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Investor Presentation

January 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 the Private Securities Litigation Reform Act of 1995, including statements with respect to: future expectations, plans and prospects for Quellis Biosciences Inc. ("Quellis") and the combined company following the anticipated consummation of the merger transaction between the Company and Quellis (the "Merger"); the expected closing of the concurrent private placement; the initial market capitalization of the combined company and the benefits of the Merger, and the milestones of the combined company; the cash runway of the combined company; the potential timing for the filing of an IND; the status and plans for a Phase 1a and Phase 1b/2 clinical trial; and the potential commercial opportunity for QLS-215. 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 the 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; the ability to obtain or maintain the listing of the common stock of the combined company on The Nasdaq Stock Market following the Merger, costs related to the Merger, changes in applicable laws or regulations, the possibility that the Company or Quellis 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, our ability to enroll patients in our clinical trials, 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 publication review bodies with respect to our development candidates; our ability to obtain, maintain and enforce intellectual property rights for our platform and development candidates; our potential dependence on collaboration partners; competition; our ability to obtain necessary financing to conduct our planned activities and to manage unplanned cash requirements; and general economic and market conditions; as well as the risks and uncertainties discussed in the "Risk Factors" section of the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2020, which is on file with the Securities and Exchange Commission, and in other filings that the Company may make with the Securities and Exchange Commission in the future. These forward-looking statements should not be relied upon as representing the Company's 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 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

Catabasis Acquisition of Quellis

Transaction Summary	• Catabasis Pharmaceuticals, Inc. (“Catabasis,” Nasdaq: CATB) has acquired Quellis Biosciences, Inc. (“Quellis”) – Quellis is a preclinical virtual biotech company focused on improving the lives of patients with Hereditary Angioedema – Catabasis is a publicly-traded biotech company with expertise in rare disease discovery and clinical development • Catabasis announced a concurrent PIPE financing of $110M – The shares issued in the PIPE consist of convertible non-voting preferred stock • Catabasis will seek stockholder approval of the conversion of the non-voting preferred stock into common stock • On a post-conversion basis, common shares outstanding will be 109,494,006
Premier Investors and Alignment of Interest	• Combined company has an experienced management team, leading healthcare investors and financial resources to continue development of QLS-215, a compelling asset for the treatment of HAE • Shareholders of the combined company 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
Use of Proceeds	• At closing of the transactions, the combined company will have approximately $150 million in cash, cash equivalents and short-term investments – Proceeds 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
Key Management and Board	• Combined company led by Catabasis 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

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]

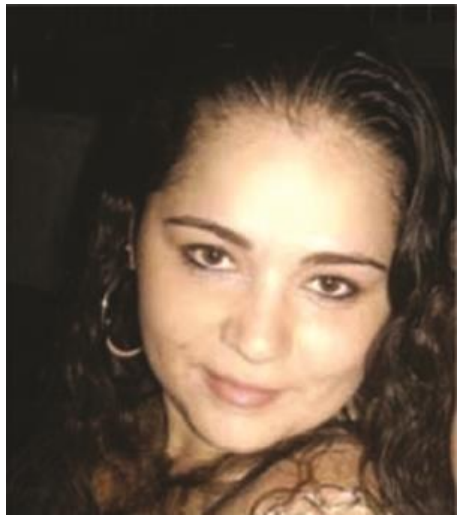
Disease Pathways	• Types I & II comprise the majority of HAE cases and are caused by defects in the C1 inhibitor gene[1] • While rare, other mutations, including in the F12 gene, can cause HAE • In HAE there is an overproduction of bradykinin, a key mediator of vasodilation and angioedema
Patient Demographics	• 1 in 10,000-50,000 people; <8,000 people in the US[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]

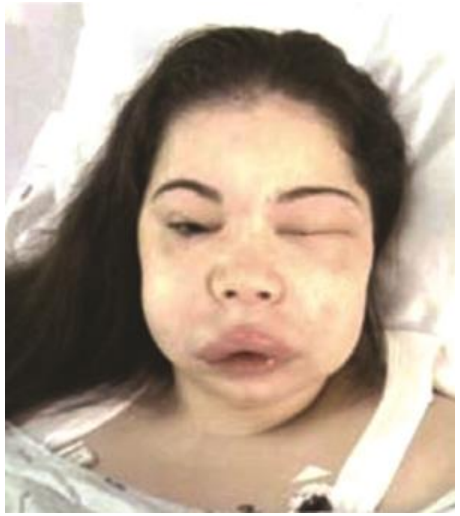
1. Busse PJ, et al. J Allergy Clin Immunol Pract 2021; 9(1):132-150.e3.
2. Zuraw BL. Hereditary angioedema. N Engl J Med. 2008;359:1027-36.
3. Lumry WR. Front. Med., 16 Feb 2019. doi:10.3389/fmed.2018.00022.
4. Bork K, et al. Am J Med. 2006;119;267-274.
5. Zuraw B et al. B. J. Haem. 2016.173(6):831-843.

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

Patient journey

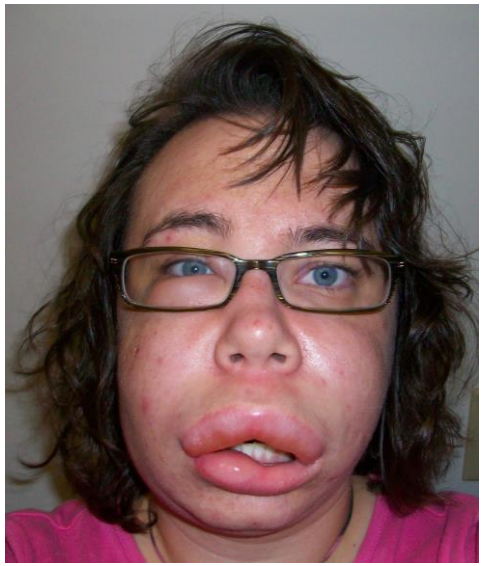
- Patients typically present with symptoms to PCP or ER
- Low disease awareness among ER physicians and PCPs, although improving, limits referrals to allergists and HAE specialists for diagnosis
- Once diagnosed, most patients are prescribed treatment





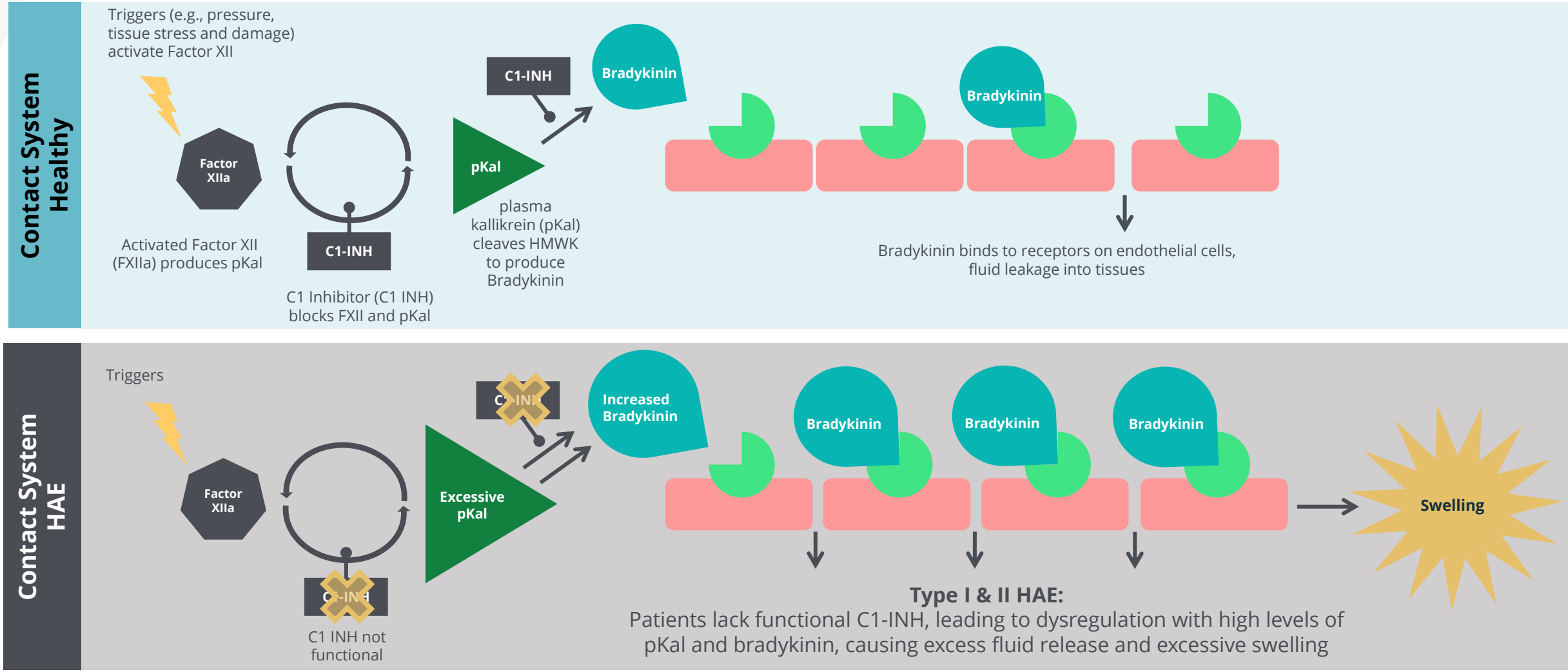
Common triggers include:

- 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]

Acute treatments to limit severity and duration of attacks as they occur

Prophylactic treatments to prevent attacks

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

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

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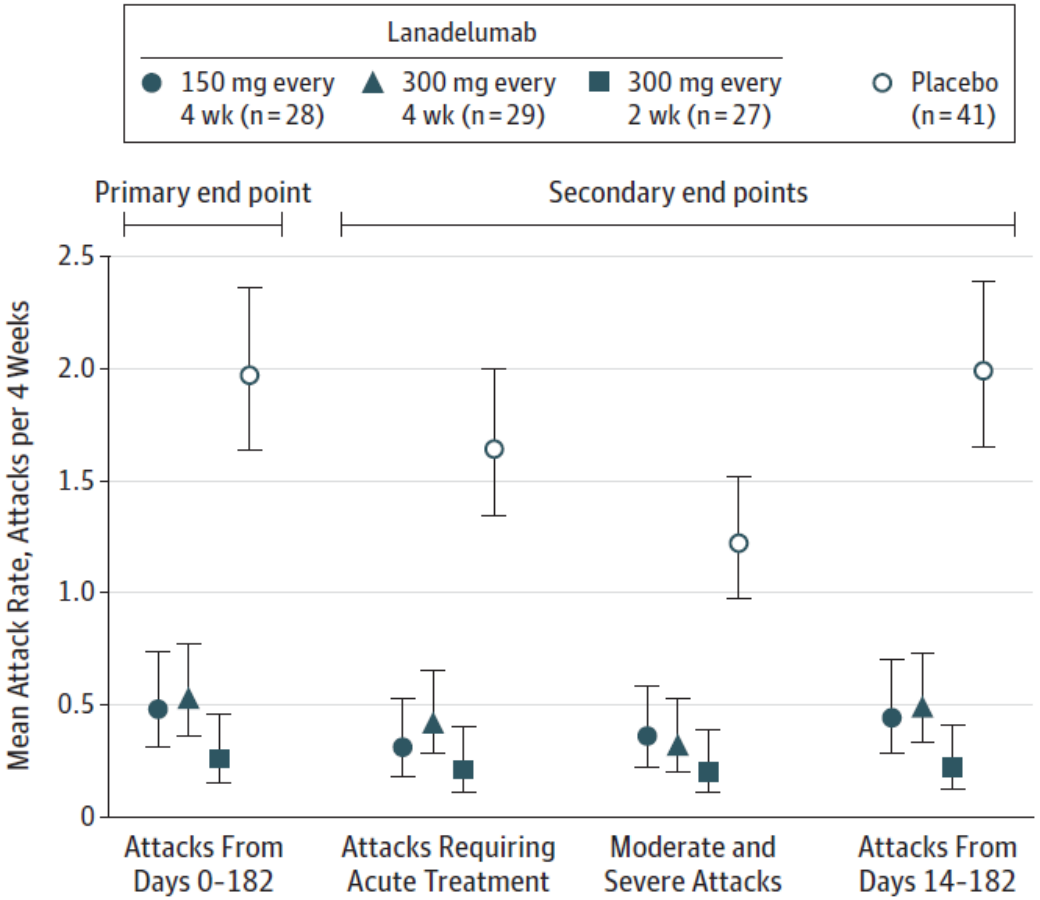
[1]Fortune Business Insights, Healthcare/Hereditary Angioedema Treatment Market, Report ID: FBI100165.

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

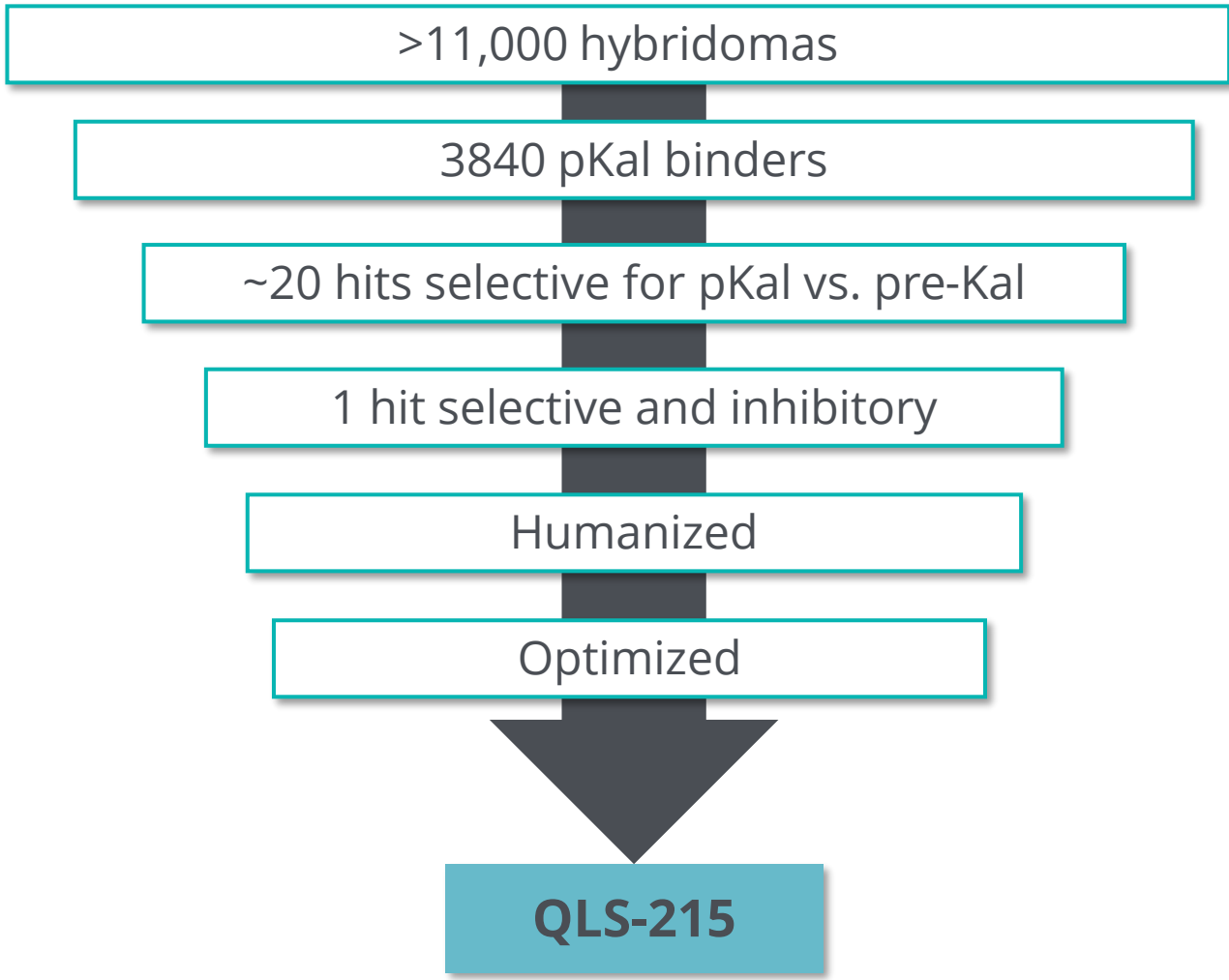
Goal: Make the best possible pKal antibody to treat HAE with infrequent dosing and sustained blood levels

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

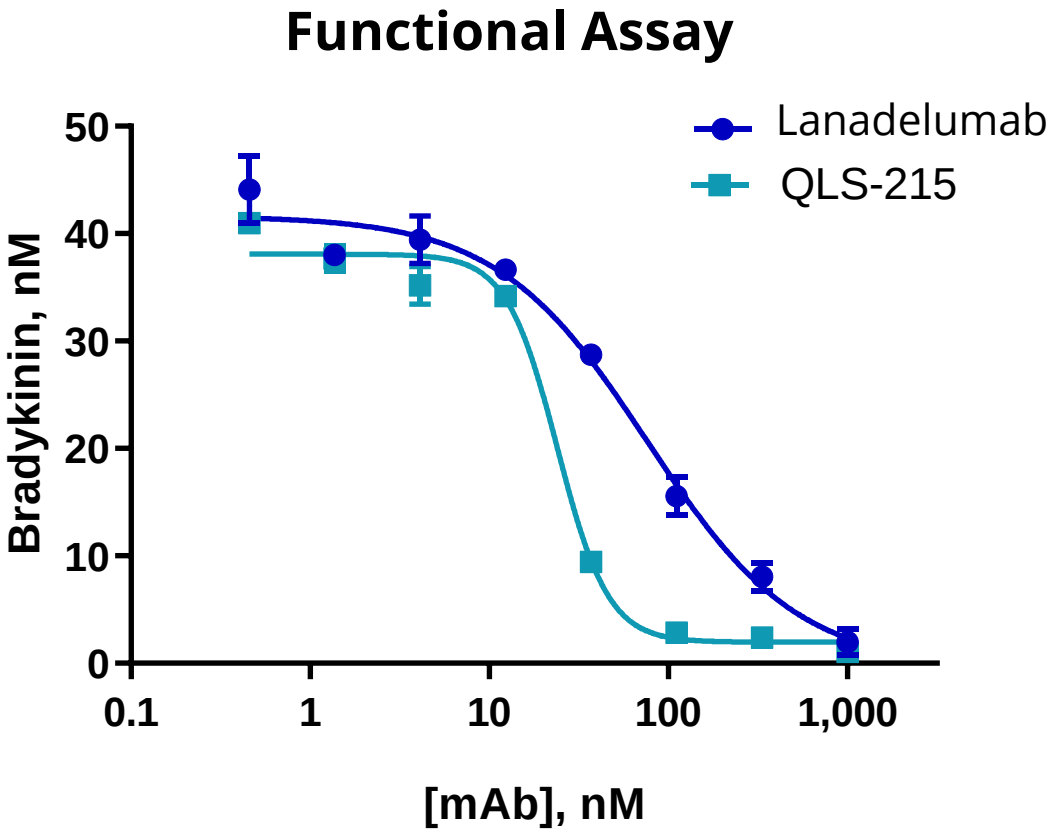
QLS-215 Designed from Inception to be Potentially a Best-in-Class Prophylactic Therapy for Patients Affected by HAE

Humanized monoclonal antibody having the following features:

- High affinity and selectivity for plasma kallikrein (pKal) versus pre-kallikrein (pre-Kal)
- Reduced immunogenicity and CMC liabilities
- Extended plasma half-life



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

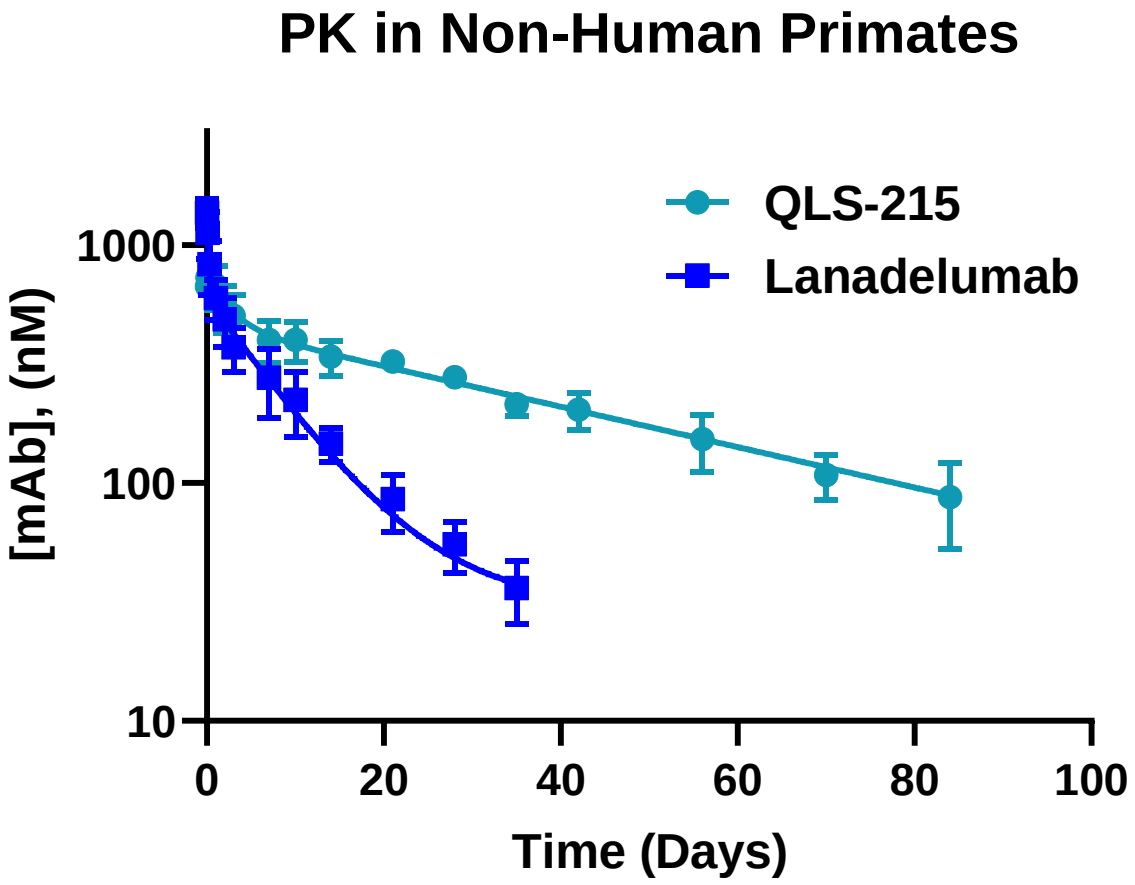


	Lanadelumab	QLS-215
pKal IC_{90} (nM)	300	30

- IC_{90} determined by bradykinin ELISA to detect cleavage of high molecular weight kininogen (600 nM) by pKal (30 nM)

pKal levels 30-110nM estimated in HAE plasma (Kenniston et al JBC 2014)

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

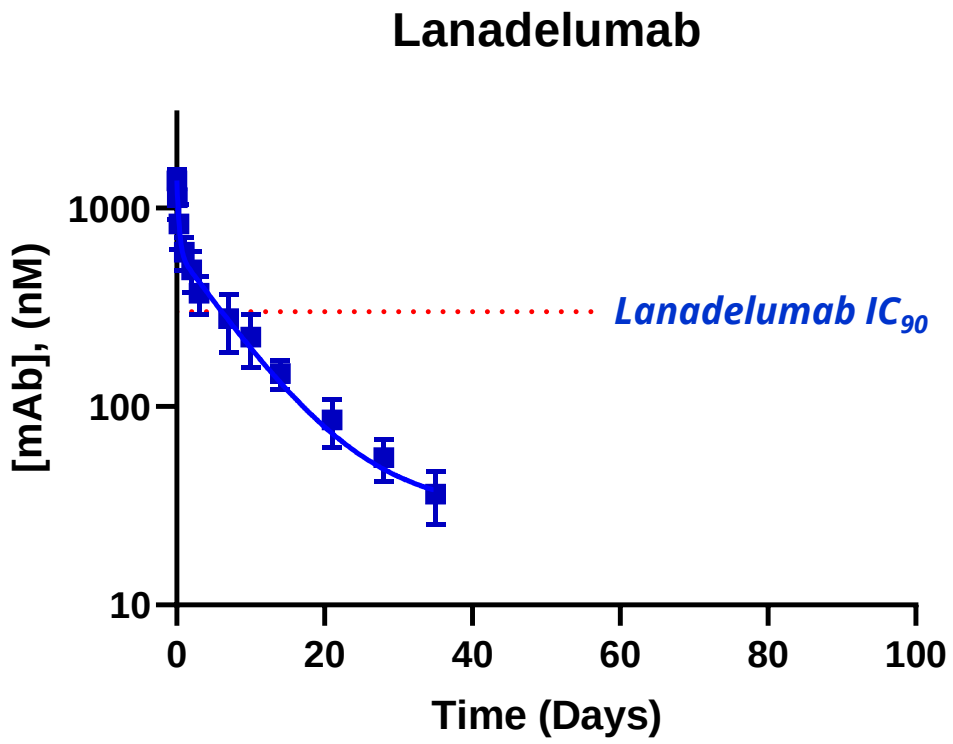


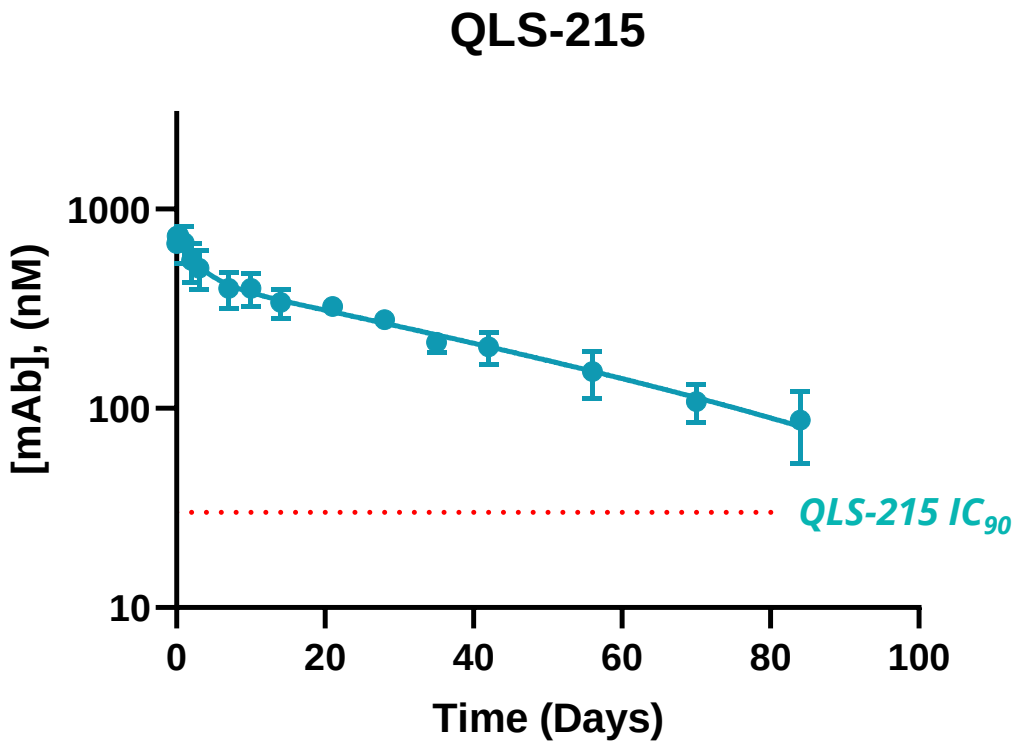
	Lanadelumab	QLS-215
Mean half-life ($t_{1/2}$) (SD)	10.5 (1.6)	33.6 (8.3)

- 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**

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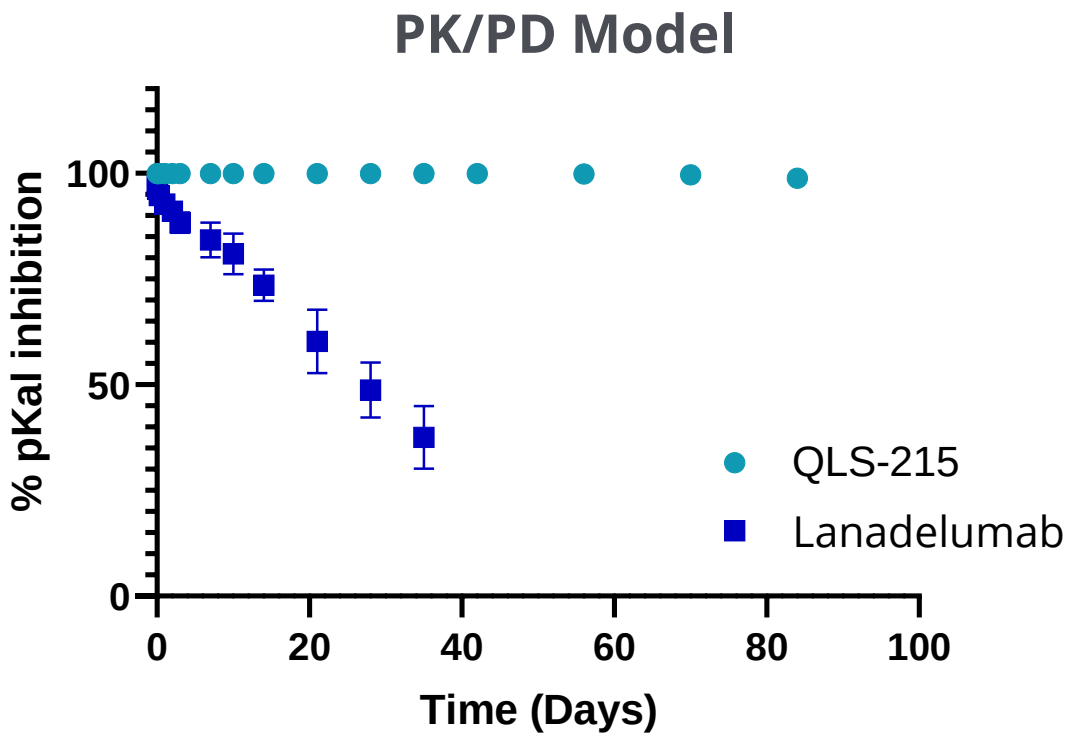
IC_{90} from cleavage of 600 nM HMWK with 30 nM pKal

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

pKal levels 30-110nM reported in HAE plasma (Kenniston et al JBC 2014)

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 Early Clinical Trials

Phase 1a Clinical Trial Design

- Subjects: Adult healthy volunteers
- Objectives: assess safety and PK
- Single escalating doses

Goals

- Demonstrate safety and prolonged half-life as proof of concept in humans
- Determine activity with an *ex vivo* functional PD assay

Phase 1b/2 Clinical Trial Design

- Subjects: Patients with Type I or II HAE
- Objectives: assess safety, PK and PD activity
- Multiple escalating doses

Goals

- Demonstrate safety and prolonged half-life as proof of concept in patients
- Determine activity with PD assessments

Estimated Timeline and Cash

- Cash, cash equivalents and short-term investments following closing of transactions will be approximately $150M
- Expected cash runway through 2023

2021	2022	2023
QLS-215 • Conduct IND-enabling activities • Initiate GMP manufacture • Develop Phase 1a trial design • Present preclinical data **Pipeline** • Advance undisclosed program • Disclose rare disease program	**QLS-215** • Submit IND • Initiate Phase 1a trial • Initial Phase 1a results **Pipeline** • Conduct IND-enabling activities for rare disease program	**QLS-215** • Initiate Phase 1b/2 trial in HAE patients • Initial Phase 1b/2 results

QLS-215 Opportunity

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

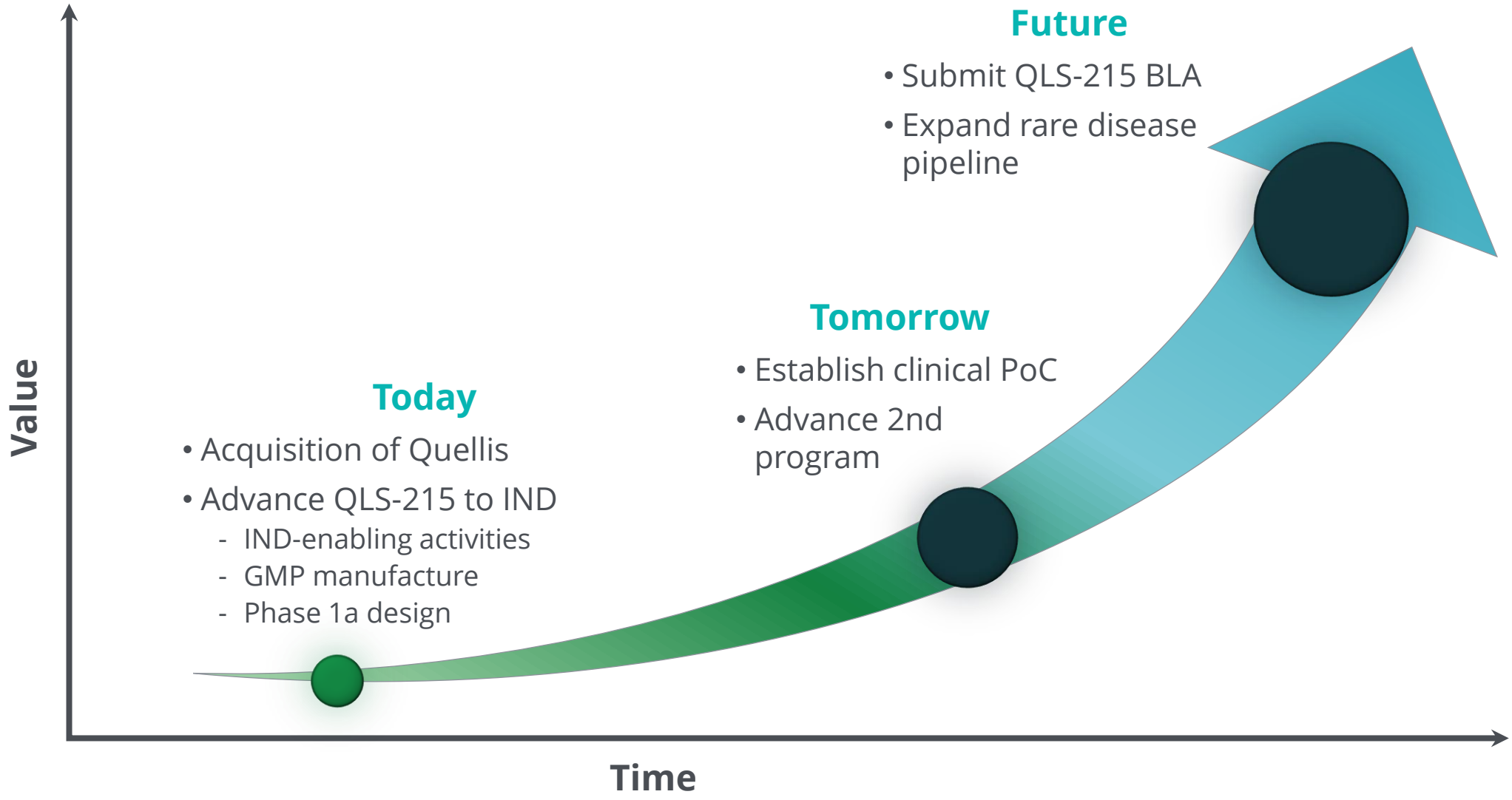
Targeting a clinically validated mechanism with a trusted modality

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

Candidate with differentiated preclinical profile in predictive models

Potential to demonstrate clinical proof of concept for product profile in Phase 1

Vision for Catabasis



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