215 may not be replicated in the preliminary results that the Company plans to release by year-end 2022, the Company's ability to enroll patients in our clinical trials, and the risk that any of the Company's clinical trials may not commence, continue or be completed on time, or at all; decisions made by, or feedback received from, the U.S. FDA and other regulatory authorities, investigational review boards at clinical trial sites and other review bodies with respect to STAR-0215 and any future product candidates; the Company's ability to manufacture and supply sufficient quantities of drug substance and drug product on a cost-effective and timely basis; the Company's ability to obtain, maintain and enforce intellectual property rights for STAR-0215 and any other future product candidates; competition with respect to STAR-0215 in HAE or with respect to any other future product candidates; the anticipated position and attributes of STAR-0215 in HAE based on its pre-clinical profile, pharmacokinetic modeling and other data; the Company's ability to manage its cash usage and the possibility of unexpected cash expenditures; the Company's ability to obtain necessary financing to conduct its planned activities and to manage unplanned cash requirements; general economic and market conditions; as well as the risks and uncertainties set forth under the caption "Risk Factors" in the Company's most recent Annual Report on Form 10-K filed with the SEC, as well as discussions of potential risks, uncertainties, and other important factors in the Company's subsequent filings with the SEC. 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.

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)

- Our goal is to provide the most patient-friendly preventative treatment for HAE with dosing once every 3 months or longer
- HAE market is large and growing, expected to reach $4.5B by 2027[1,2]

STAR-0215 key initial proof of concept results expected by year-end 2022

Evaluating opportunities to expand our pipeline in allergic and immunological diseases

Cash, cash equivalents and short-term investments of $116.6M[3]
Expected cash runway into mid-2024[4] based on current operating plan

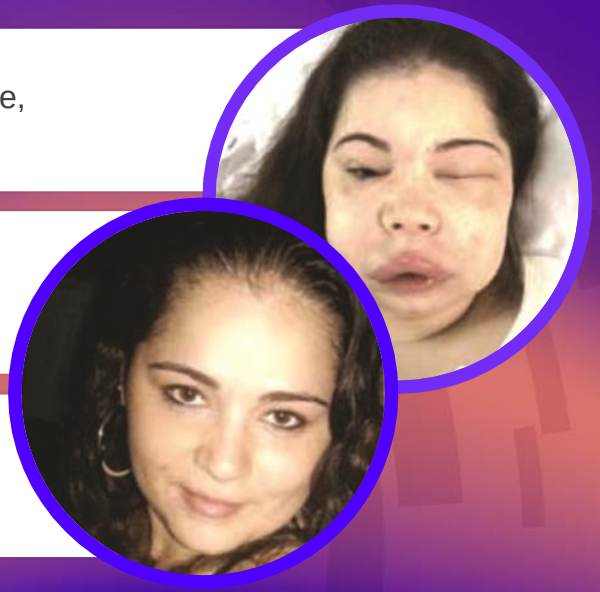
1. Analyst consensus forecasts compiled by Clarivate's Cortellis, Astria company research and analysis
2. Company-reported sales (Takeda, CSL Behring, Pharming, BioCryst)
3. As of 9/30/2022
4. Cash runway projections include net proceeds raised under the ATM program after 9/30/22

Hereditary Angioedema: 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 the EU,**[2] average age of onset is 11 years old[3]

Standard of care has evolved to both **on-demand** and **preventative treatments**



1. Zuraw BL. N Engl J Med. 2008;359:1027-36.
2. Lumry WR. Front Med. 2018: doi:10.3389/fmed.2018.00022.
3. Bork K, et al. Am J Med. 2006;119;267-274.
4. Images obtained by haeimages.com

STAR-0215 Has the Opportunity to Change the Way That People Live With HAE

PROFILE

STAR-0215
is a monoclonal antibody inhibitor of plasma kallikrein designed to provide long-acting, effective attack prevention for HAE with dosing once every three months or longer

YEAR END RESULTS

Preliminary clinical results expected to inform the profile of STAR-0215 to prevent HAE attacks

- Expected results in healthy subjects include safety and tolerability, PK, and PD results

COMMERCIAL OPPORTUNITY

STAR-0215 has the potential to significantly reduce treatment burden for patients

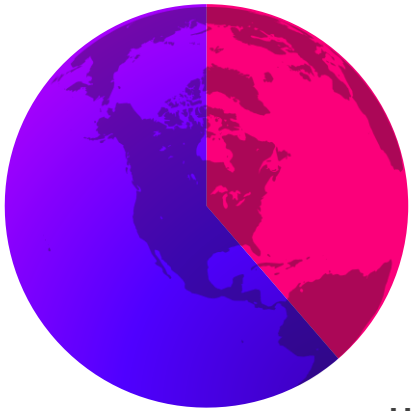
- The HAE global treatment market is substantial and growing, estimated to be $4.5B in 2027
- Patients and physicians are highly interested in STAR-0215's target efficacy and dosing frequency

Global HAE Treatment Market is Substantial and Growing

The HAE market is expected to double by 2027[1,2], driven by:

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

2021 HAE Market[1]

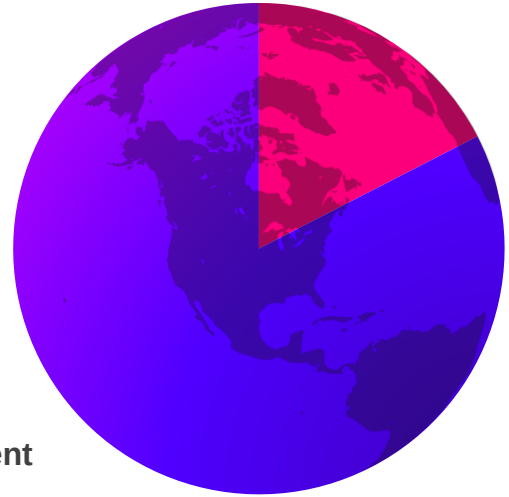


$2.3B

HAE Treatment

- Preventative
- On-Demand

2027 Estimate HAE Market[1,2]



$4.5B

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 Preventative HAE Treatments in the U.S.

Need for Effective Preventative Therapy with Lower Treatment Burden

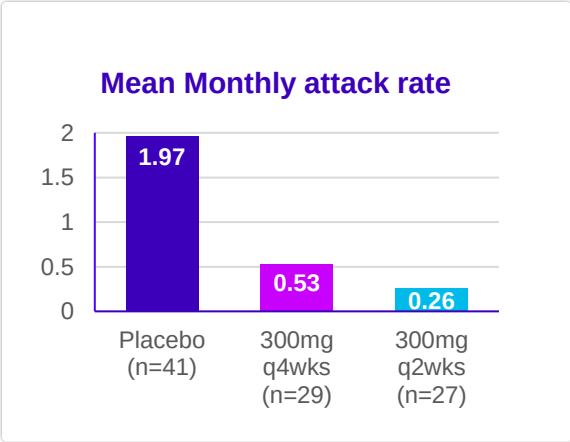
Product	Mechanism of Action	Administration	Mean Attack Reduction[1]	% of Attack- Free Patients
CINRYZE	Plasma derived C1-INH	2x/week	52%	40% (16 weeks)[2]
HAEGARDA	Plasma derived C1-INH	2x/week	88%	18% (12 weeks)[3]
TAKHZYRO *(lanadelumab)*	Plasma kallikrein inhibitor	1-2x/month	73-87%	31-44% (26 weeks)[4]
ORLADEYO *(berotralstat)*	Plasma kallikrein inhibitor	1x/day	30-44%	2-8% (24 weeks)[5]

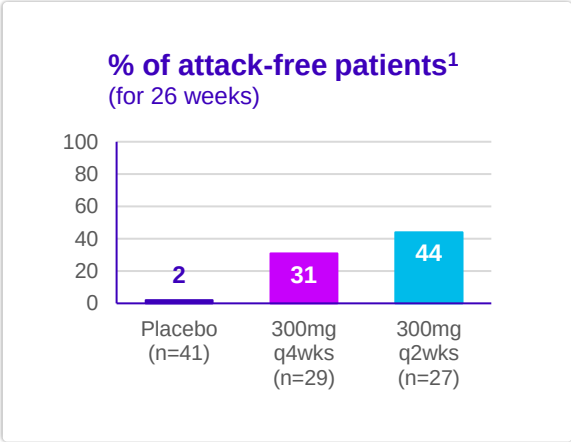
- Plasma kallikrein inhibition is the market leading validated mechanism of action
  - Established PK-PD-efficacy relationship for inhibiting plasma kallikrein and preventing HAE attacks
- Established regulatory and clinical path for HAE
- Opportunity for early clinical PoC with plasma kallikrein inhibition

1. Efficacy quoted as reduction in mean attack rate vs placebo; data from respective products' Prescribing Information.
2. CINRYZE Prescribing Information, 2021.
3. HAEGARDA Prescribing Information, 2020.
4. TAKHZYRO Prescribing Information, 2018.
5. Center for Drug Evaluation and Research. NDA/BLA Multidisciplinary Review and Evaluation NDA 214094. Washington DC: CDER (US); 2020.

Opportunity to Improve HAE Treatment and Reduce Burden on Patients

TAKHZYRO® (lanadelumab-flyo)
is a plasma kallikrein mAb approved for prevention of HAE attacks[1]





Indicated for dosing every 2 weeks; every 4 weeks may be considered in some patients

TAKHZYRO is the current global market leader[1]

- Takeda reported nearly $1B in fiscal year 2021 sales[3]
- Shire acquired Dyax for $5.9B after Phase 1b with lead program TAKHZYRO[4]

56-69% of patients experienced attacks on TAKHZYRO[2]

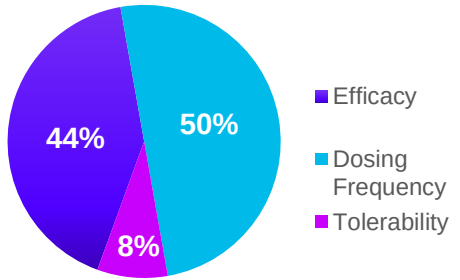
Published unmet need for improved HAE treatments[5, 6]

- Despite preventative treatments, patients continue to have attacks and high rates of anxiety and depression

1. Takeda FY2021 Q4 Earnings Announcement, May 2022.
2. TAKHZYRO Prescribing Information, 2018.
3. Takeda 2021 Fiscal Year Financial Report, May 2022.
4. Shire plc and Dyax Corp. Press Release. 2015, Nov.
5. Banerji A, et al. Ann Allergy Asthma Immunol. 2020; 124: 600-607. doi: 10.1016/j.anai.2020.02.018.
6. Riedl MA., et al. Ann Allergy Asthma Immunol. 2021; 126: 264-272. doi: 10.1016/j.anai.2020.10.009.

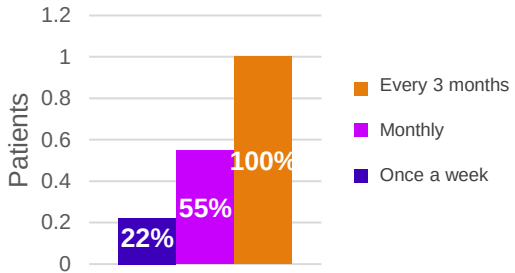
STAR-0215's Target Efficacy and Dosing is Compelling to Interviewed HAE Patients and Treatment Providers

Improvements That Would Compel **Patients** to Switch Therapies

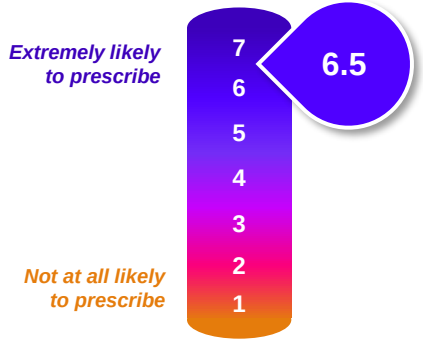


n = 10 patients*

Minimal Dosing Frequency That Would Compel **Patients** to Switch Therapies



Average **Prescriber** Rating for STAR-0215's Target Product Profile



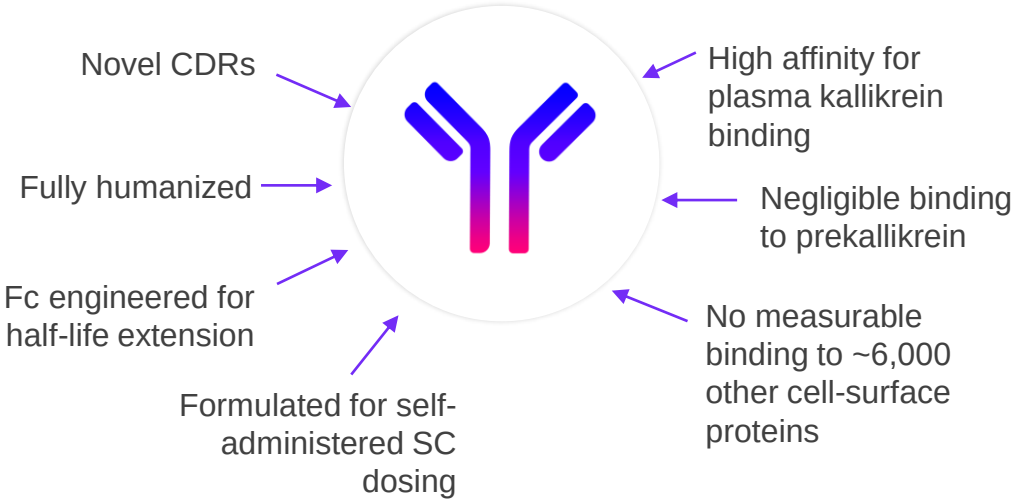
n = 20 prescribers

- On average, patients tried 2-3 preventative treatments, most often switching for more convenient administration
- All interviewed patients would be compelled to switch from their current therapy if a new therapy offered similar efficacy with less frequent dosing
- Most prescribers (n=13) would discuss a product with STAR-0215's target profile with all HAE patients, including those using on-demand therapy only

*Two of ten patients were unable to choose between efficacy and dosing; their answers were counted in both categories
**One of ten patients was unable to specify an answer
Company qualitative market research with 10 HAE patients and 20 HAE Treatment providers. Patient Interview data presented at the 2021 NORD Virtual Summit

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

Preclinical Profile of STAR-0215



Encouraging preclinical 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

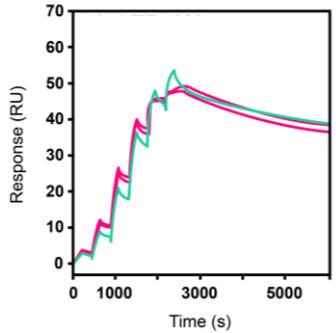
Astria wholly owns an international patent application directed to STAR-0215. If nationalized in the U.S. and granted, the patent would expire in 2042, excluding any potential patent term extension[1]

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 is a Potent Inhibitor of Plasma Kallikrein

Nanomolar Binding Affinity

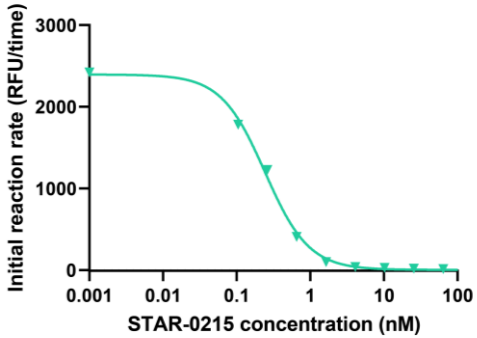
Surface Plasmon Resonance



K_D (pH 7.4) = 1.1 nM

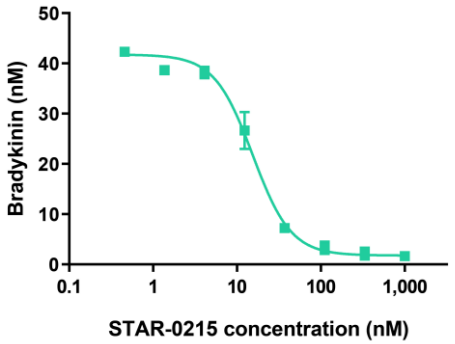
Potent Functional Inhibition

Artificial Substrate (PFR-AMC)
Fluorescent Reporter Assay



IC_{50} = 0.3 nM

Natural Substrate (HMWK)
Bradykinin Release Assay



IC_{50} = 15 nM

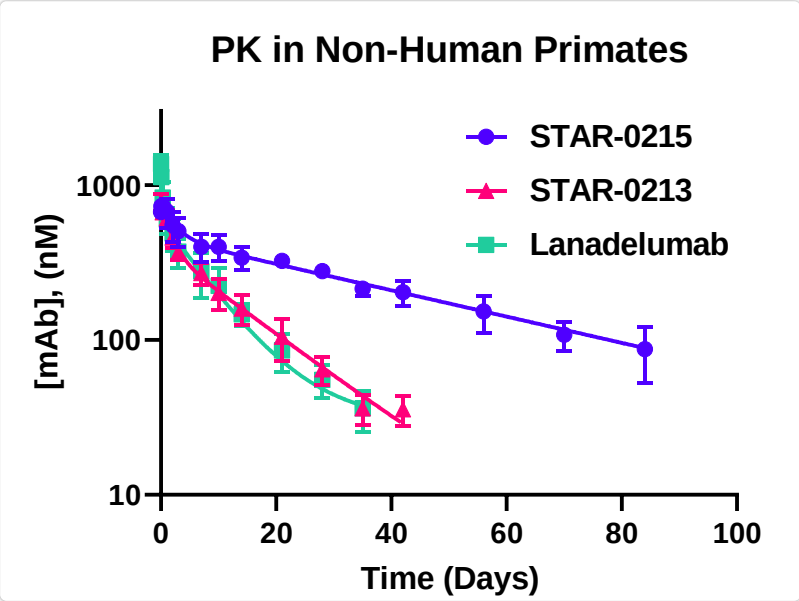
YTE Fc Modifications Have Led to Substantial Half-Lives of Monoclonal Antibodies in Humans

- Introduction of YTE into the anti-RSV mAb, motavizumab, prolonged half-life ~3.5-fold in both NHP and humans
- The approved YTE antibodies have half-lives of 83-88 days in humans
- Across a range of YTE Fc modified mAbs against non-cellular targets that are not subject to target mediated drug disposition (TMDD), the half-life is ~80-90 days in humans
- For targets affected by TMDD (e.g. KIT) the half-life is extended by YTE Fc modification is 2-4-fold but is shorter than 80 days (30 – 40 days)

	Antibody	Target	NHP $T_{1/2}$ (Days)	Human $T_{1/2}$ (Days)
	Motavizumab	RSV	6	24
	Motavizumab-YTE	RSV	21	**82**
Approved	Tixagevimab-YTE / Cilgavimab-YTE (Evusheld)	SARS-CoV-2	~19 ~19	**88** **83**

1. Dall'Acqua et al. J Biol Chem.2006 Aug 18;281(33):23514-24. doi: 10.1074/jbc.M604292200. Epub 2006 Jun 21.
2. Robbie et al. J Biol Chem. 2006 Aug 18;281(33):23514-24. doi: 10.1074/jbc.M604292200. Epub 2006 Jun 21.
3. Loo et al. Sci Transl Med. 2022 Mar 9;14(635):eabl8124. doi: 10.1126/scitranslmed.abl8124. Epub 2022 Mar 9.
4. Evusheld EUA Review: https://www.fda.gov/media/155107/download

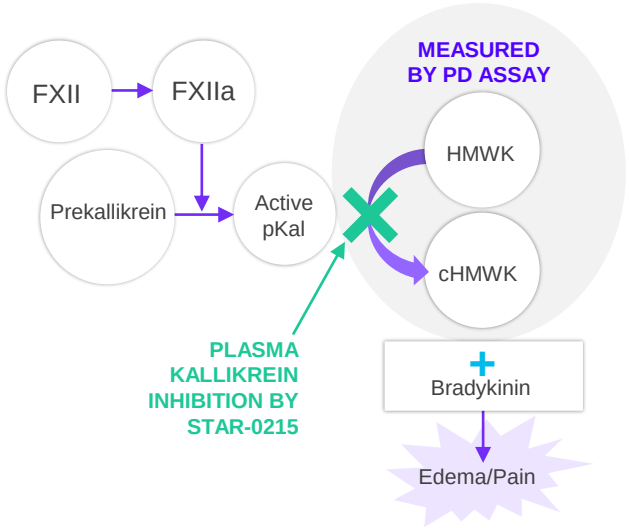
STAR-0215 Has Shown Substantially Prolonged Plasma Half-Life Compared to Lanadelumab in Non-Human Primates

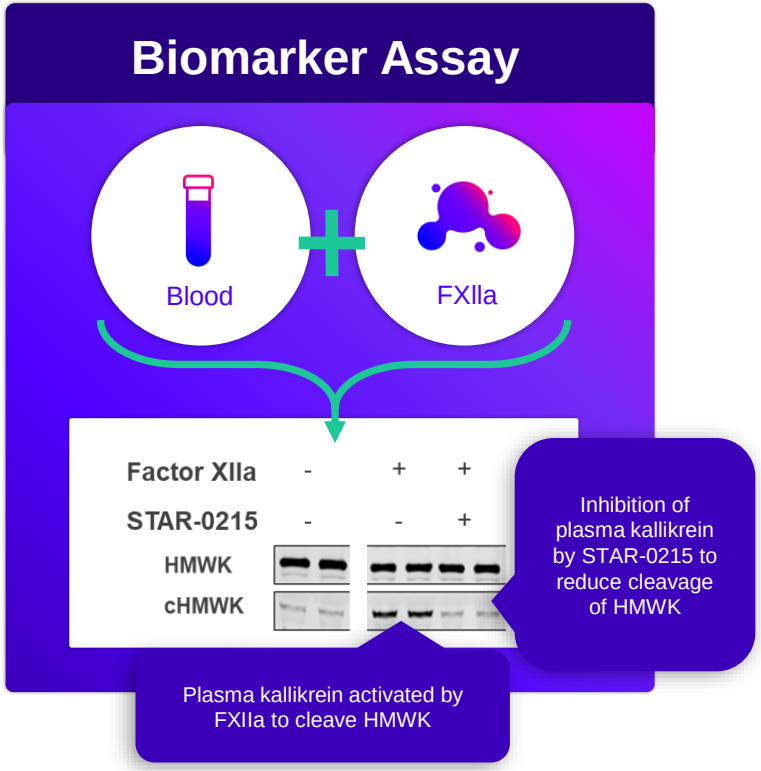


STAR-0215 incorporates YTE modifications to extend half-life

Mean non-human primate half-life in days (SD)	Lanadelumab	STAR-0213	STAR-0215
	10.5 (1.6)	10.9 (0.4)	33.6 (8.3)

Planned Biomarker Assay to Assess Plasma Kallikrein Activity Following STAR-0215 Dosing



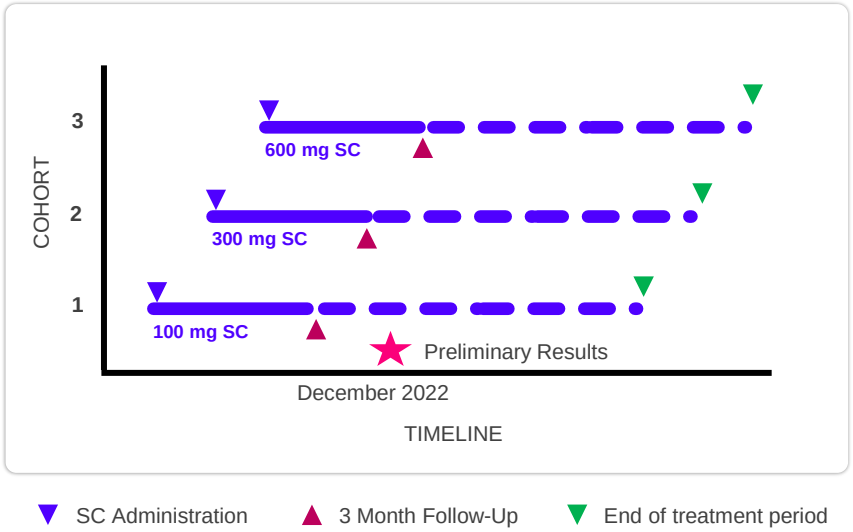


HMWK = high molecular weight kininogen
cHMWK = cleaved high molecular weight kininogen
FXII = Factor XII
FXIIa = activated Factor XII

STAR-0215 Phase 1a: Dosing is Complete

Phase 1 Healthy Subject Trial Overview

- At least three single ascending dose cohorts
  - 100 mg, 300 mg, and 600 mg
  - Healthy adult subjects
  - Subcutaneous dosing
- Randomized, double-blind, placebo-controlled
  - 6 active to 2 placebo randomization
- Single U.S. center study
- Observation period through multiple half-lives
- 3-month data will inform on the target profile



This protocol may be amended to add new cohorts in the future

STAR-0215 Phase 1a Trial Will Inform on Target Profile

Preliminary data expected to be available by year-end 2022

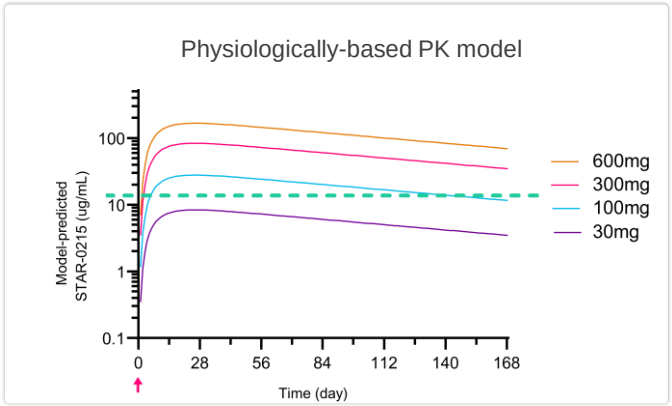
Phase 1a Endpoints

- Safety and tolerability
- Pharmacokinetics: blood concentrations over time
- Pharmacodynamics: inhibition of bradykinin production via inhibition of plasma kallikrein

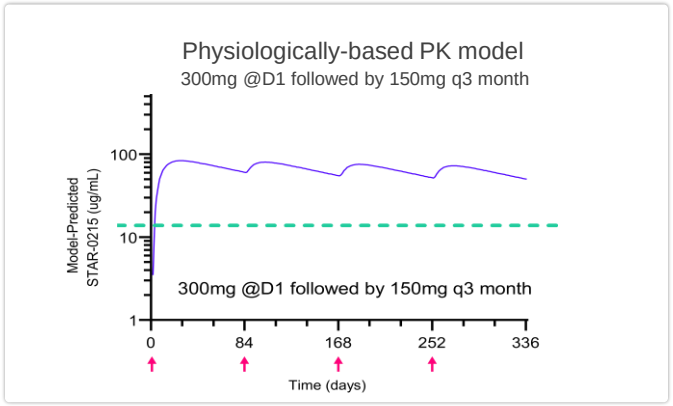
Target Profile

- Small volume subcutaneous administration
- Durable activity
- Administered once every 3 months or less frequently
- Safe and well-tolerated

Physiologically-Based PK Model Supports a Dosing Frequency of Every 3 Months or Longer



Model suggests target concentration of STAR-0215 required to produce long-term inhibition of plasma kallikrein can be achieved with a single dose above 30mg



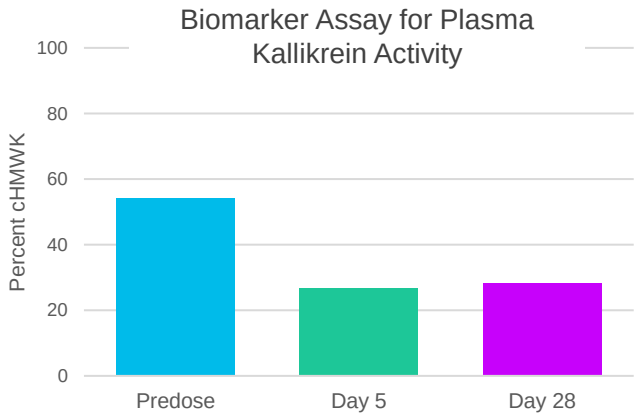
Model suggests target level of STAR-0215 can be achieved with a loading dose of 300mg followed by the maintenance dose of 150mg every 3 months

3 months is approximately Day 84, arrows indicate simulated drug dosing, green dashed line is 12 µg/mL. 12 µg/mL, or 80nM, is the threshold C_{min} predicted to inhibit the production of bradykinin in HAE by pKal.

Inhibition of Plasma Kallikrein Reduces cHMWK, Correlating to Clinical Benefit in HAE

STAR-0215 May Achieve More Sustained Reductions in cHMWK Compared to Lanadelumab

Healthy Subjects Phase 1a:
Lanadelumab 3mg/kg (avg. weight 83 kg) (single dose)[1]



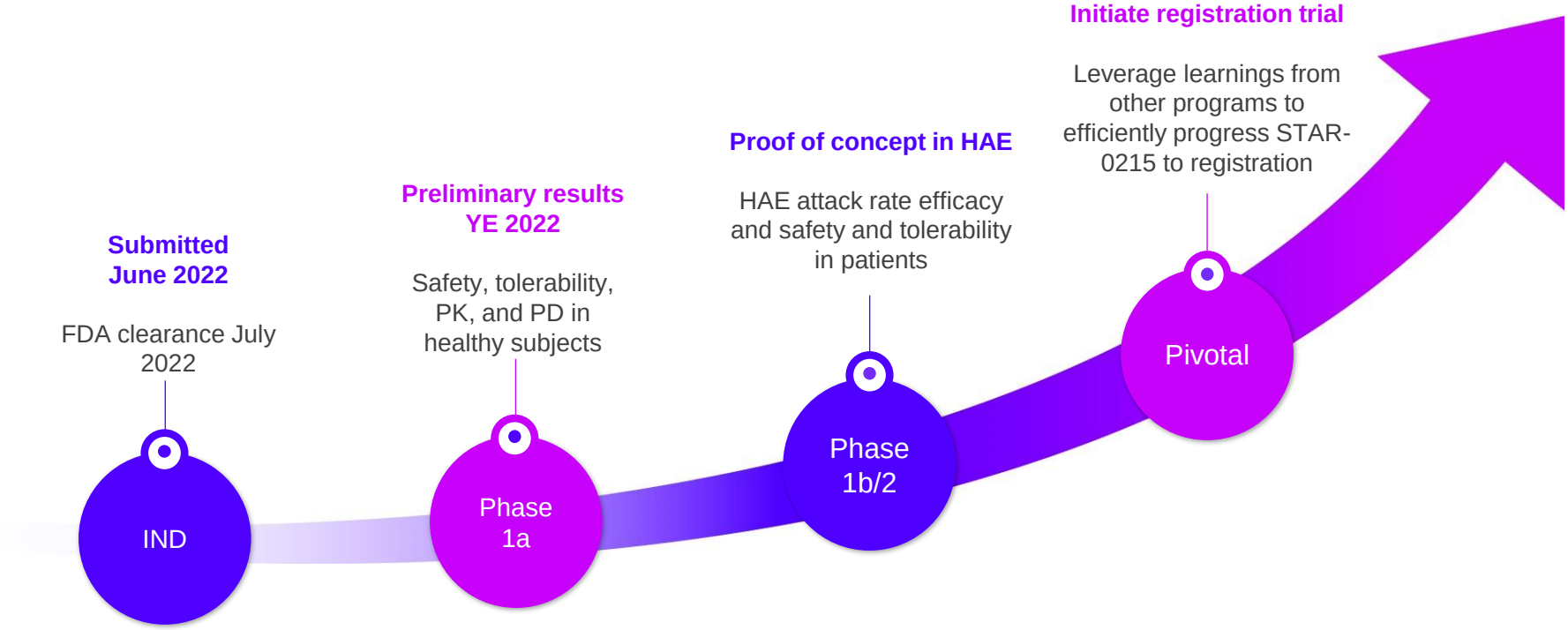
Phase 1a Healthy Subject PD Target:

STAR-0215 is expected to produce similar changes to cHMWK

1. Chyung et al. Ann Allergy Asthma Immunol. 2014 Oct;113(4):460-6.e2. doi: 10.1016/j.anai.2014.05.028. Epub 2014 Jun 26.

Aiming to Progress STAR-0215 Quickly to Patients

Completed and Expected Upcoming Milestones



Astria (Nasdaq ATXS) Well-Positioned for the Future

STRONG FINANCIAL FOUNDATION

- As of 9/30/2022, the Company had cash, cash equivalents and short-term investments of $116.6M. Expected cash runway into mid-2024[1] based on current operating plan.

CAPITALIZATION STRUCTURE

Company Capitalization Structure as of November 3, 2022	As Converted Common Shares
Common stock outstanding	17,051,429
Common stock underlying outstanding Series X Preferred Stock	5,242,501
Adjusted Common stock outstanding[2]	22,293,930

1. Cash runway projections include net proceeds raised under the ATM program after 9/30/22
2. Assumes 100% conversion of all outstanding Series X Preferred Stock.


astria
THERAPEUTICS