

A large circular graphic on the left side of the slide. Inside the circle is a silhouette of a person standing on a rock, pointing their right arm towards a bright star in a vast, starry night sky. The sky transitions from a deep purple at the top to a bright orange and yellow near the horizon. The circle is set against a background of overlapping purple and blue circular shapes.

Corporate Presentation

September 2021

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: our future expectations, plans and prospects for Quellis Biosciences Inc. (“Quellis”) and the combined company following the merger transaction between the Company and Quellis Biosciences, Inc. (the “Merger”); the potential benefits of the Merger and the anticipated milestones of the Company and for STAR-0215; our cash runway; the potential timing for the filing of an IND for STAR-0215; the status and anticipated plans and timelines for the early stage clinical trials of STAR-0215, including the anticipated timing of the initial results from the Phase 1a clinical trial and the timeline to achieve clinical proof of concept; the potential for STAR-0215 being a best in class agent and most patient friendly chronic treatment option for HAE; the potential commercial opportunity for STAR-0215; and advancing a second program. 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 our ability to recognize the anticipated benefits of the Merger; 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, 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 and other regulatory authorities, investigational review boards at clinical trial 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; 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; 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, 2020, subsequent Quarterly Reports on Form 10-Q, and in other filings that we may make with the Securities and Exchange Commission. 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.

Introducing Astria Therapeutics



astriaTM
THERAPEUTICS

Our **mission** is to bring hope with life-changing therapies to patients and families affected by rare and niche allergic and immunological diseases.

Our **name** comes from the Greek word for star, and at Astria, patients are the stars that guide us. Their stories inspire us, their successes energize us, and their challenges give us purpose.

Our **stars** illuminate our work, creating an environment of transparency and openness that allows us to build trust with our partners and collaborators.

Investment Highlights

1

Astria is developing differentiated therapeutics for patients with rare and niche allergic and immunological diseases

2

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

- Clinically validated mechanism with potential to be the most patient-friendly preventative therapy for HAE
- On track for STAR-0215 IND filing in mid-2022 and key initial proof of concept clinical data by year end 2022

3

Evaluating opportunities to expand our pipeline in allergic and immunological diseases

4

Experienced management team and Board backed by leading life science investors including top shareholders **Perceptive, RA Capital, Fairmount, Cormorant and Venrock**

5

Cash, cash equivalents and short-term investments **\$139.5M¹** with expected cash runway through 2023

6

18.2M total common shares outstanding (common shares and Series X Preferred) on an as converted basis – implied market capitalization of \$184M²

STAR-0215: Our Lead Asset



OUR LEAD ASSET

STAR-0215
(formerly QLS-215):
potential to be most
patient-friendly
preventative treatment
option for HAE



OUR APPROACH

Developing **STAR-0215** to
be a long-acting
monoclonal antibody
inhibitor of plasma
kallikrein dosed once every
3 months or longer



OUR NEAR-TERM VALUE DRIVERS

Opportunity for clinical
proof of concept for
differentiated product
in Phase 1 with initial
results anticipated by
year end 2022

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



DISEASE DESCRIPTION

- Hereditary angioedema (HAE) is a rare, autosomal dominant genetic disorder¹
- HAE is characterized by severe, unpredictable, painful, and sometimes life-threatening edema²:
 - Skin (hands, feet and face)
 - Abdomen
 - Throat/Airway



DISEASE PATHWAYS

- In HAE overproduction of bradykinin is the key mediator of vasodilation and angioedema
- Types I & II comprise the majority of HAE cases and are caused by defects in the C1 inhibitor gene¹
- While rare, other mutations, including in the F12 gene, can cause HAE



PATIENT DEMOGRAPHICS

- 1 in 10,000-50,000 people; <8,000 people in the US^{1,3}
- Typically diagnosed ~20 years of age by allergist/immunologist
- Average age of onset 11 years⁴; estimated more than 8 years until definitive diagnosis⁵

High Patient Burden

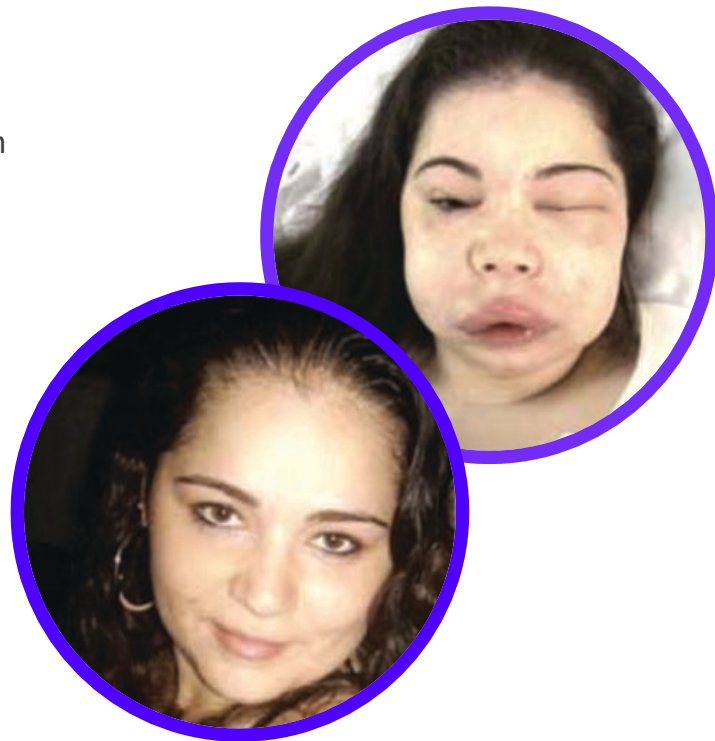
HAE Attacks are Unpredictable, Painful and Can Be Life-Threatening

Patient Journey

- Patients typically present with symptoms to PCP or ER
- Low disease awareness among ER physicians and PCPs, although improving, limits referrals to allergists and HAE specialists for diagnosis
- Once diagnosed, most patients are prescribed treatment





Patient Burden

- Anxiety and depression increase with attack frequency
- Increased work absenteeism and reduced productivity
- Negative impact on patients' daily lives
- Substantial room exists for improving patient care



Unmet Need for Effective Preventative Therapy with Lower Treatment Burden

HAE Preventative Treatment Landscape Has Advanced but Unmet Need Remains

Product	Manufacturer	Mechanism of Action	Administration	Efficacy ¹
CINRYZE	Takeda	Plasma derived C1-INH	2-3x/week 	52%
HAEGARDA	CSL Behring	Plasma derived C1-INH	2-3x/week 	88%
TAKHZYRO (lanadelumab)	Takeda	Plasma kallikrein inhibitor	1-2x/month 	87%
ORLADEYO (berotralstat)	BioCryst	Plasma kallikrein inhibitor	1x/day 	44%
Global market estimated to grow from \$2B in 2020 to over \$4.5B by 2026 ²				

I am always looking for something better, something that fits my schedule. I mainly care about dosing and effectiveness.

– HAE Patient³

I would really like something subcutaneous that's given less frequently, maybe once every two or three months, just four or six injections per year. Once it's in, you don't have to worry about missed doses; you can go about your daily life with minimal intrusion from the disease process and burden of treatment.

– HAE Prescriber⁴

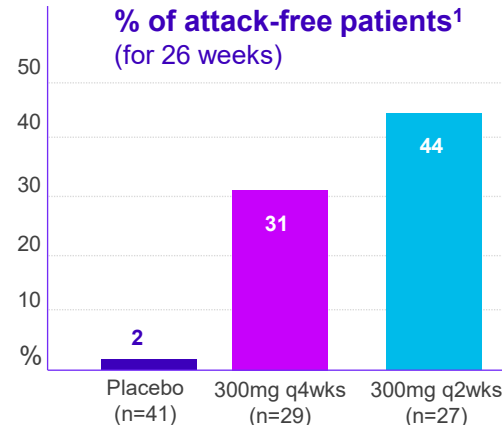
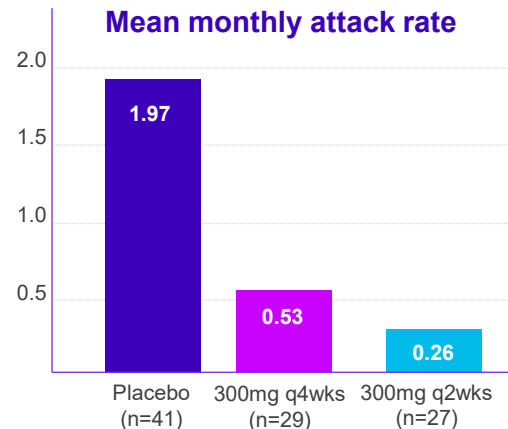
Inhibition of Plasma Kallikrein is a Validated Therapeutic Approach for HAE

TAKHZYRO® (lanadelumab-flyo)

is a plasma kallikrein mAb approved for prevention of HAE attacks¹



TAKHZYRO

- Current U.S. market leader ²
- Sales projected to approach \$1B in 2021³
- Shire acquired Dyax for \$5.9B after Phase 1b with lead program TAKHZYRO⁴



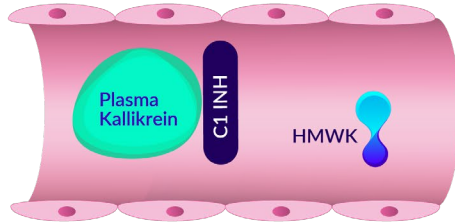
- Indicated for dosing every 2 weeks; every 4 weeks may be considered in some patients
- 56% of patients experienced attacks on TAKHZYRO¹

HAE Patients and Prescribers are Compelled by the Potential for an Effective Therapy with Infrequent Dosing

		
	U.S. HAE Patients	U.S. HAE Prescribers
Treatment Options	Greater availability of preventative therapy options has increased use: up to 80% of patients currently taking preventative treatment ^{1,2}	Development of preventative treatments has focused on improving efficacy and reducing administrative burden -- subcutaneously-administered plasma kallikrein mAb inhibitor (lanadelumab) is the most frequently prescribed preventative treatment ^{1,2}
Treatment Burden	Despite availability and use of preventative treatments, HAE patients continue to have high burden of illness ³	Despite increasing patient satisfaction with treatment options, most physicians consider their patients to be “somewhat satisfied” and interested in participating in future clinical trials ⁴
Addressing Unmet Need	Most interviewed patients said ease-of-use (administration route and frequency) was the primary reason for past changes in preventative therapy; most would be compelled to switch from their current therapy for one with similar efficacy and less frequent dosing ⁵	Most interviewed prescribers indicated high motivation to prescribe a product with the potential profile of STAR-0215 (a plasma kallikrein mAb, as effective as current SC therapies, with dosing once every three months or longer) ⁶ .

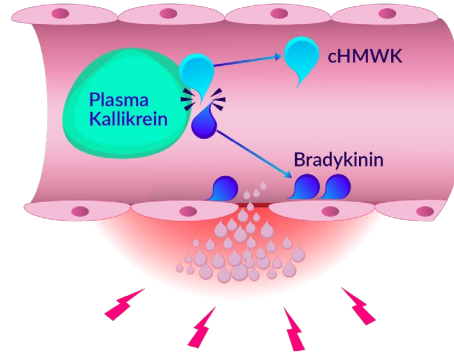
STAR-0215 Aims to Prevent Attacks in HAE

Healthy Blood Vessel



C1 Inhibitor blocks function of plasma kallikrein.

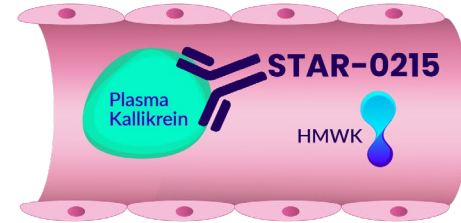
HAE Mechanism of Disease



Missing C1 Inhibitor allows plasma kallikrein to process HMWK, generating cleaved HMWK (cHMWK) and releasing bradykinin.

Bradykinin then binds to receptors allowing fluid to leak through blood vessel walls and causing edema/pain.

STAR-0215 Goal



STAR-0215 inhibits/blocks plasma kallikrein, even in the absence of C1 Inhibitor, reducing bradykinin production and preventing edema/pain.

STAR-0215

Opportunity for Most Patient-Friendly Preventative Treatment Option

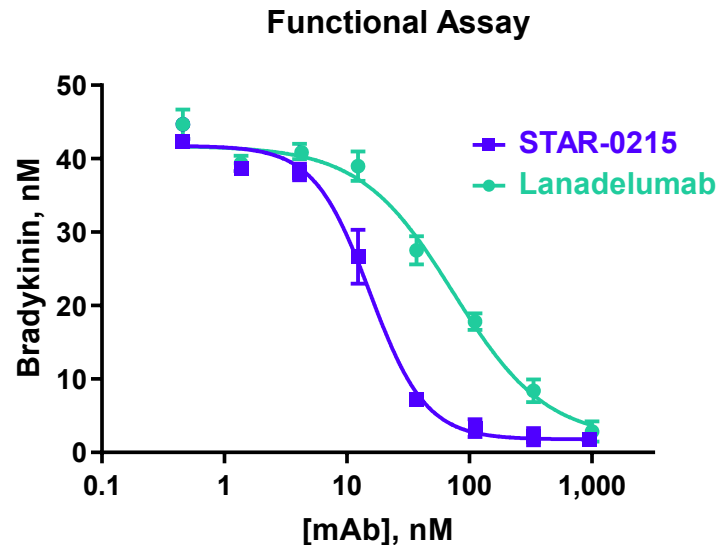
STAR-0215 Goals	Potential Benefits	Status
High potency for plasma kallikrein	<ul style="list-style-type: none">Long duration without breakthrough attacksSmall injection volume	✓
Extended plasma half-life	<ul style="list-style-type: none">Infrequent dosing once every 3 months or longer, without breakthrough attacks	✓
Clinical proof of concept	<ul style="list-style-type: none">Establish differentiated product profile	Initial results expected by year end 2022
Differentiated, best-in-class new preventative therapy for HAE	<ul style="list-style-type: none">Trusted modality to provide patients with improved quality of life	

- Binding affinity and half-life are key drivers of efficacy in the prevention of HAE attacks¹
- Target inhibition impacts clinical outcomes in HAE²

Potential for most patient-friendly preventative treatment option based on data generated to date and the existing HAE treatment landscape

STAR-0215 Shows High Potency Inhibition of Plasma Kallikrein

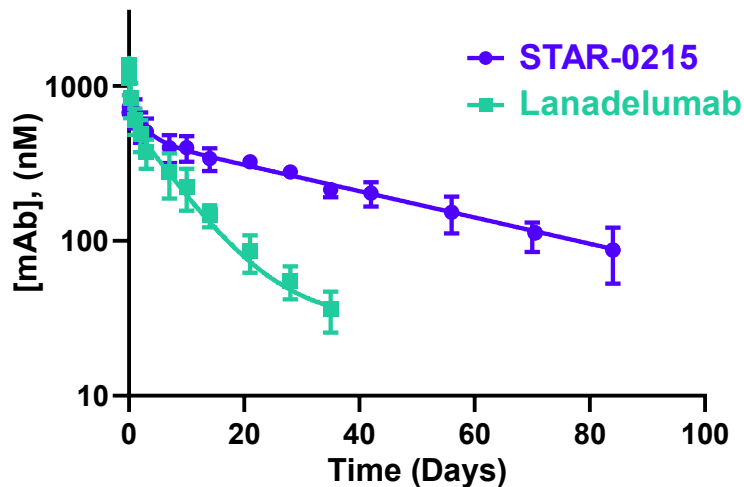
- **STAR-0215** binding affinity for plasma kallikrein is ~10-fold greater than lanadelumab
- **STAR-0215** binds a different site on plasma kallikrein than lanadelumab
- **STAR-0215** is ~10-fold more potent at inhibiting enzymatic activity by 90% than lanadelumab
 - ~90% inhibition of plasma kallikrein is estimated to be required to optimally reduce HAE attack rate and maximize attack free duration



STAR-0215 was more potent than lanadelumab in inhibiting bradykinin production in an *in vitro* assay

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

PK in Non-Human Primates

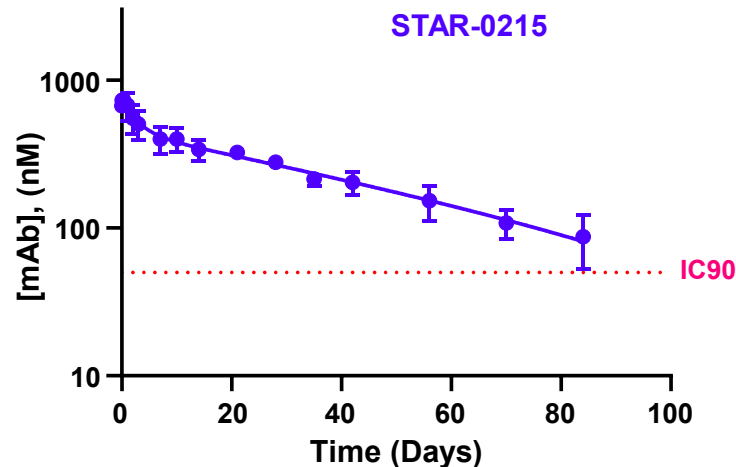
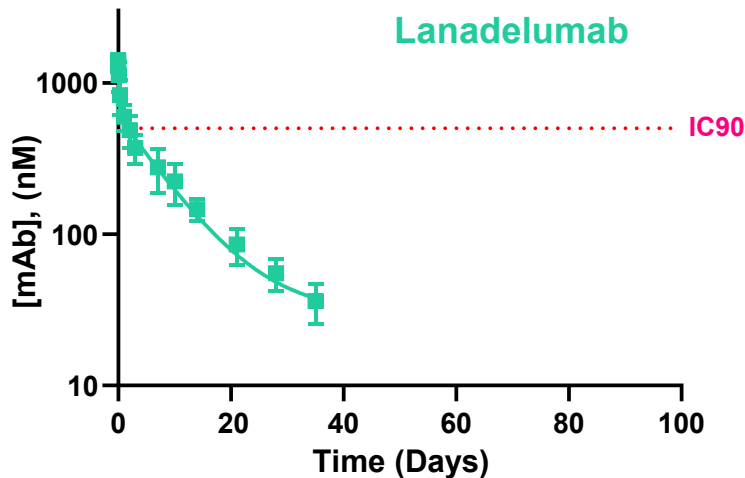


STAR-0125 engineered with half-life extension technology

- Half-life of mAbs with similar half-life extension technology
 - Non-human primates: 30 – 40 days
 - Humans: 70 – 120 days

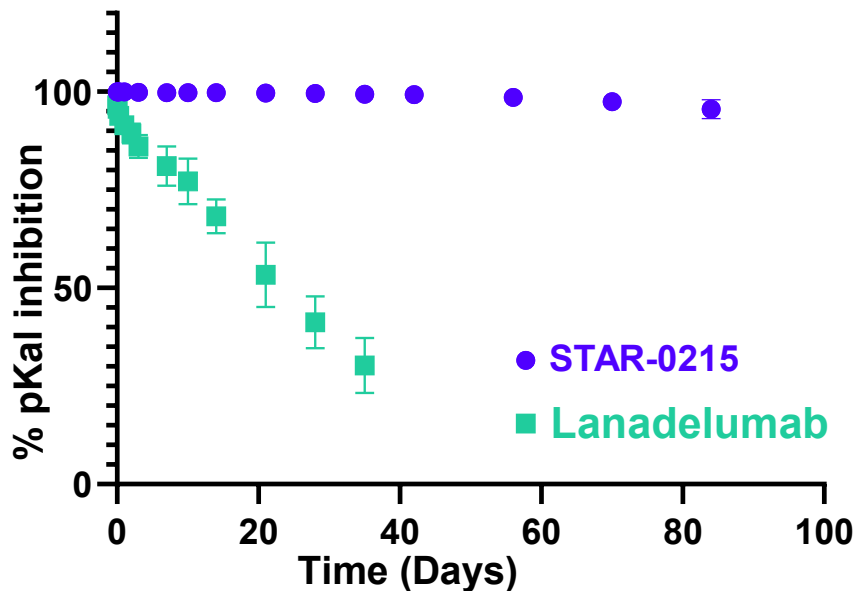
	Lanadelumab	STAR-0215
Mean non-human primate half-life in days (SD)	10.5 (1.6)	33.6 (8.3)

The Human *in vitro* Potency and NHP PK Data for **STAR-0215** Predict a Substantially Longer Duration of Action than Lanadelumab



- Lanadelumab plasma levels fall below predicted minimum therapeutic concentration (IC90) by approximately **day 10**
- **STAR-0215** remains above predicted minimum therapeutic concentration (IC90) for **> 84 days**

Preclinical PK/PD Model Predicts Longer Duration of Action for **STAR-0215**



Model based on plasma concentrations from cynomolgus PK studies and human plasma kallikrein inhibition determined in *in vitro* functional assay

Planned STAR-0215 Phase 1 Study Design

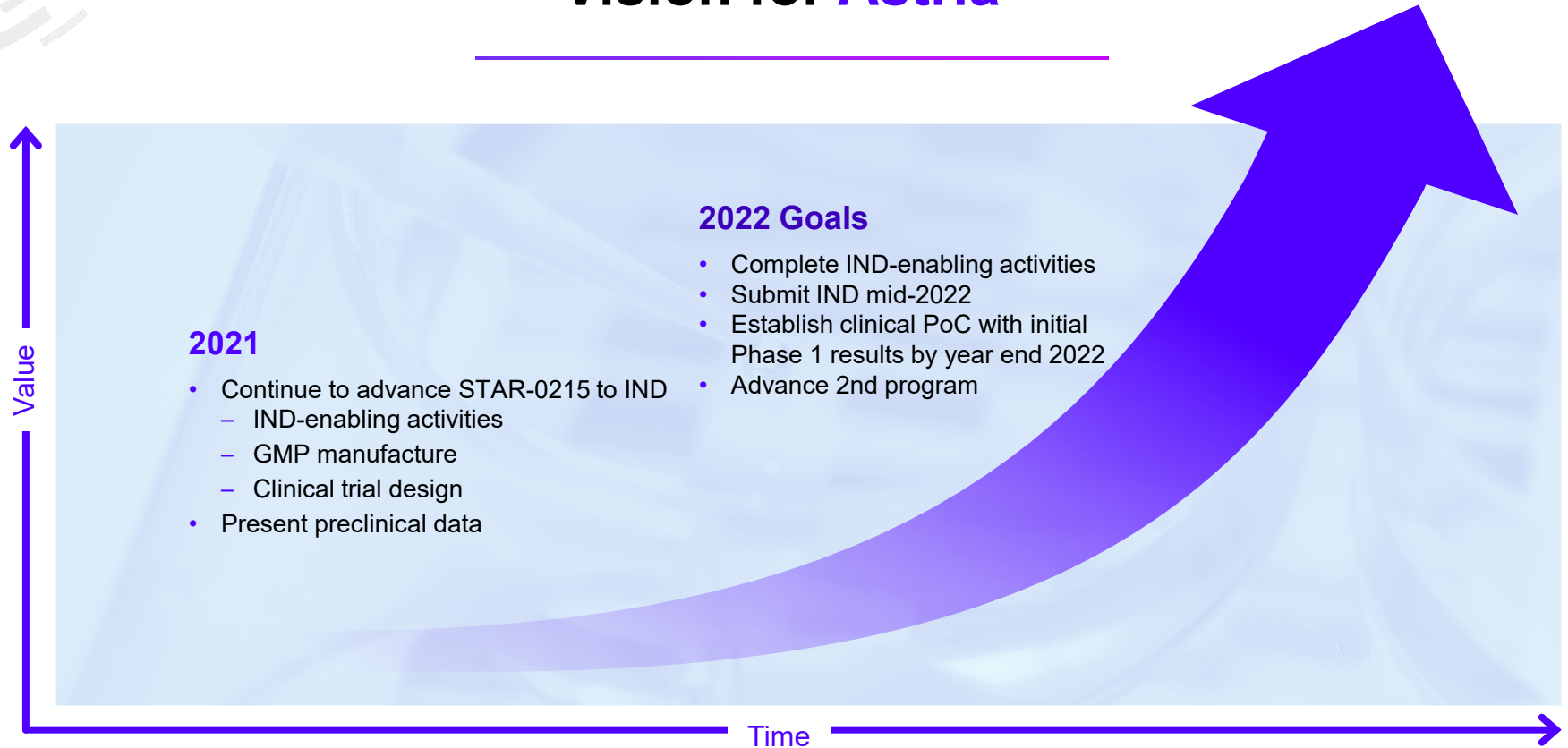
On Track for Initial Proof of Concept Data YE 2022

Goals for initial Proof of Concept trial:

- Demonstrate safety
- Establish prolonged half-life
- Demonstrate prolonged inhibition of plasma kallikrein activity
- Refine dose and dosing regimen for future studies in HAE patients

- **Population:**
 - Normal Healthy Volunteers (NHVs)
- **Study Design:**
 - Single ascending dose in NHV cohorts
 - Multiple doses to be explored
- **Endpoints:**
 - Safety and tolerability
 - Pharmacokinetics – antibody half-life
 - Pharmacodynamics – inhibition of plasma kallikrein

Vision for Astria



STAR-0215 Opportunity



Treatment for rare, genetic disease with established clinical and regulatory path



Targeting a clinically validated mechanism with a trusted modality



Potential for most patient-friendly preventative treatment that provides long-acting protection from attacks with dosing every 3 months or longer



Opportunity for clinical proof of concept with Phase 1 with initial results anticipated by year end 2022

At Astria, with patients as our guiding stars, our dedicated and passionate team is devoted to bringing life-changing therapies to patients and families impacted by HAE

Astria (Nasdaq ATXS) Well-Positioned for the Future

SUMMARY OF TRANSACTIONS

- Acquired Quellis Biosciences, Inc. in January 2021
- Concurrent PIPE financing of \$110M
- PIPE investors included Perceptive Advisors, Fairmount Funds, RA Capital Management, Cormorant Asset Management, Venrock Healthcare Capital Partners, Logos Capital, Boxer Capital, Acorn Bioventures, Commodore Capital, Surveyor Capital (a Citadel company), Acuta Capital Partners, Sphera Healthcare, and Serrado Capital LLC

STRONG FINANCIAL FOUNDATION

- As of 6/30/2021, the Company had \$139.5 million in cash and cash equivalents and expected runway through 2023

CAPITALIZATION STRUCTURE

Company Capitalization Structure As of June 30, 2021 (split-adjusted)	Converted Common Shares
Common stock outstanding	12,824,787
Common stock underlying outstanding Series X Preferred Stock	5,424,199
Adjusted Common stock outstanding ⁽¹⁾	18,248,986



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