CATALYST BIOSCIENCES

Corporate Overview

3 March 2020

CATALYST BIOSCIENCES

Forward looking statements

This presentation includes forward-looking statements that involve substantial risks and uncertainties. All statements included in this presentation, other than statement of historical facts, are forward-looking statements. Examples of such statements include, but are not limited to, potential markets for MarzAA, DalcA and CB 2782-PEG, potential benefits of subcutaneous dosing, potential use of MarzAA as a subcutaneous therapy for patients with hemophilia A or B with inhibitors and other bleeding disorders, potential use of DalcA as a subcutaneous therapy for patients with hemophilia B, potential benefits of CB 2679d-GT as gene therapy, clinical trial results, plans for a registrational trial for MarzAA in second half of 2020, plans for final Phase 2b clinical trial data for DalcA in the second quarter of 2020, plans for non-human primate data for CB 2679d-GT in the second quarter of 2020, and potential milestone and royalty payments from Biogen. Actual results or events could differ materially from the plans, expectations and projections disclosed in these forward-looking statements.

Various important factors could cause actual results or events to differ materially, including, but not limited to, the risk that additional human trials will not replicate the results from earlier trials or animal studies, that potential adverse effects may arise from the testing or use of MarzAA or DalcA, including the generation of antibodies, which has been observed in patients treated with DalcA, that clinical trials will take longer than anticipated to be completed, that costs required to develop or manufacture the Company's products will be higher than anticipated, that Biogen will discontinue development of CB 2782-PEG, competition and other factors that affect our ability to establish collaborations on commercially reasonable terms and other risks described in the "Risk Factors" section of the Company's annual report on Form 10-K filed with the Securities and Exchange Commission on February 20, 2020, and in other filings with the Securities and Exchange Commission. The Company does not assume any obligation to update any forward-looking statements, except as required by law.

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Essential Medicines – Superior Outcomes

Late-Stage Asset

SQ Marzeptacog alfa (activated)
MarzAA (FVIIa)

Phase 3 Ready

Hemophilia

SQ MarzAA (FVIIa)

SQ Dalcinonacog alfa – DalcA (FIX)

Factor IX Gene Therapy

Factor Xa

Complement

IVT Anti-C3 Dry AMD
CB 2782-PEG

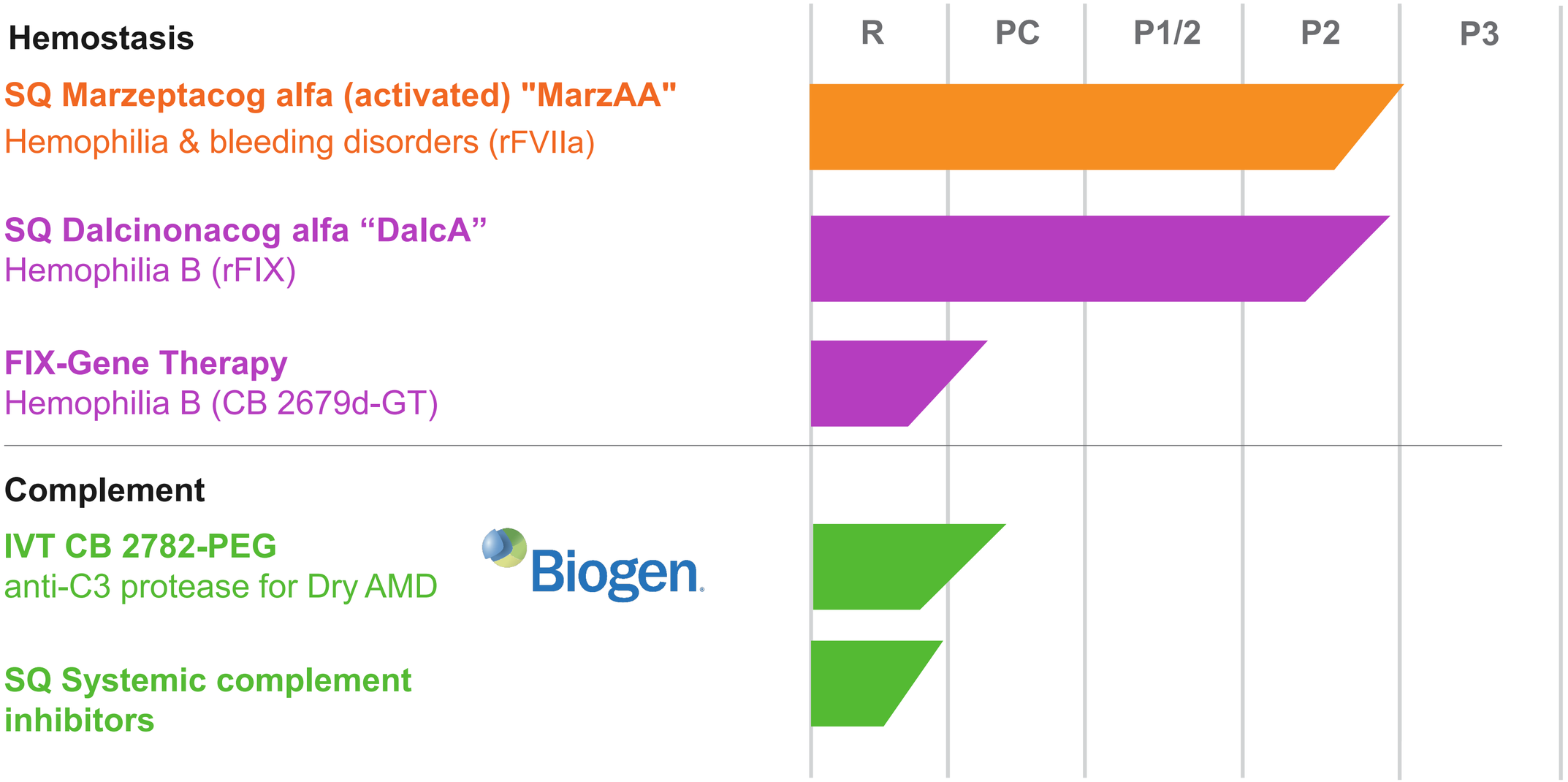
Biogen

SQ Systemic Complement Inhibitors

Protease Engineering Platform

Pipeline

Nasdaq: CBIO



Investment highlights

Novel subcutaneous factors with orphan drug designation, MarzAA & DalcA – SQ P2b clinical efficacy demonstrated

Anti-C3 collaboration with Biogen

SQ systemic complement inhibitors research program

~177 worldwide patents – CBIO retains full ownership of all compounds

Multi-billion-dollar market opportunities

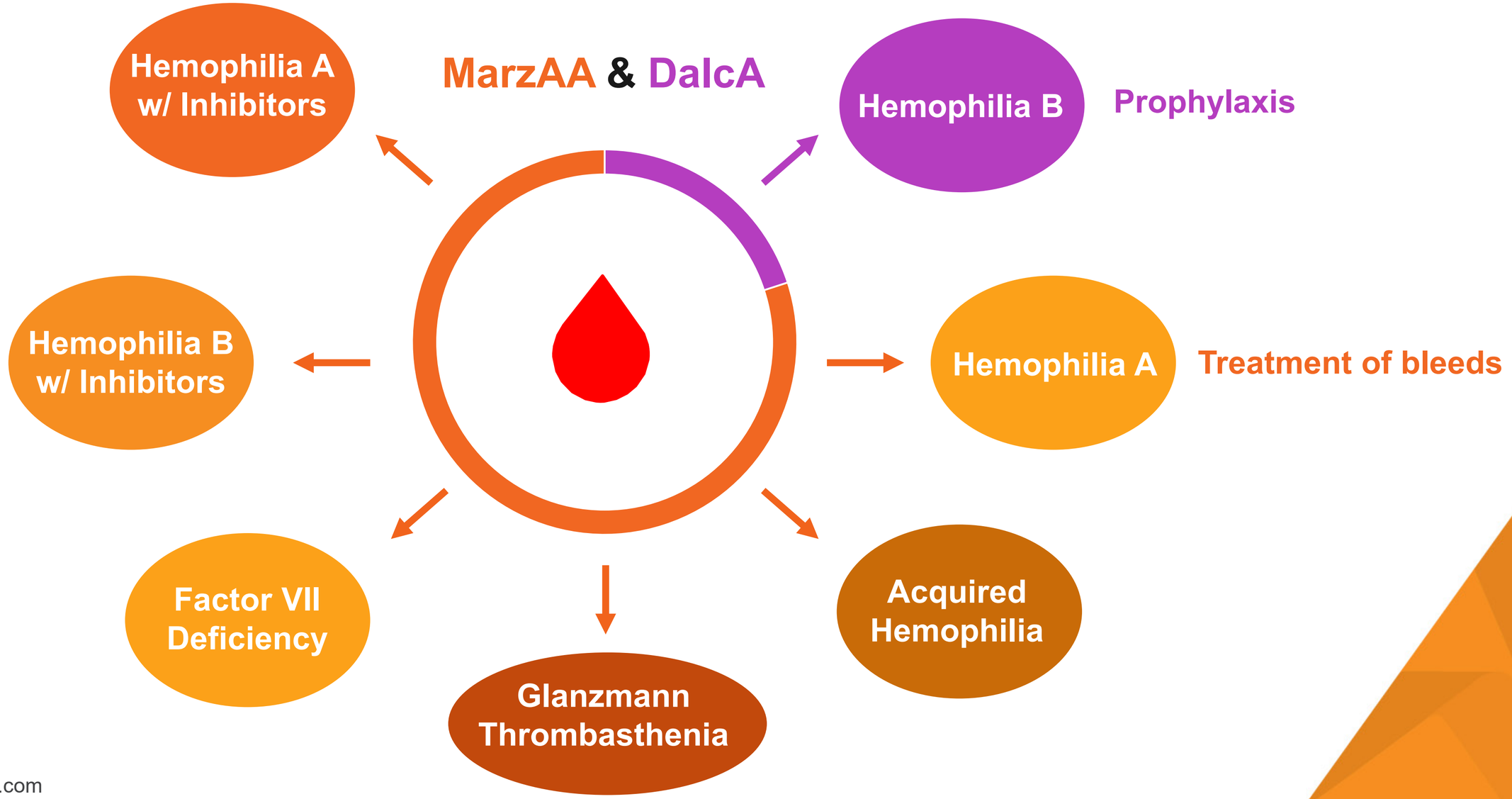
Experienced team

Strong balance sheet, ~$120 M cash

Addressing unmet needs in orphan bleeding disorders

Nasdaq: CBIO

SQ treatment of bleeds and prophylaxis – $4B+ market



The Catalyst Biosciences subcutaneous solution

Nasdaq: CBIO

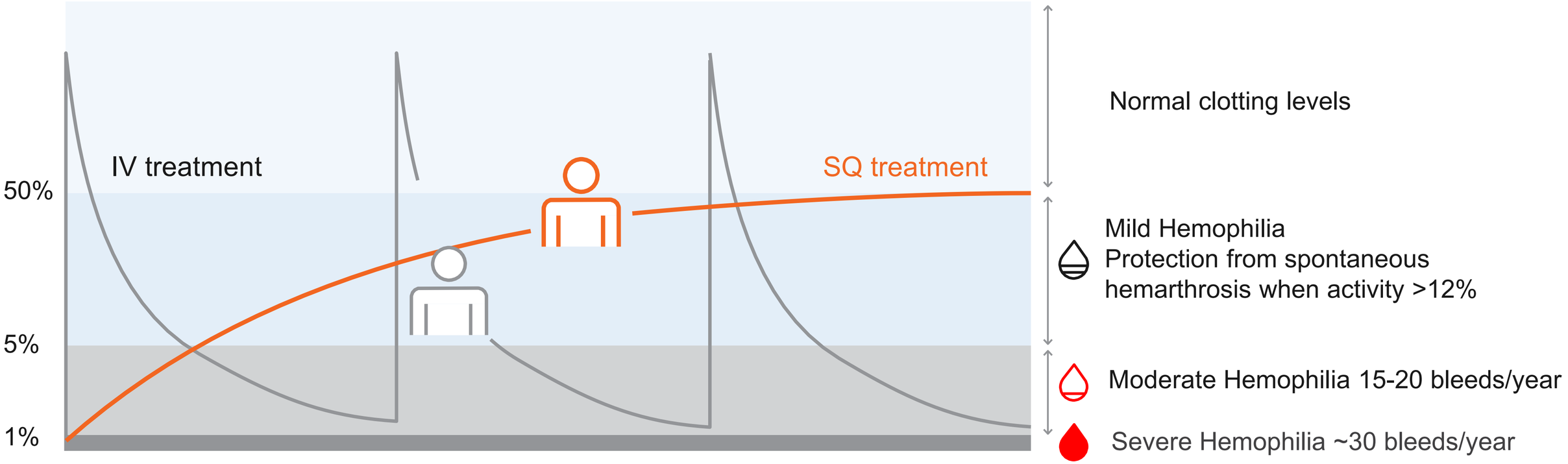
Our highly potent candidates

+ Quick & simple self-administered SQ injection
+ SQ dosing is the future in hemophilia and other rare hematology indications
+ Ideal for pediatric patients
+ Significantly increases half-life
+ Much higher & more stable factor levels for prophylaxis
+ Enable SQ treatment of bleeding

The new standard in hemophilia prophylaxis

Nasdaq: CBIO

Patients in high mild range are protected from spontaneous bleeds

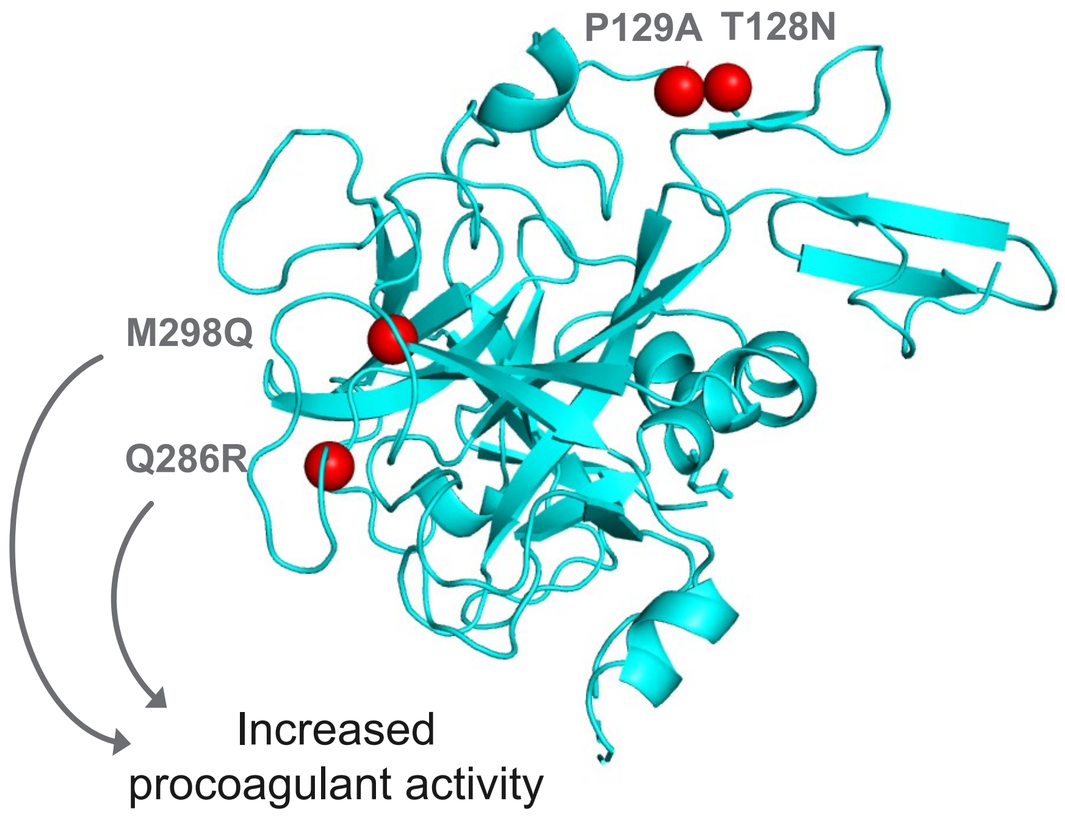


- Our concept of prophylactic treatment is to keep severe & moderate hemophilia patients in the high mild range
- Subcutaneous factor treatments build up over time, offering long-term stability in clotting levels

Marzeptacog alfa (activated): MarzAA rFVIIa

Nasdaq: CBIO

SQ prophylaxis and SQ treatment of a bleed are clear unmet needs in hemophilia and other bleeding disorders

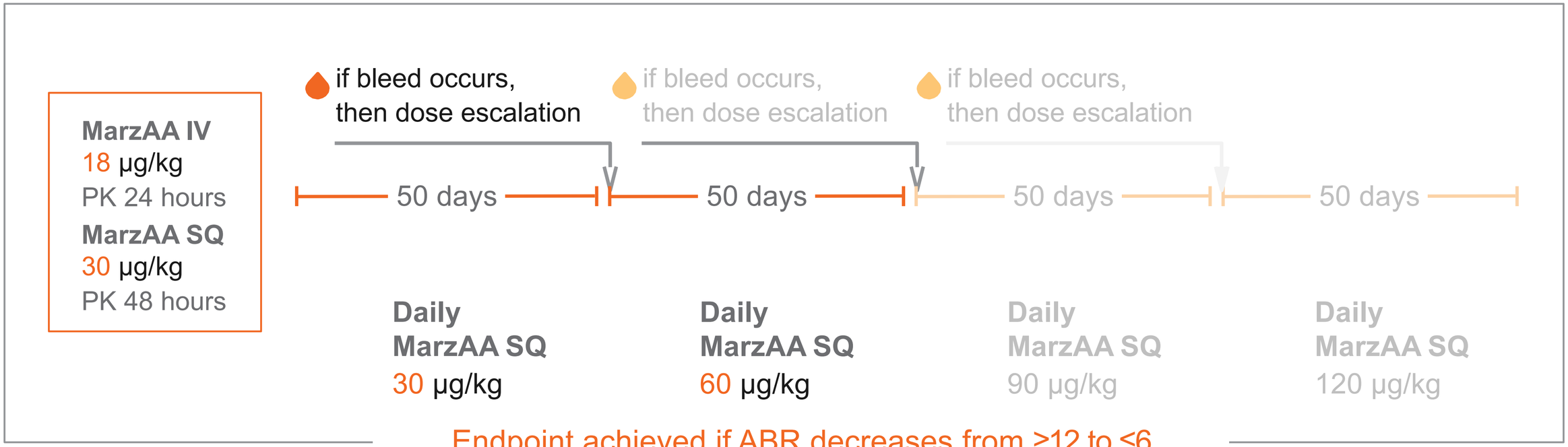


+ Four engineered amino acid substitutions within the FVIIa protein
+ 9-fold more potent catalytic activity than NovoSeven RT
+ **Allows subcutaneous dosing**
+ Half-life prolonged when using subcutaneous dosing

Orphan Drug Designation

Granted in the US and EU

MarzAA phase 2/3 SQ clinical trial MAA-201 design

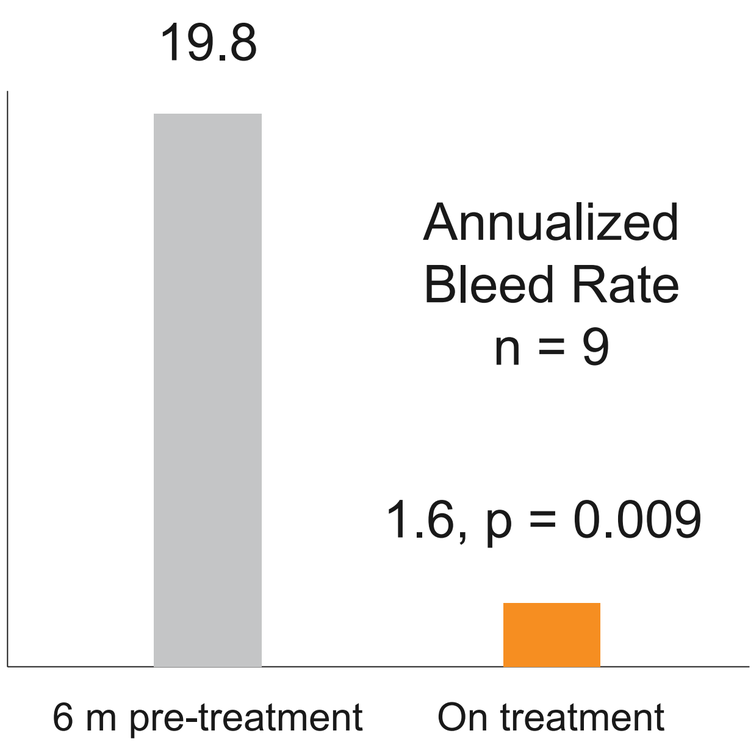


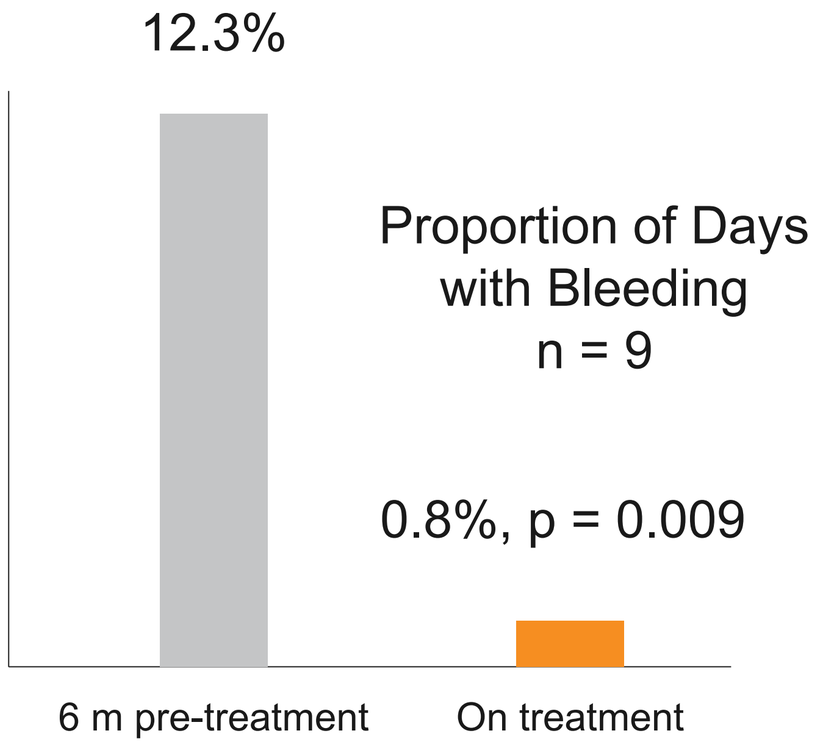
- Patients with documented annual bleeding rate (ABR) >12
- Open label SQ study with individual dose escalation if needed in Hemophilia A or B with inhibitors
- Primary endpoint: reduction in annualized bleed rate **at final dose level**
- Secondary endpoints: safety and tolerability, inhibitor formation

MarzAA Phase 2 demonstrates clinical efficacy

Greater than 90% reduction in all bleeding; Median ABR zero

7/9 subjects had no bleeding at final dose level





Safe & well tolerated, ~1% ISRs (6/517 SQ doses) and **no ADAs**

Mahlangu *et al.* EAHAD 2020

In a world of SQ prophylaxis

Patients & KOLs want SQ treatment of a bleed

Individuals on Hemlibra® have breakthrough bleeds

NovoSeven® is safe but is administered IV

FEIBA lacks a safety margin and is administered IV

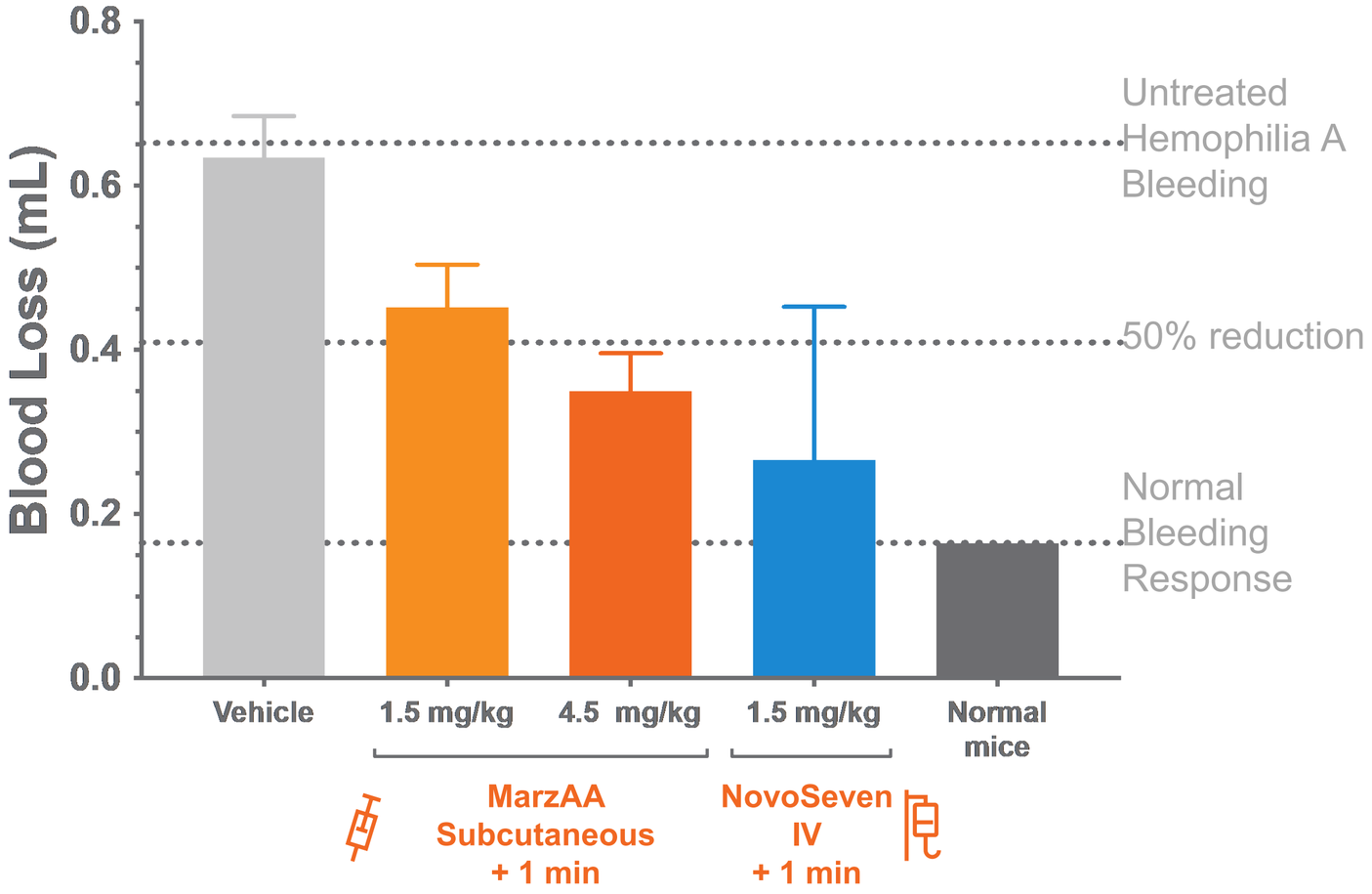
SQ MarzAA meets the profile for an **Ideal Solution**

- ✓ Fast & easy to administer
- ✓ Stops bleeding in a validated preclinical model
- ✓ Can be combined with Hemlibra *in vitro*

SQ MarzAA reduces bleeding when dosed after injury

Nasdaq: CBIO

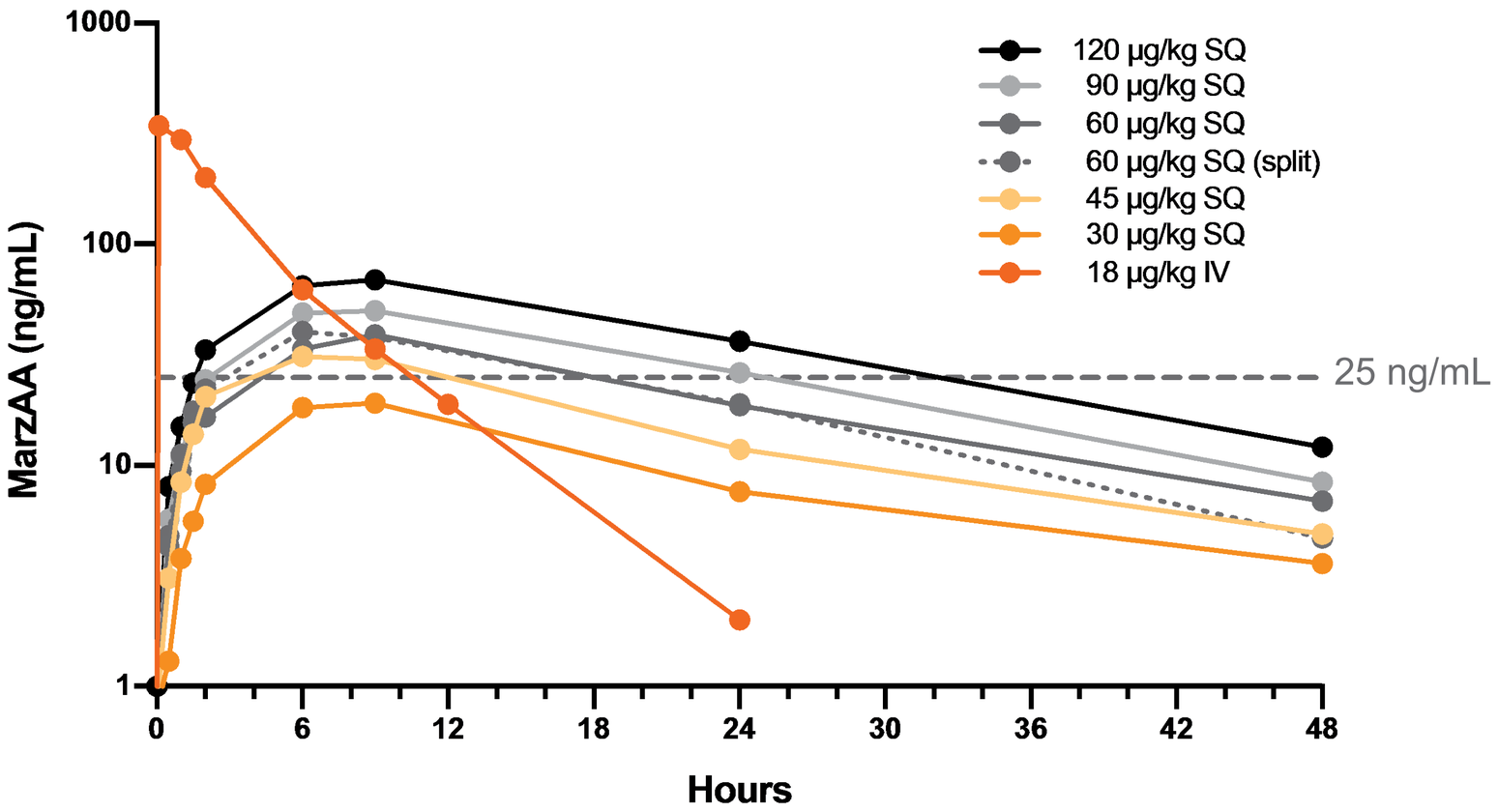
Acute mouse injury model with dosing *after* injury



- Preclinical tail-cut model in hemophilic rodents is the standard for efficacy
- SQ MarzAA one minute ***after*** tail-cut significantly reduces blood loss
- Reduction in blood loss is dose dependent
- Reduction in blood loss with SQ MarzAA is similar to IV NovoSeven

Blouse *et al.* ASH 2019

MAA-102 PK dose levels support SQ treatment of a bleed



- Dose-proportional increases in Cmax and AUC
- Rapid increase in levels to target range of 25 ng/mL
- Target levels can be maintained for 24 hours
- No ADAs
- Multiple dose cohorts enrolling
  - 60 µg/kg Q3-hourly twice or thrice

Neuman *et al.* EAHAD 2020

MarzAA is only bypass agent for **both** SQ prophylaxis and SQ treatment of bleeds

Attractive commercial profile targeting an existing $2.2B bypass agent market

IV NovoSeven ($1.2B 2019 sales) validates rFVIIa in multiple rare bleeding disorders

+ Hemophilia A or B with inhibitors
+ Severe Factor VII Deficiency
+ Glanzmann Thrombasthenia
+ Acquired Hemophilia A

SQ MarzAA has a superior profile to IV NovoSeven – over 100 clinicians surveyed

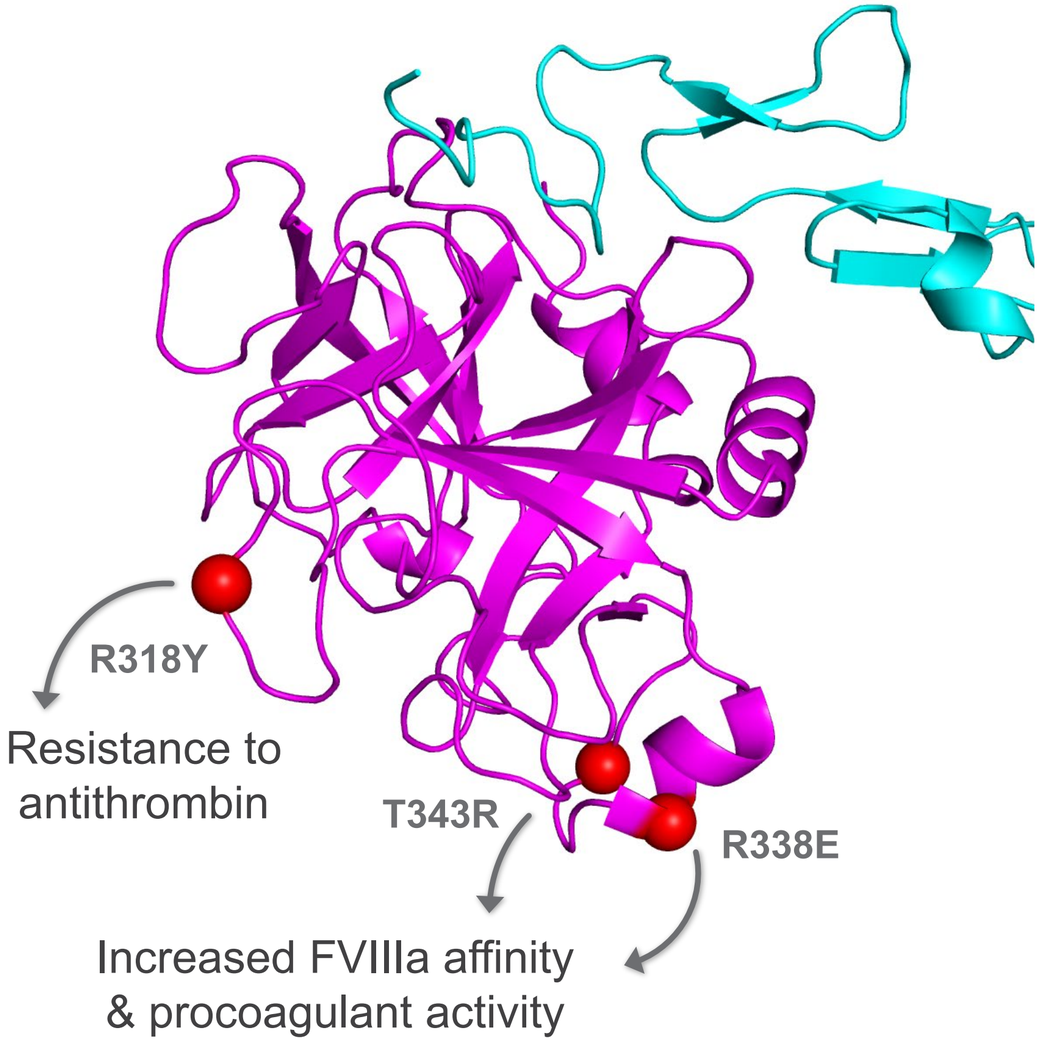
+ All physicians surveyed indicated a preference for SQ MarzAA over IV N7 in one or more settings
+ SQ MarzAA can create & expand multiple prophylaxis markets

Marzeptacog alfa (activated)

Phase 3 study to initiate in 2020

- Large commercial opportunity across multiple rare bleeding disorders
- Demonstrated P2 Clinical efficacy & tolerability for prophylaxis indications
- Demonstrated preclinical PoC for SQ treatment of a bleed
- MarzAA can be safely combined with Hemlibra *in vitro*
- SQ dose escalation PK/PD study supports treatment of a bleed – final data in Q2 2020
- P3 prophylaxis guidance from EMA & MHRA received

Dalcinonacog alfa: a novel SQ FIX product



Three substitutions within the FIX protein

+ Increased catalytic activity
+ Higher affinity for FVIIIa
+ Resistance to antithrombin inhibition
+ 22-fold increased potency over BeneFIX

Differentiated from marketed IV FIXs

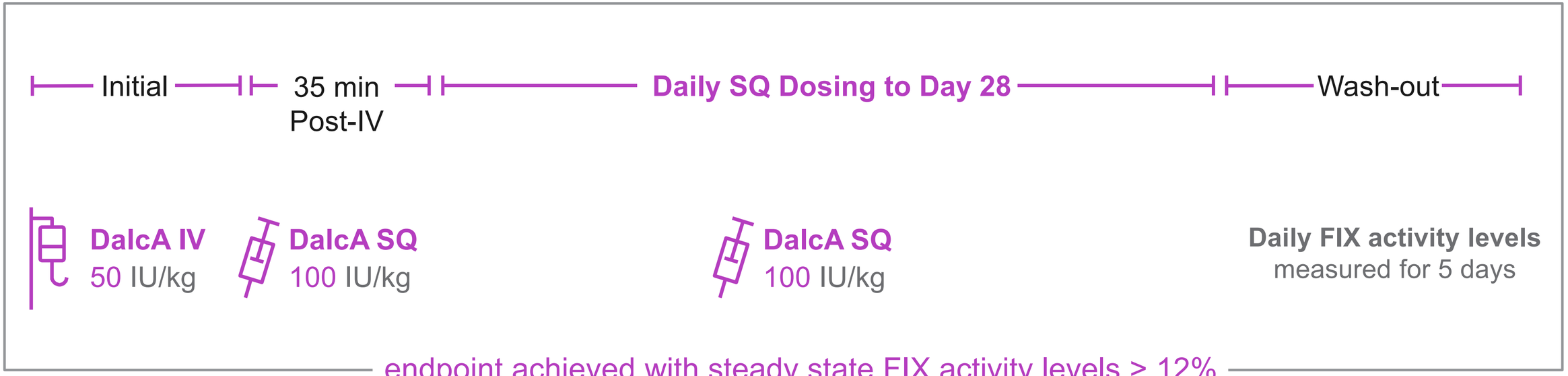
+ Simple, small volume SQ administration
+ Enhanced pharmacokinetics with prolonged half-life
+ Excellent extravascular distribution
+ Potential to maintain continuous protective levels

Orphan Drug Designation in US & EU

Dalcinonacog alfa phase 2b SQ clinical trial design

Nasdaq: CBIO

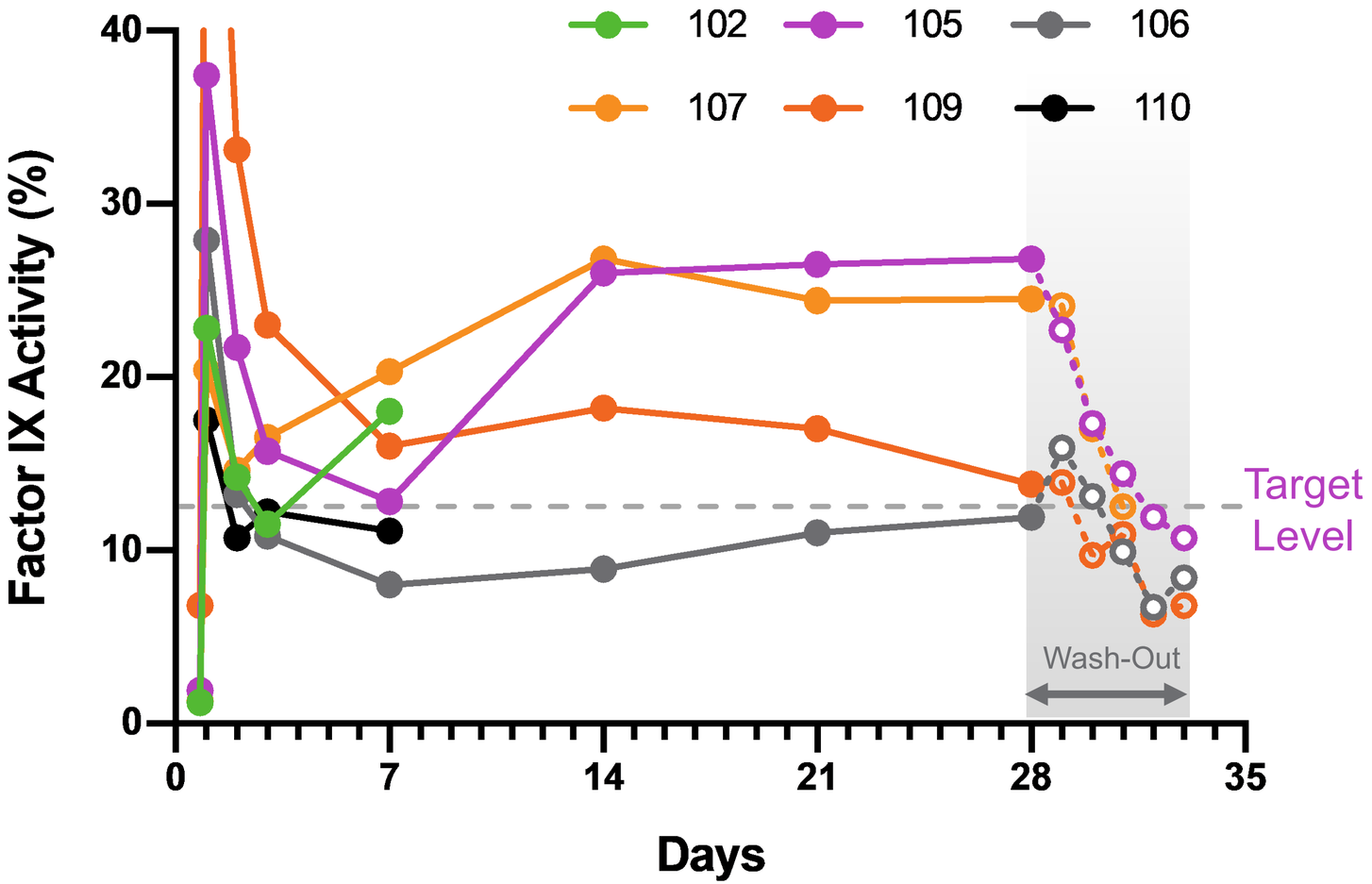
Enrollment & dosing complete



- Primary endpoint: **Steady state FIX activity** level above 12% with daily dosing
- Secondary endpoints: **safety including weekly ADA testing**, pharmacokinetics, pharmacodynamics, bleeding events
- 10 severe HB patients screened; 6 dosed
- Rare propeptide mutation excluded
- HLA profile associated with nAb risk was excluded

Target levels achieved with 100 IU/kg dosing for 28 Days

Nasdaq: CBIO



Target FIX >12% Achieved

+ Dosed 6 severe HB subjects
  - 110 continues dosing*
  - 102 withdrew on Day 7
+ **Steady state FIX levels up to 27%** achieved after 14 days
+ **No breakthrough bleeds**
+ **No ADAs**
+ Consistent PK profiles
+ Terminal half-life is 70-112 h

*Data cutoff 5 February 2020

Dalcinonacog alfa

Has the potential to be an effective SQ prophylaxis treatment for individuals with Hemophilia B

- Trial enrollment & dosing complete
- Excellent & consistent therapeutic FIX activity levels attained
- No bleeding events during treatment demonstrates effective prophylaxis
- No SAEs, systemic hypersensitivity, ADAs or nAb to DalcA or wild-type FIX
- Mild to moderate ISR’s primarily with initial injections – resolved
- Long half-life with SQ administration – potential to lower dose &/or frequency

FIX gene therapy: CB 2679d-GT for hemophilia B

CB 2679d-GT in combination with a novel chimeric AAV capsid provides significant improvements

+ Stable high activity levels in a mouse hemophilia B model – **no nAbs**
+ Vector dose reduced 10-fold compared to current constructs
+ Potential for an improved efficacy & safety profile
+ AAV license and sponsored research agreement with Stanford University School of Medicine

Superior preclinical efficacy of CB 2679d-GT *vs* Padua

+ 4-5-fold reduction in bleeding time
+ Activity levels elevated throughout the study - **no nAbs**

Wholly-owned & issued patents covering gene therapy

FIX Transgene	AAV Capsid	Study Dose (vg/kg)	FIX Activity (U/mL)
CB 2679d-GT	**Novel Chimeric**	**$8.0x10^{10}$**	**20**
Padua	TAK-748*	$7.4x10^{11}$	20
Padua	TAK-748*	$7.4x10^{10}$	1

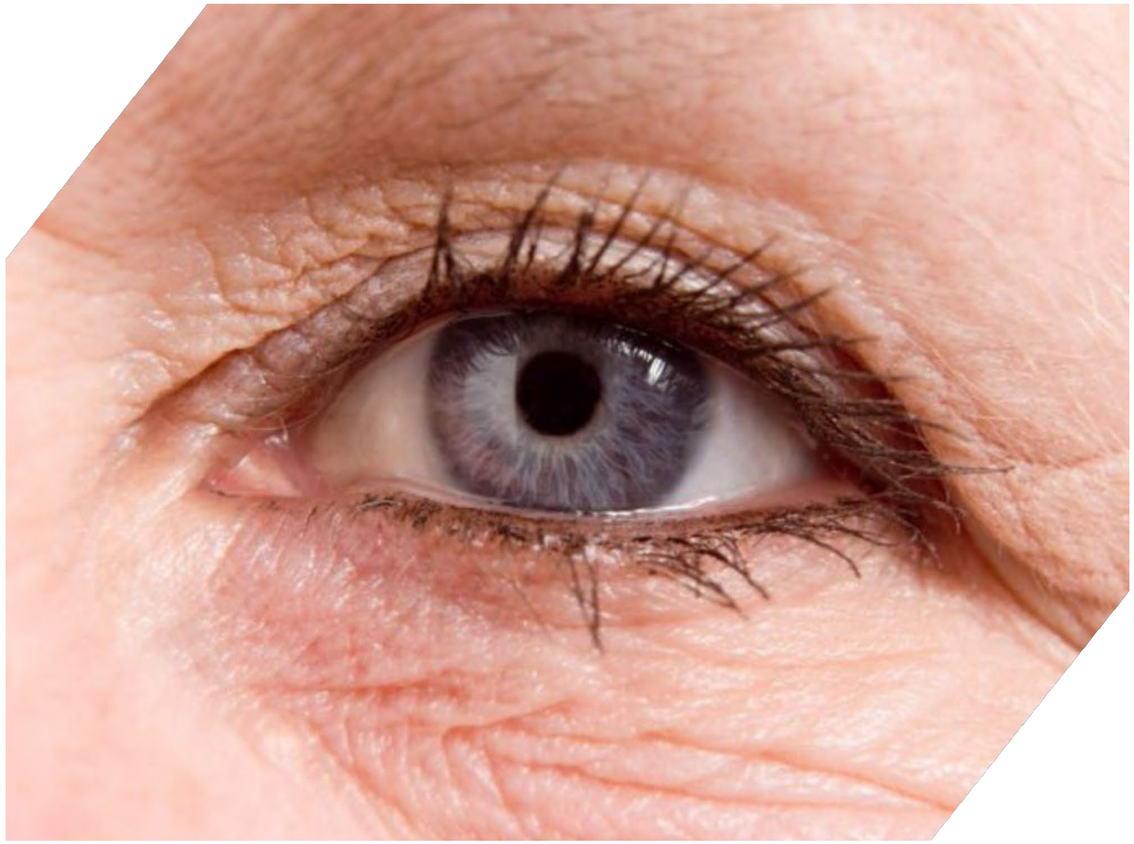
*Weiller *et al.* (2019) *Blood* Vol. 134, Supplement S1 P4633

Blouse *et al.* EAHAD 2019 & 2020

CB 2782-PEG anti-complement factor 3 (C3) protease

Nasdaq: CBIO

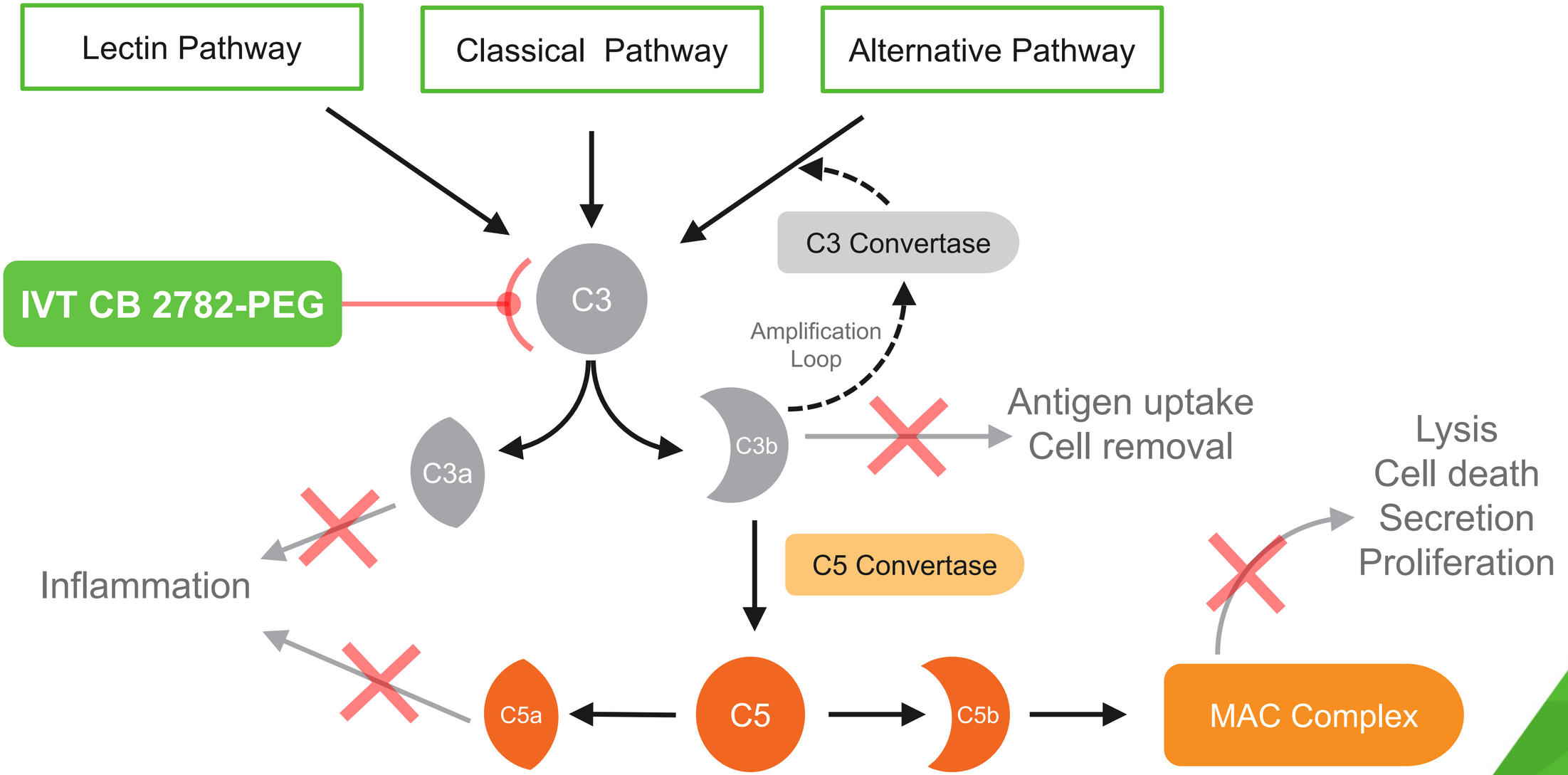
Geographic Atrophy in Dry AMD



- Geographic atrophy is an advanced stage of dry age-related macular degeneration that results in the irreversible loss of retina and leads to blindness
- Dry AMD affects a million people in the United States and over five million people worldwide
- Global market is estimated at >$5B with no approved drugs
- C3 is the only clinically validated target for the treatment of Dry AMD

Sources: National Eye Institute. Facts About Age-Related Macular Degeneration, Tufail 2015, The Eye Diseases Prevalence Research Group 2004, GlobalData

Targeting C3 blocks the downstream complement cascade



CB 2782-PEG long acting anti-C3 protease

Nasdaq: CBIO

Best-in-class anti-C3 profile for dry AMD

+ Generated from Catalyst's proprietary protease engineering platform
+ Potent, selective and long acting anti-C3 protease that degrades C3 into inactive fragments
+ Preclinical NHP PK & PD data* predict best-in-class human intravitreal dosing three or four times a year

Biogen Collaboration

+ Announced December 19, 2019
+ $15M upfront, up to $340M in milestones and tiered royalties up to low double digits
+ Catalyst to perform fully funded pre-clinical and manufacturing activities
+ Biogen responsible for IND-enabling activities, worldwide clinical development & commercialization

Biogen

*Furfine *et al.* ARVO 2019

Milestones

	2019	Q1	Q2	H2
MarzAA (FVIIa)	**P2 efficacy** ✓	EoP2	ToB enabling PK/PD ✓	Registration Trial
DalcA (FIX)	**Positive P2b Interim data** ✓	**P2b Update** ✓	Final P2b data	
CB 2679d-GT (FIX Gene Therapy)	**Preclinical efficacy** ✓	**NextGen Vector** ✓	NHP Efficacy	
CB 2782-PEG (dAMD)	**Partnership** Biogen ✓			

Financial information

Nasdaq: CBIO

Selected data

Financial results	YE 2019
Cash & Cash Equivalents	$76.9 M[1]
Operating Expense	$57.3 M
Net Loss (YTD)	($55.2M)
Net Loss per share (YTD)	($4.60)

Share data	
Common Stock Outstanding	12,040,835[2]
Officer & Director ownership	7.0%
Fully Diluted Shares	14,859,051[3]

1 Excludes $15M Biogen upfront payment December 2019 and $34.5M follow-on (gross)

2 Excludes ~5.3M shares issued in a February 2020 public offering

3 Includes ~1.6M options available for issuance

Team

President & CEO

Nassim Usman, Ph.D.

Massachusetts Institute of Technology · Sirna Therapeutics · PRINCIPIA · RPI · MORGENTHALER

28 years in biotech

SVP, Translational Research

Grant Blouse, Ph.D., M.Sc.

novo nordisk · CATALYST BIOSCIENCES · WAYNE STATE UNIVERSITY SCHOOL OF MEDICINE · AARHUS UNIVERSITY DEPARTMENT OF MOLECULAR BIOLOGY AND GENETICS · Henry Ford HEALTH SYSTEM

13 years in biotech

Chief Medical Officer

Howard Levy, M.B.B.Ch., Ph.D., M.M.M.

Sangart · novo nordisk · CSL · Lilly · Inspiration BIOPHARMACEUTICALS

18 years in hematology

SVP, Technical Operations

Andrew Hetherington, M.B.A.

gsk · BAYER · NOVARTIS

20 years in biotech

SVP, Business Development

Jeffrey Landau, M.B.A.

Jazz Pharmac · ONYX PHARMACEUTICALS · Lilly · THRESHOLD PHARMACEUTICALS

16 years in biotech

Summary

Disruptive approach to billion-dollar markets – protease engineering platform

FVIIa: SQ MarzAA ~$2.2B market

+ P2 efficacy & safety demonstrated
+ P1/2 PK/PD supports ToB
+ FDA EoP2 in early 2020, P3 expected in 2020

FIX: SQ DalcA >$1.8B market

+ Phase 2b efficacy & safety demonstrated
+ Final Phase 2b data in 2Q 2020

FIX Gene Therapy: CB 2679d-GT

+ Proprietary preclinical gene therapy asset with superior activity *vs* current clinical constructs

Anti-C3 dAMD: IVT CB 2782-PEG >$5B market

+ Biogen collaboration
+ $15M upfront, up to $340M in milestones and tiered royalties up to low double digits

SQ systemic complement inhibitor program

+ Large orphan disease opportunity
+ Builds complement franchise

Strong financial position

THANK YOU

Nasdaq: CBIO

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