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Investor Presentation

June 2021

Forward Looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements of Catabasis Pharmaceuticals, Inc. ("Catabasis," 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 QLS-215; our cash runway; the estimated number of shares of common stock outstanding after the automatic conversion of our Series X preferred stock; the potential timing for the filing of an IND for QLS-215; the status and anticipated plans and timelines for the early stage clinical trials for QLS-215, including the anticipated timeline to achieve clinical proof of concept; the potential for QLS-215 being a best in class agent; the potential commercial opportunity for QLS-215; filing a BLA for QLS-215; and advancing a second program. We use words such as "anticipate," "believe," "estimate," "expect," "hope," "intend," "may," "plan," "predict," "project," "target," "potential," "would," "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, the outcome of any legal proceedings that may be instituted against the Company or Quellis following the announcement of the Merger and related transactions; 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 the U.S. FDA and other regulatory authorities, investigational review boards at clinical trial sites and other review bodies with respect to QLS-215 and any other future development candidates; our ability to manufacture sufficient quantities of drug substance and drug product for QLS-215 and any other future product candidates on a cost-effective and timely basis; our ability to obtain, maintain and enforce intellectual property rights for QLS-215 and any other future product candidates; our potential dependence on collaboration partners; competition with respect to QLS-215 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; our estimate of the number of shares of Series X preferred stock that will convert automatically into shares of common stock after stockholder approval of the conversion proposal, which conversion is subject to ownership blockers applicable to each holder; 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.

Overview

Our Mission

To bring hope with life-changing therapies to patients and families affected by rare and niche diseases

Our Lead Asset

QLS-215, a potential best-in-class chronic treatment for hereditary angioedema to prevent debilitating and sometimes life-threatening attacks

Our Approach

Engineered a differentiated high affinity, long plasma half-life, humanized monoclonal antibody inhibitor of plasma kallikrein

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

Catabasis Well-Positioned for the Future

Summary of Transactions

- Catabasis Pharmaceuticals (Nasdaq: CATB) acquired Quellis Biosciences, Inc. in January 2021
- Concurrent PIPE financing of $110M
- Shareholders include 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

- Following the transactions, the Company had ~$150 million in cash, cash equivalents and short-term investments ($146.9M as of 3/31/2021)
  - Expected to fund IND-enabling studies, Phase 1a, and Phase 1b/2 clinical trials for QLS-215 in HAE
  - Expected to support runway through 2023

Capitalization Structure

Company Capitalization Structure As of June 8, 2021, after automatic conversation of Series X preferred stock (estimated)	Converted Common Shares
Common stock outstanding	76,948,803
Common stock underlying outstanding Series X Preferred Stock	32,545,203
Adjusted Common stock outstanding (1)	109,494,006

Key Management and Board

- Combined company led by Chief Executive Officer, Jill C. Milne, Ph.D.
- 6 Directors from Catabasis: Ken Bate (Chairperson), Joanne T. Beck, Ph.D., Hugh M. Cole, Michael D. Kishbauch, Gregg Lapointe and Jill Milne, Ph.D. and 2 Directors from Quellis: Jonathan Violin, Ph.D., a Quellis co-founder, and Fred Callori, a former Quellis Director

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

Hereditary Angioedema: A Rare, Potentially Life-Threatening Disease

Disease Description	• Hereditary angioedema (HAE) is a rare, autosomal dominant genetic disorder[1]
	• HAE is characterized by recurrent, unpredictable, debilitating and potentially life-threatening edema:
	  ○ Skin (hands, feet and face)
	  ○ Abdomen
	  ○ Throat/Airway[2]

Disease Pathways	• Types I & II comprise the majority of HAE cases and are caused by defects in the C1 inhibitor gene[1] • While rare, other mutations, including in the F12 gene, can cause HAE • In HAE there is an overproduction of bradykinin, a key mediator of vasodilation and angioedema
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 years[4]; estimated more than 8 years until definitive diagnosis[5]

1. Busse PJ, et al. J Allergy Clin Immunol Pract 2021; 9(1):132-150.e3.
2. Zuraw BL. Hereditary angioedema. N Engl J Med. 2008;359:1027-36.
3. Lumry WR. Front. Med., 16 Feb 2018. doi:10.3389/fmed.2018.00022.
4. Bork K, et al. Am J Med. 2006;119;267-274.
5. Zuraw B et al. B. J. Haem. 2016.173(6):831-843.

High Patient Burden: HAE Attacks are Unpredictable, Debilitating and Potentially Life-Threatening

Patient journey

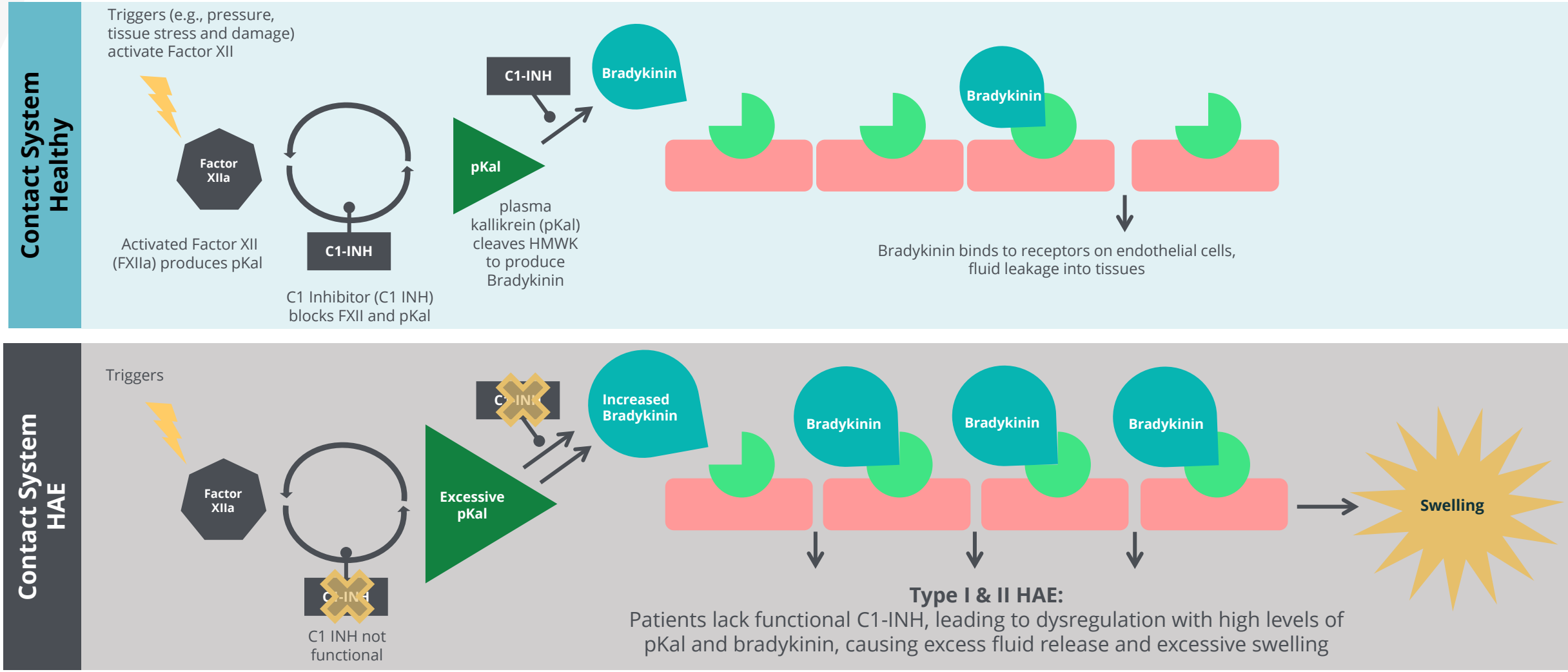
- Patients typically present with symptoms to PCP or ER
- Low disease awareness among ER physicians and PCPs, although improving, limits referrals to allergists and HAE specialists for diagnosis
- Once diagnosed, most patients are prescribed treatment

Common triggers include:

- Physical activity with repeated pressure, excessive exposure to sun, cold, water
- Illness, emotional stress, hormonal fluctuations
- Medical/dental work
- Certain medications, food sensitivities

Images obtained from www.haeimages.com
https://www.healthline.com/health/hereditary-angioedema/monitoring-triggers#What-triggers-HAE-attacks?

Dysregulation of the Plasma Contact System Mediates Excessive Swelling Underlying HAE Symptoms



Treatment Landscape Has Advanced but Unmet Need Remains

Global market estimated to be >$6.5B by 2025[1]

On-Demand treatments to limit severity and duration of attacks as they occur

Prophylactic treatments to prevent attacks

	Brand	Company	Mechanism of Action	Admin.	Dosing
On-Demand	BERINERT C1 Esterase Inhibitor, Human	CSL Behring Biotherapies for Life	Plasma derived C1 esterase inhibitor (pdC1-INH)		As needed
On-Demand	firazyr (icatibant injection)	Takeda	B2 bradykinin receptor antagonist (synthetic peptide)		As needed
On-Demand	RUCONEST (conestat alfa)	Pharming	Recombinant C1 esterase inhibitor (rhC1-INH)		As needed
On-Demand	KALBITOR ecallantide	Takeda	Plasma kallikrein inhibitor		As needed (by HCP)
Prophylaxis	CINRYZE C1 esterase inhibitor (human)	Takeda	pdC1-INH		2x/week
Prophylaxis	HAEGARDA C1 Esterase Inhibitor Subcutaneous (Human)	CSL Behring Biotherapies for Life	pdC1-INH		2x/week
Prophylaxis	TAKHZYRO (lanadelumab-flyo) injection	Takeda	Plasma kallikrein inhibitor (monoclonal antibody)		2x/month
Prophylaxis	orladeyo (berotralstat) capsules 150 mg	BioCryst	Plasma kallikrein inhibitor		1x/day

Unmet need for prophylaxis that is more effective, less frequent, easier to administer

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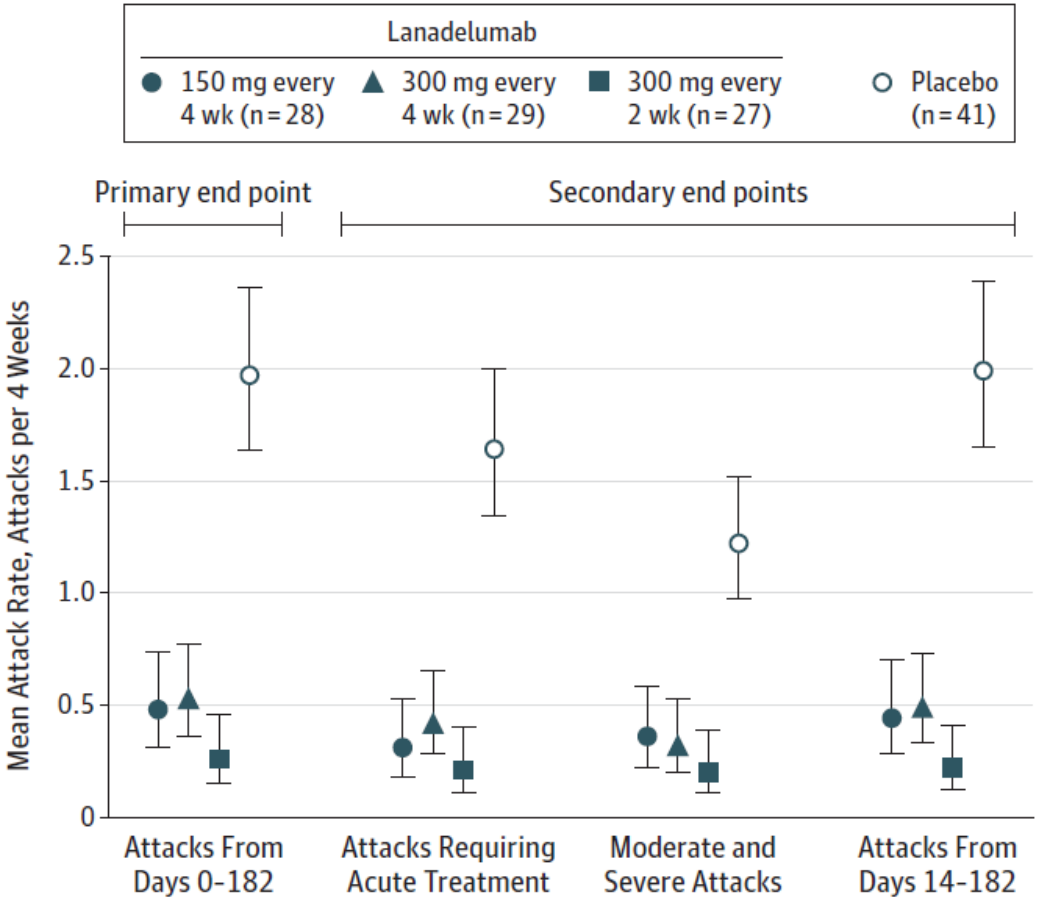
[1]Fortune Business Insights, Healthcare/Hereditary Angioedema Treatment Market, Report ID: FBI100165.

TAKHZYRO® (lanadelumab-flyo) Injection Studies Have Established Plasma Kallikrein mAb as an Important Therapy for HAE

Monoclonal antibody targeting pKal

- Prophylaxis to prevent HAE attacks in patients 12 years and older
- SC injection every 2 weeks. Dosing every 4 weeks may be considered in some patients.
- Most common AE in Phase 3 was injection site reaction (overall 52%)
- Shire acquired Dyax for $5.9B after Phase 1b with lead program TAKHZYRO



Banerji, A., M.A. Riedl, et al. (2018) Effect of Lanadelumab Compared With Placebo on Prevention of Hereditary Angioedema Attacks: A Randomized Clinical Trial. JAMA 320(20):2108-2121.

https://www.takhzyro.com/

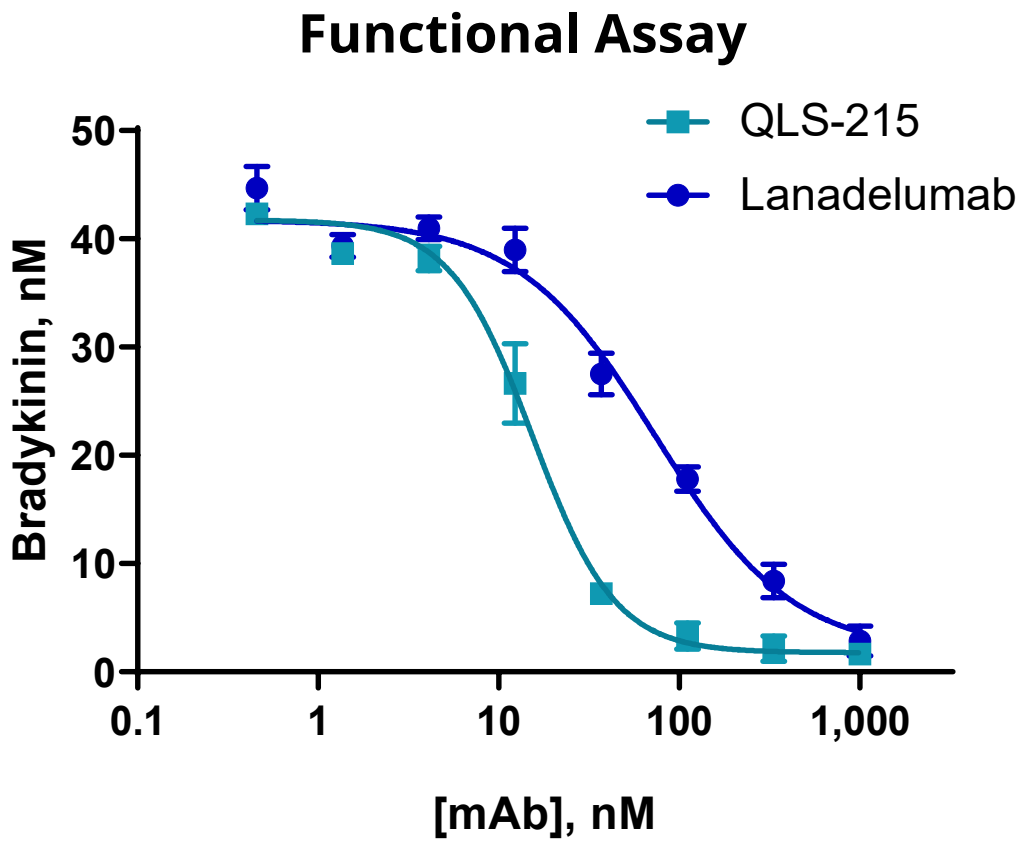
https://www.prnewswire.com/news-releases/shire-to-acquire-dyax-corp-expanding-and-extending-industry-leading-hereditary-angioedema-hae-portfolio-539278541.html

QLS-215 mAb: Opportunity for Best-in-Class Agent

Goal: Make the best possible pKal antibody to treat HAE with infrequent dosing and sustained blood levels

QLS-215 Goals	Potential Benefits
High potency for pKal	• Long duration without breakthrough attacks • Small injection volume
Extended plasma half-life	• Infrequent dosing • Long duration without breakthrough attacks
Clinical proof of concept	• Early in development, establish differentiated product profile
Differentiated, best-in-class new therapy for HAE prophylaxis	• Trusted modality to provide patients with improved outcomes and quality of life

In an *in vitro* Functional Assay QLS-215 Was More Potent than Lanadelumab in Inhibiting Bradykinin Production



- ~90% inhibition of pKal is estimated to be required to optimally reduce HAE attack rate and maximize attack free duration
- IC_{90} determined by bradykinin ELISA to detect cleavage of high molecular weight kininogen (600 nM) by pKal (30 nM)
- QLS-215 is ~10-fold more potent than lanadelumab at IC_{90}

pKal levels 30-110nM estimated in HAE plasma (Kenniston et al JBC 2014)
Mean +/- s.e.m.
n=3

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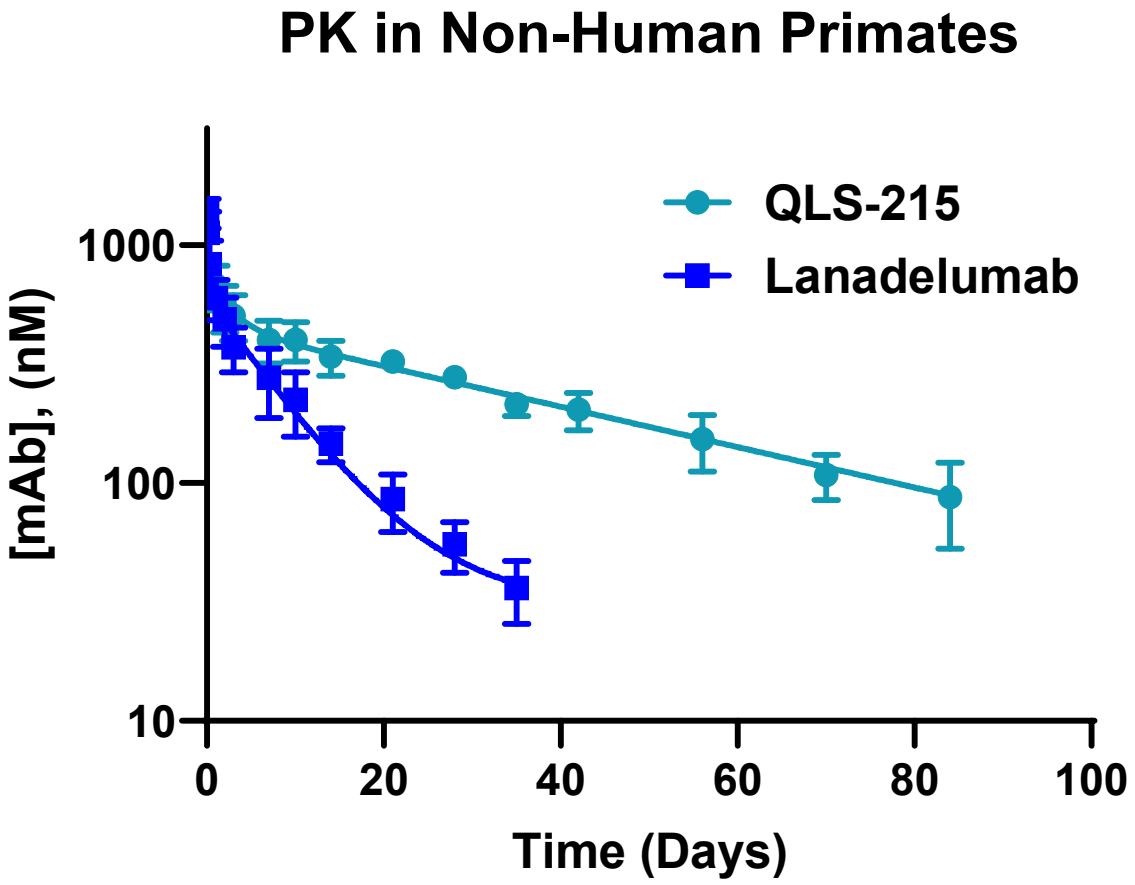
QLS-215 Has Shown Substantially Prolonged Plasma Half-Life Compared to Lanadelumab in Non-Human Primates

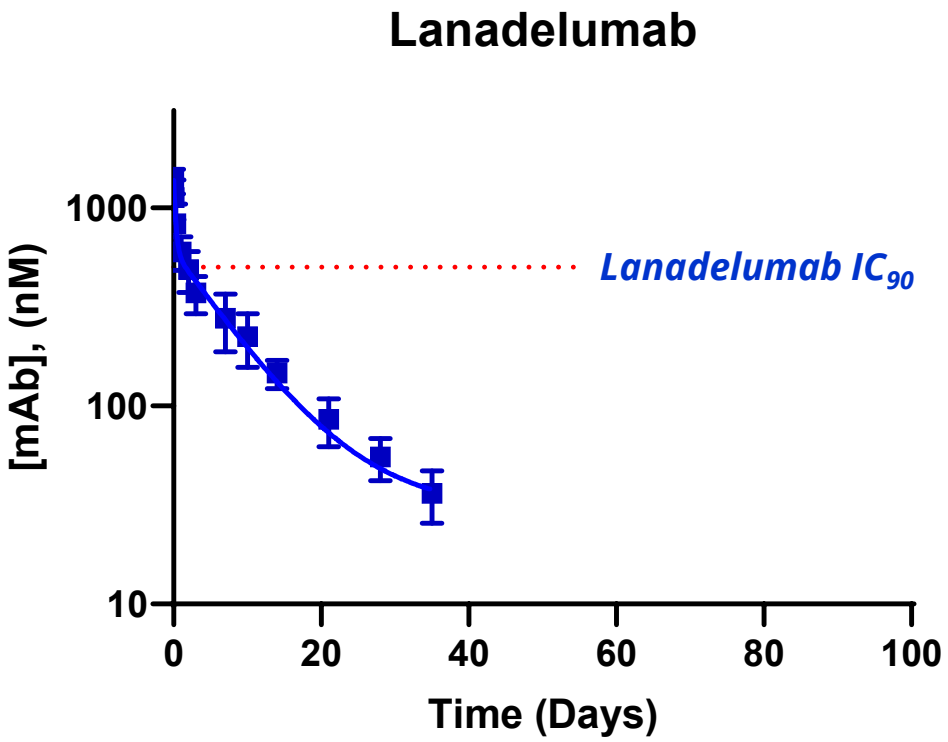


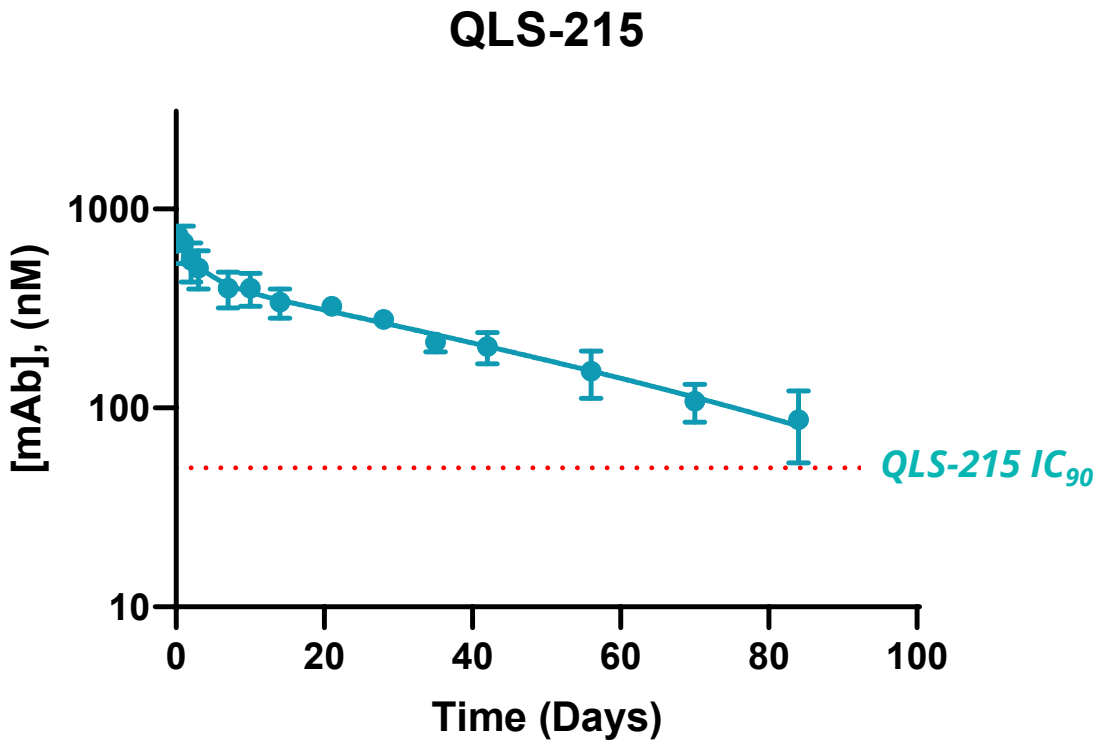
	Lanadelumab	QLS-215
Mean half-life ($t_{1/2}$) (SD)	10.5 (1.6)	33.6 (8.3)

- FDA review documents: Lanadelumab $t_{1/2}$ 9.5-11.5 days in cynomolgus monkeys

Data from concurrent but independent experiments in cynomolgus monkeys
Lanadelumab data are representative of 3 independent experiments that all showed $t_{1/2}$ ~10 days

The *in vitro* Potency and NHP PK Data for QLS-215 Predict a Substantially Longer Duration of Action than Lanadelumab

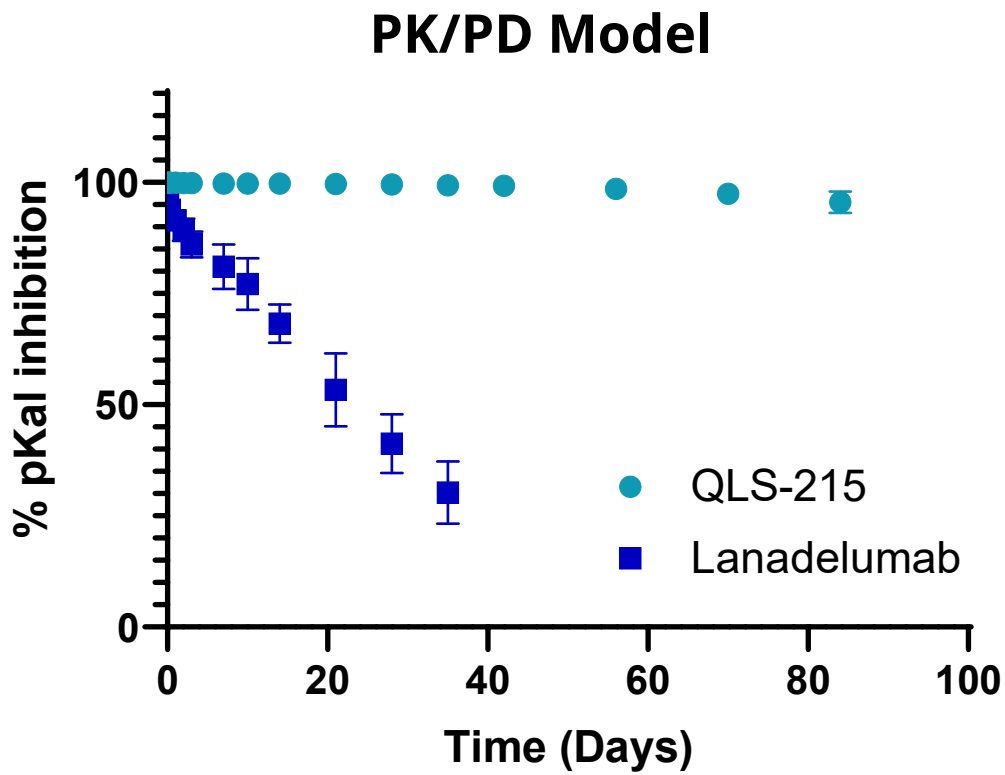




- Lanadelumab plasma levels fall below predicted minimum therapeutic concentration (IC90) by approximately **day 10**
- QLS-215 remains above predicted minimum therapeutic concentration (IC90) for **> 84 days**

IC_{90} from cleavage of 600 nM HMWK with 30 nM pKal

PK/PD Model from Preclinical Studies Predicts Longer Duration of Action for QLS-215



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

QLS-215 mAb Developed with the Desired Characteristics

Goal: Make the best possible pKal antibody to treat HAE with infrequent dosing and sustained blood levels

QLS-215 Goals	Status
High potency for pKal	✓
Extended plasma half-life in NHP	✓
Clinical proof of concept	
New therapy for HAE prophylaxis	

Opportunity for Proof of Concept in First Clinical Trial

Clinical Trial Design

- **Subjects:** Adult healthy volunteers
- **Objectives:** Assess safety, pharmacokinetics and pharmacodynamics to demonstrate plasma kallikrein inhibition

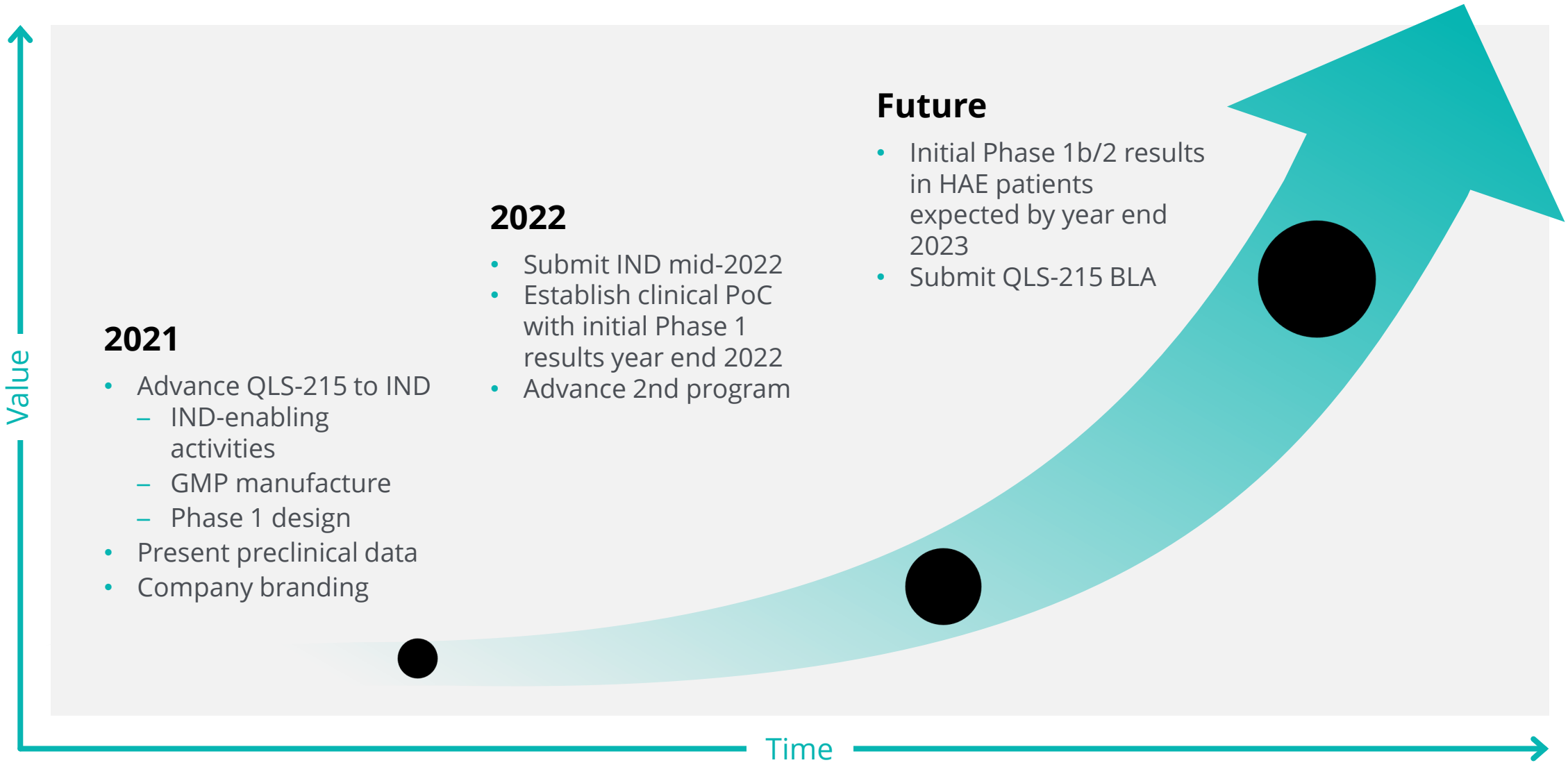
Goals

- Demonstrate safety
- Establish prolonged half-life as proof of concept in humans
- Determine activity with an *ex vivo* functional PD assay
- Refine dose and dosing regimen for HAE patients

QLS-215 potential value inflection point: demonstrate extended antibody half-life and pharmacodynamic activity for differentiated profile

- Initial Phase 1 results expected by year end 2022
- Target and modality already validated in HAE patients

Vision for Catabasis



QLS-215 Opportunity

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

Targeting a clinically validated mechanism with a trusted modality

Potential for best-in-class agent that provides greater efficacy and ease of use

Candidate with differentiated preclinical profile in predictive models

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

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