CATALYST BIOSCIENCES

Corporate Overview

18 June 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, treatment of bleeding, Factor VII deficiency, Glanzmann's Thrombasthenia 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, the use of engineered proteases to treat diseases, including dAMD, by mediating the complement cascade, clinical trial results, plans for a registrational trial for MarzAA and a Phase 1/2 trial in Factor VII deficiency, Glanzmann's Thrombasthenia and treatment of bleeding in Hemlibra subjects in Q4 2020, plans to declare development candidates for CB 2679d-GT and in the complement program in Q4 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 the risk that trials and studies may be delayed as a result of the COVID-19 virus and other factors, that trials may not have satisfactory outcomes, 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 the Company's quarterly report on Form 10-Q filed on May 11, 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 in 2020

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

Hemostasis

SQ Marzeptacog alfa "MarzAA" – (rFVIIa)

Hemophilia A or B w Inhibitors – ToB

FVIID/Glanzmann/Hemlibra – ToB

SQ Dalcinonacog alfa "DalcA"

Hemophilia B (rFIX)

FIX-Gene Therapy

Hemophilia B (CB 2679d-GT)

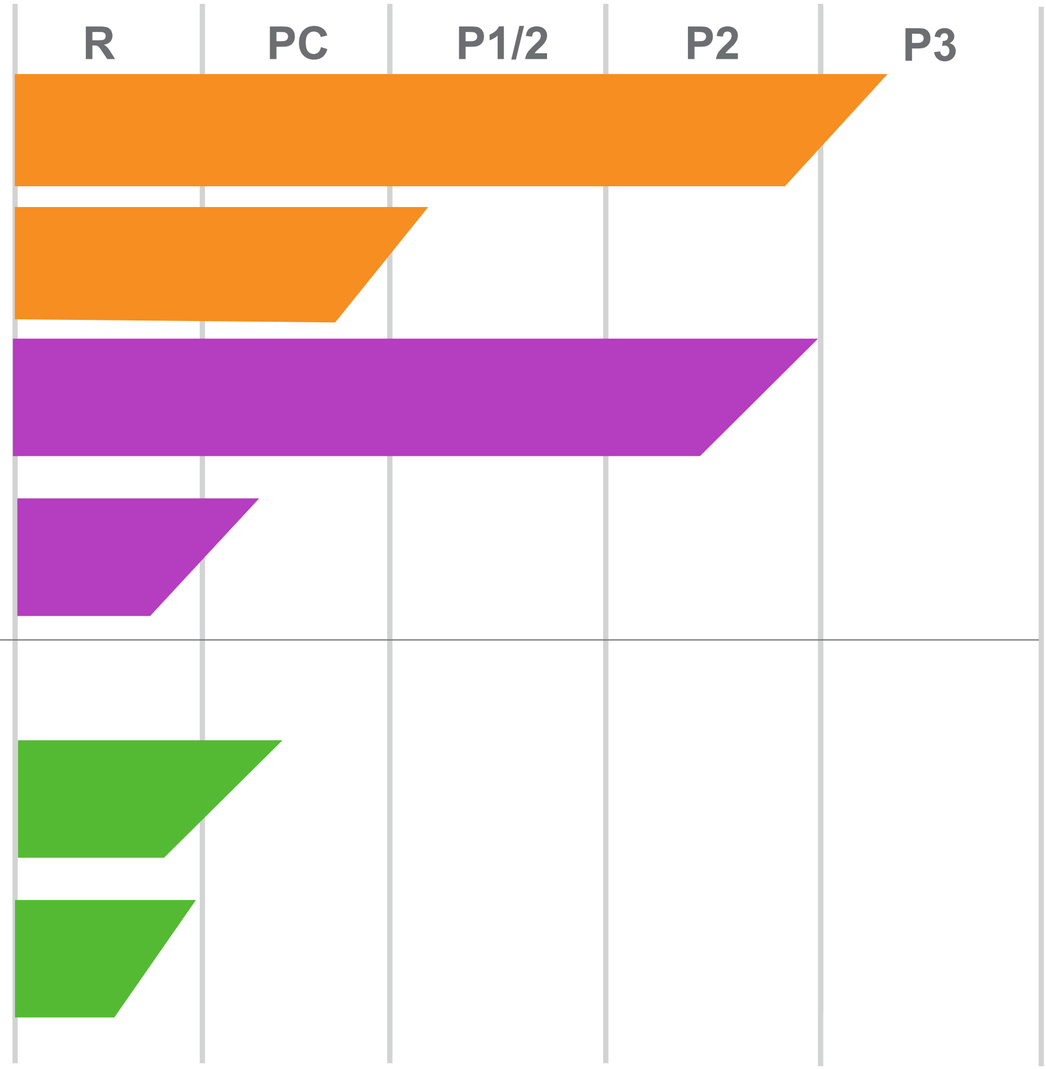
Complement

IVT CB 2782-PEG

anti-C3 protease for Dry AMD

Biogen

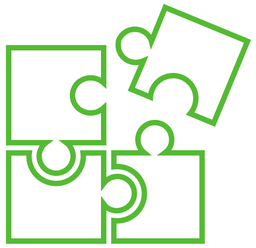
SQ Systemic complement inhibitors – CB DC



Investment highlights

Nasdaq: CBIO

Novel subcutaneous factors with orphan drug designation, MarzAA & DalcA – P2 efficacy in prophylaxis studies complete



Anti-C3 Dry AMD with Biogen

SQ systemic complement regulator research program

Multibillion-dollar market opportunities

Experienced team

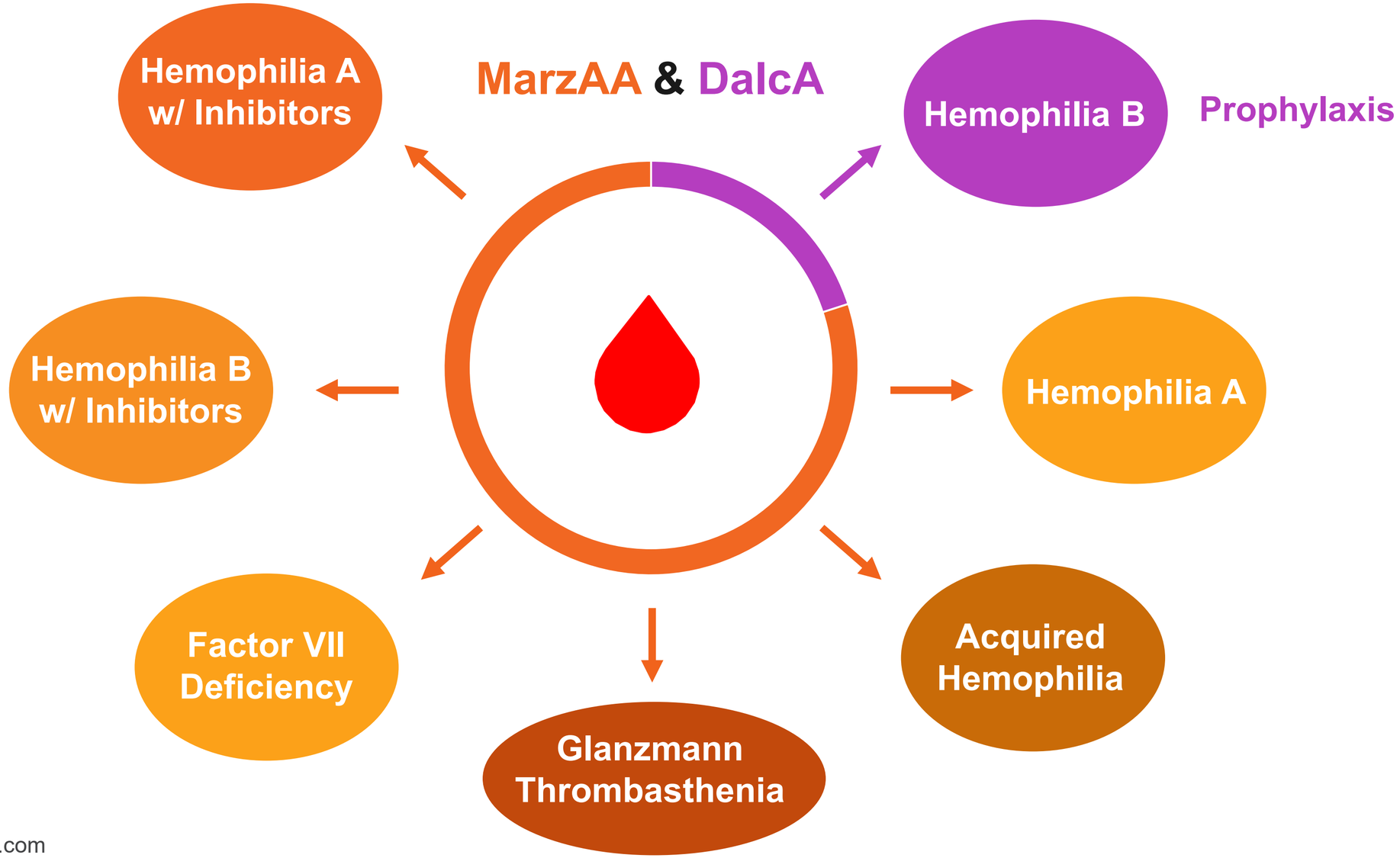
Strong balance sheet, $104.5 M cash – Q1

177 worldwide patents
CBIO retains full ownership of all compounds

Addressing unmet needs in orphan bleeding disorders

Nasdaq: CBIO

SQ treatment of episodic bleeding and prophylaxis – $4B+ market



The Catalyst Biosciences subcutaneous solution

Nasdaq: CBIO

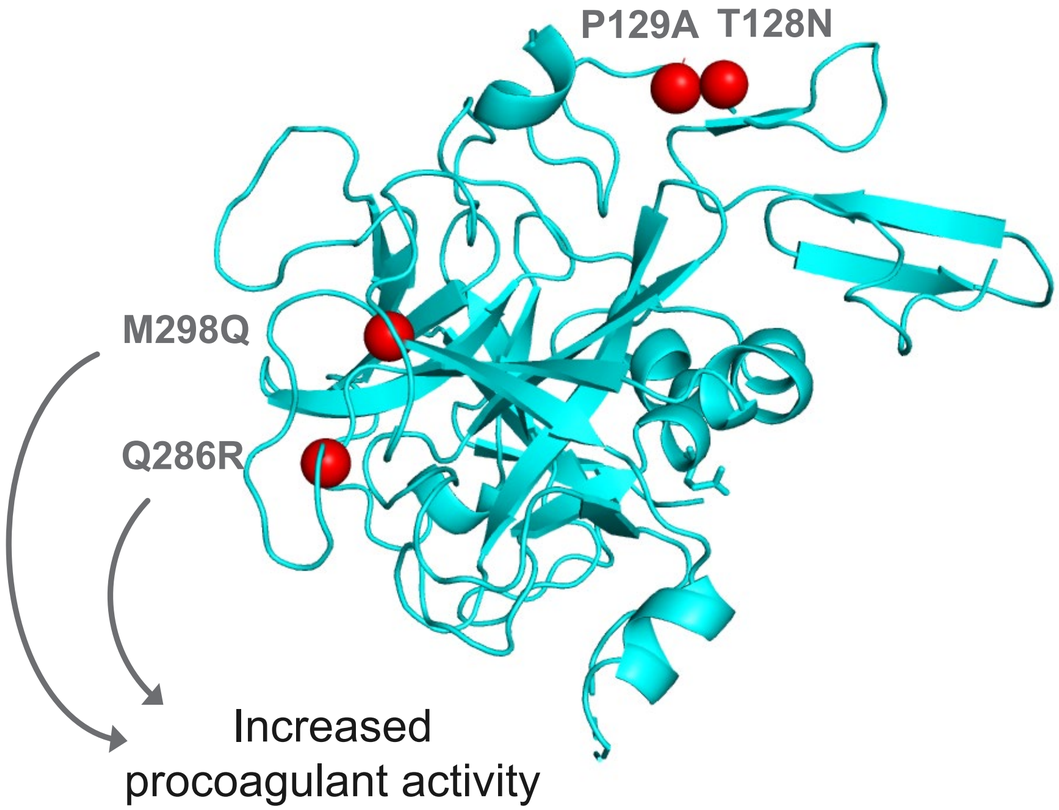
Our highly potent candidates

+ Quick & simple self-administered SQ injection
+ SQ dosing is the future in hemophilia, other rare hematology indications & complement mediated diseases
+ Significantly increases half-life
+ Much higher & more stable factor levels for prophylaxis
+ Enables SQ treatment of bleeds
+ Ideal for children and adolescents

Marzeptacog alfa (activated): MarzAA rFVIIa

Nasdaq: CBIO

Addresses a clear unmet need in hemophilia & other bleeding disorders



Four amino acid substitutions

+ Multiple advantages over NovoSeven RT
+ 9-fold higher activity *vs* NovoSeven RT
+ Potency allows for SQ dosing

Only SQ bypass agent for on demand treatment

+ Simple, small volume SQ administration
+ Improved bioavailability & prolonged half-life

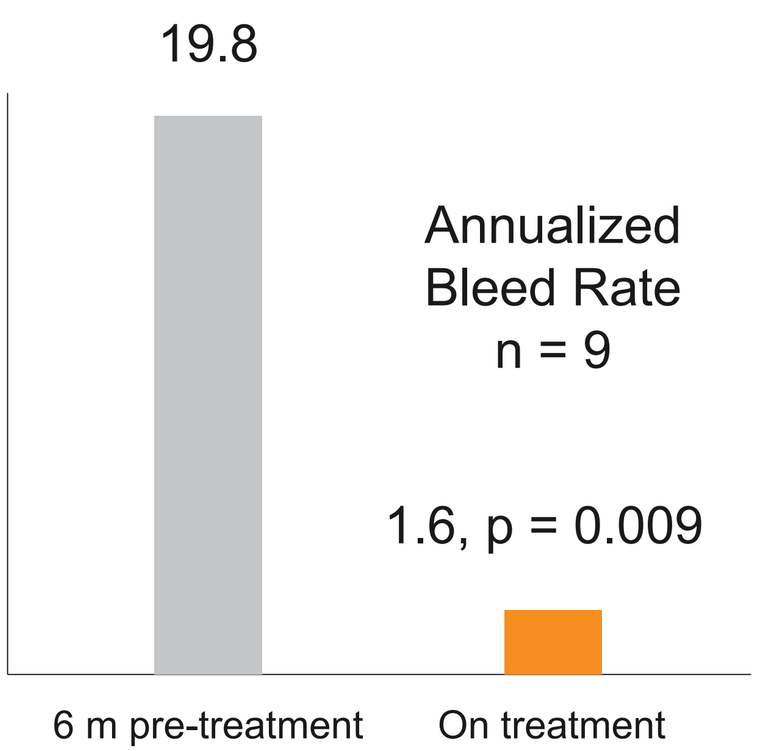
Orphan Drug Designation in US and EU

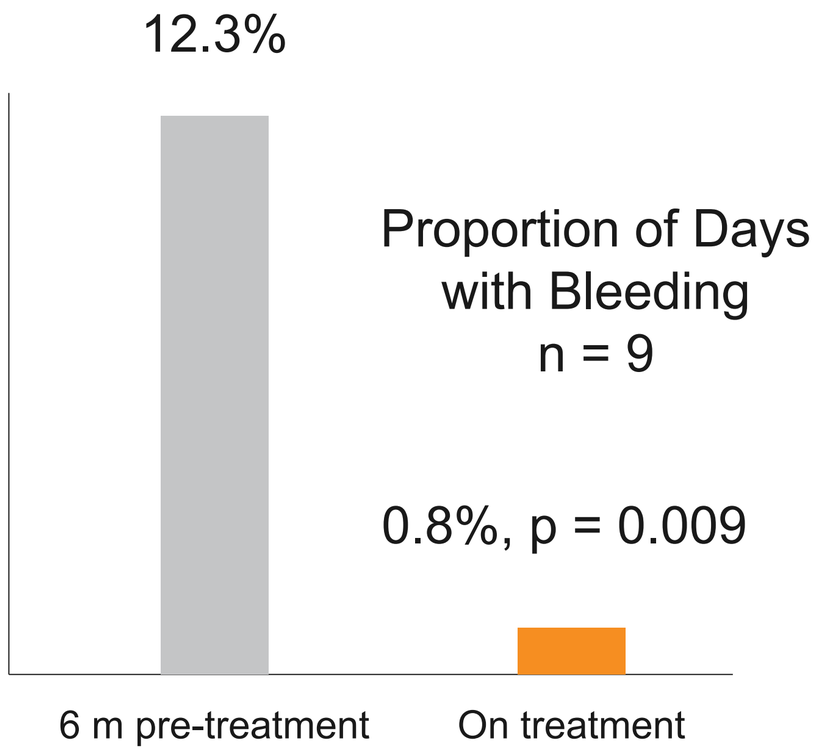
MarzAA Phase 2 demonstrates efficacy in prophylaxis

Greater than 90% reduction in all bleeding – Median ABR = 0

7 of 9 subjects had no bleeding at final dose level

Safe & well tolerated, ~1% ISR (6/517 doses) & no ADA





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 should not be used with Hemlibra and is given IV

MarzAA has optimal properties

- ✓ Fast & easy to administer
- ✓ Achieves therapeutic levels rapidly
- ✓ Stops bleeding in multiple preclinical models
- ✓ Can be combined with Hemlibra *in vitro* without increased thrombogenicity

MarzAA P3: On demand treatment of episodic bleeding

CRIMSON-1 Registration Study – A Global Clinical Trial

Phase 1 & 2 trials demonstrated the clinical impact of SQ MarzAA

- MAA-102 rapidly achieved target activitylevels
- MAA-201 demonstrated efficacy in prophylaxis, safe & well tolerated with no ADA
- Clinically support P3 SQ MarzAA treatment of episodic bleeding

Open label trial evaluating the safety & efficacy of SQ MarzAA in episodic bleeding

- Primary endpoint: Hemostatic efficacy using a standard 4-point assessment scale
- ~230 bleeding episodes to be treated in ~75 HA/HB individuals with inhibitors
- Anticipate first patient enrolled by end of 2020

Opportunity in multiple bleeding disorders

- ✓ Hemophilia A or B with inhibitors
- ✓ Hemlibra breakthrough bleeds
- ✓ Factor VII deficiency
- ✓ Glanzmann thrombasthenia
- Acquired hemophilia

MarzAA development plan in 2020

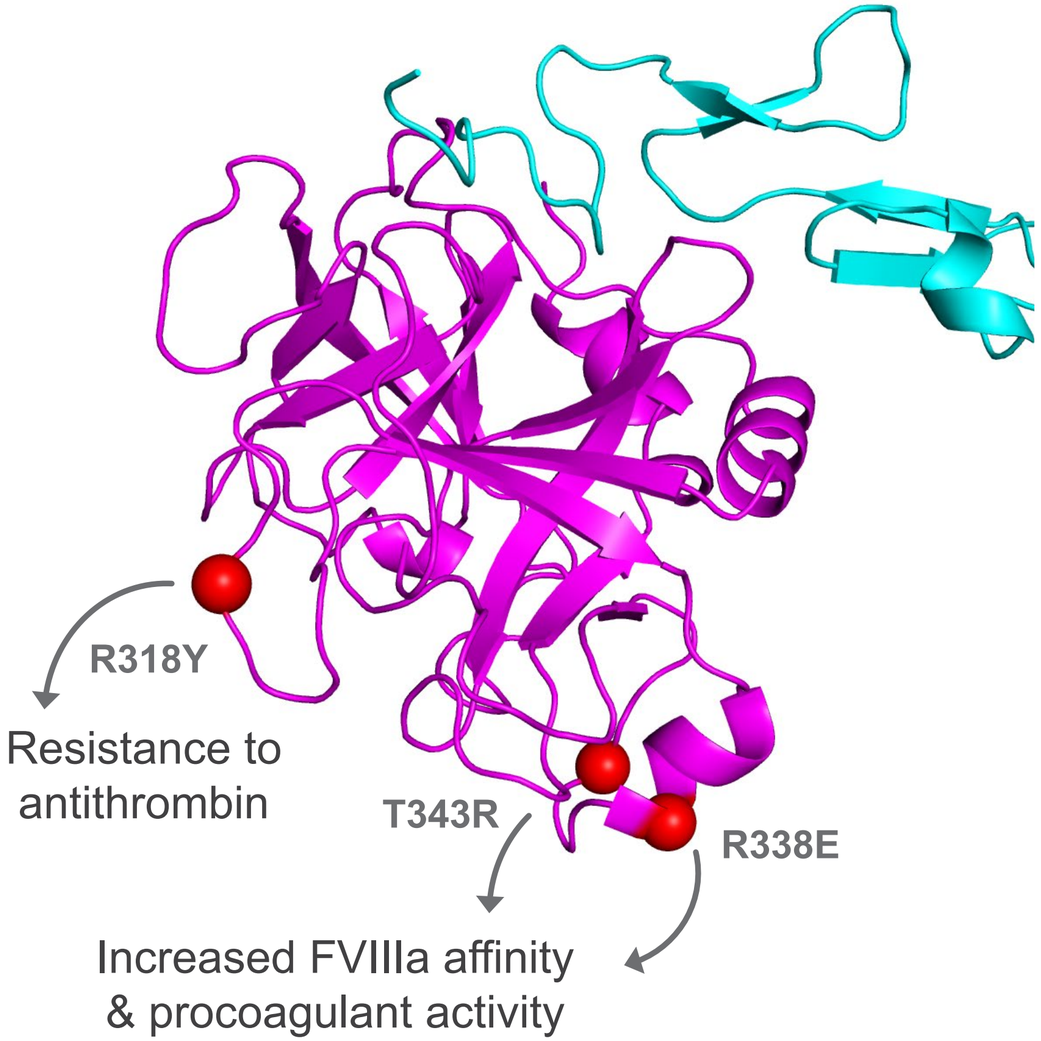
Phase 3 HA/HB w Inhibitors – ToB

Phase 1/2 study in FVIID, Glanzmann & Hemlibra ToB

- Large commercial opportunity across multiple rare bleeding disorders
- Phase 1 PK/PD data support on demand as well as prophylactic treatment of bleeding
- Phase 2 demonstrated clinical efficacy & tolerability for prophylaxis indications
- Efficacy demonstrated for SQ on-demand treatment of bleeding in pre-clinical models
- MarzAA can be safely combined with Hemlibra in human plasma *in vitro*

Dalcinonacog alfa: novel FIX replacement for SQ delivery

Nasdaq: CBIO



Three amino acid substitutions

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

Differentiated from marketed IV FIXs

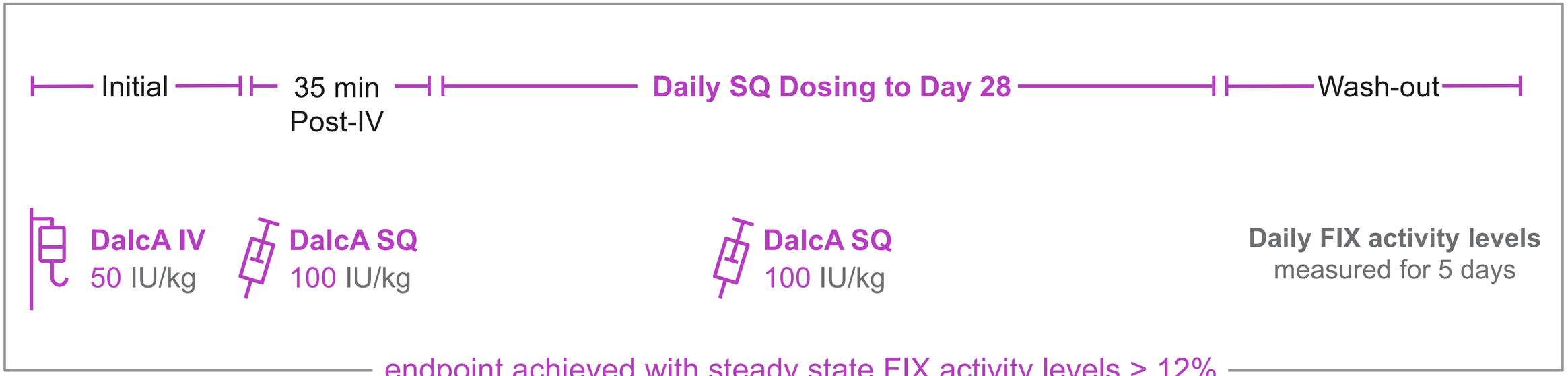
+ Simple, small volume SQ administration
+ Enhanced pharmacokinetics with prolonged half-life
+ Excellent extravascular distribution
+ Potential to maintain continuous protective levels

Orphan Drug Designation in US & EU

Dalcinonacog alfa phase 2b SQ clinical trial

Nasdaq: CBIO

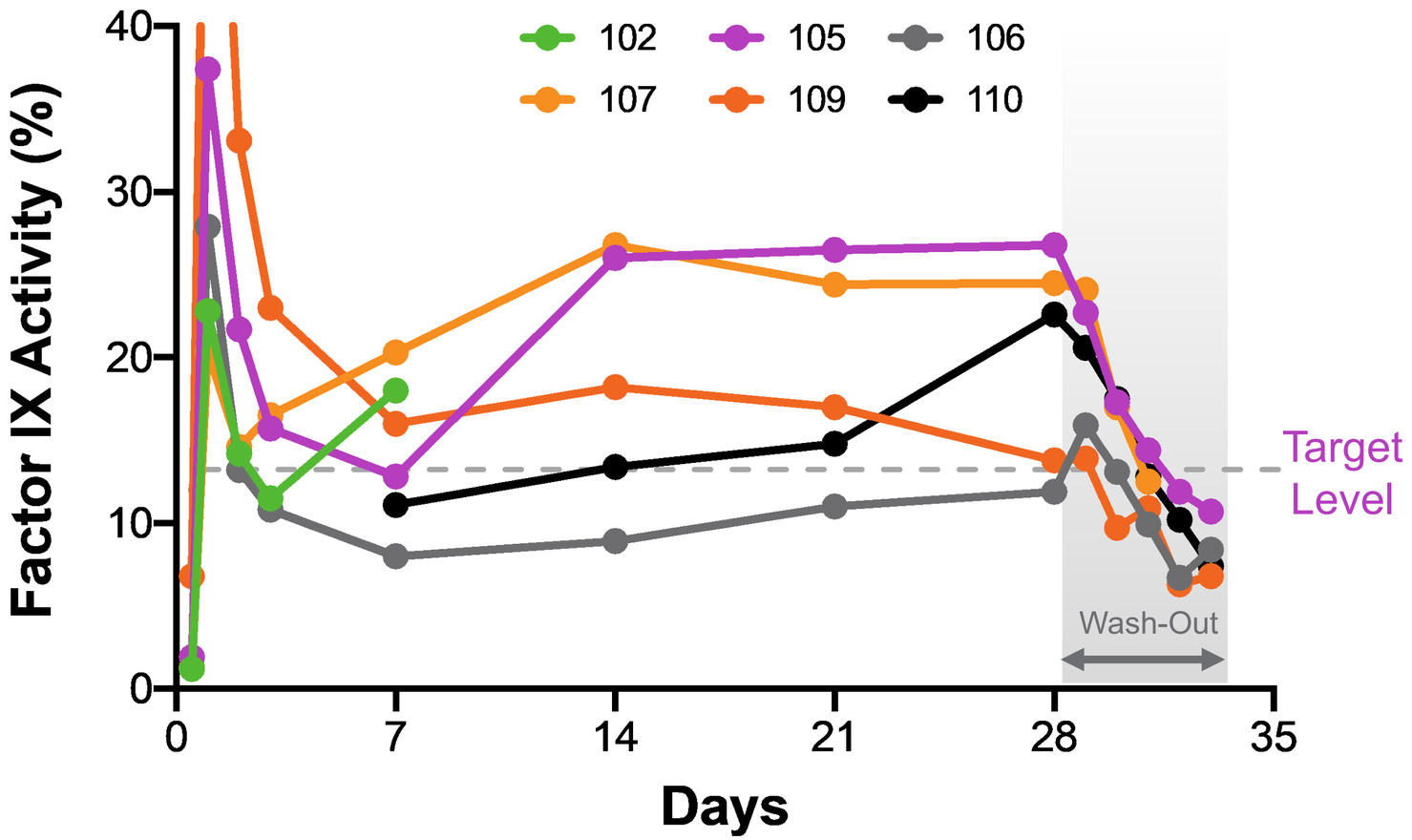
Trial completed



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

DalcA P2b efficacy & safety demonstrated

Target levels >12% achieved with 100 IU/kg dosing for 28 Days



- Dosed 6 severe HB subjects
  - 102 withdrew on Day 7
- **Steady state FIX levels up to 27%** achieved after 14 days
- **No breakthrough bleeds**
- **No neutralizing ADAs**
- Consistent PK profiles
- Terminal half-life is 2.5 - 5.1 days

Dalcinonacog alfa

Potential to provide effective SQ prophylaxis for individuals with Hemophilia B

- Phase 2b trial complete
- Excellent protective therapeutic FIX activity levels achieved
- No bleeding events during treatment demonstrates effective prophylaxis
- No SAEs, systemic hypersensitivity, nAb to DalcA or wild-type FIX
- Mild to moderate ISR primarily with initial injections – transient & self-limiting
- Long half-life – demonstrates potential to lower dose / reduce dosing frequency

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

Nasdaq: CBIO

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

Wholly-owned & issued patents covering gene therapy

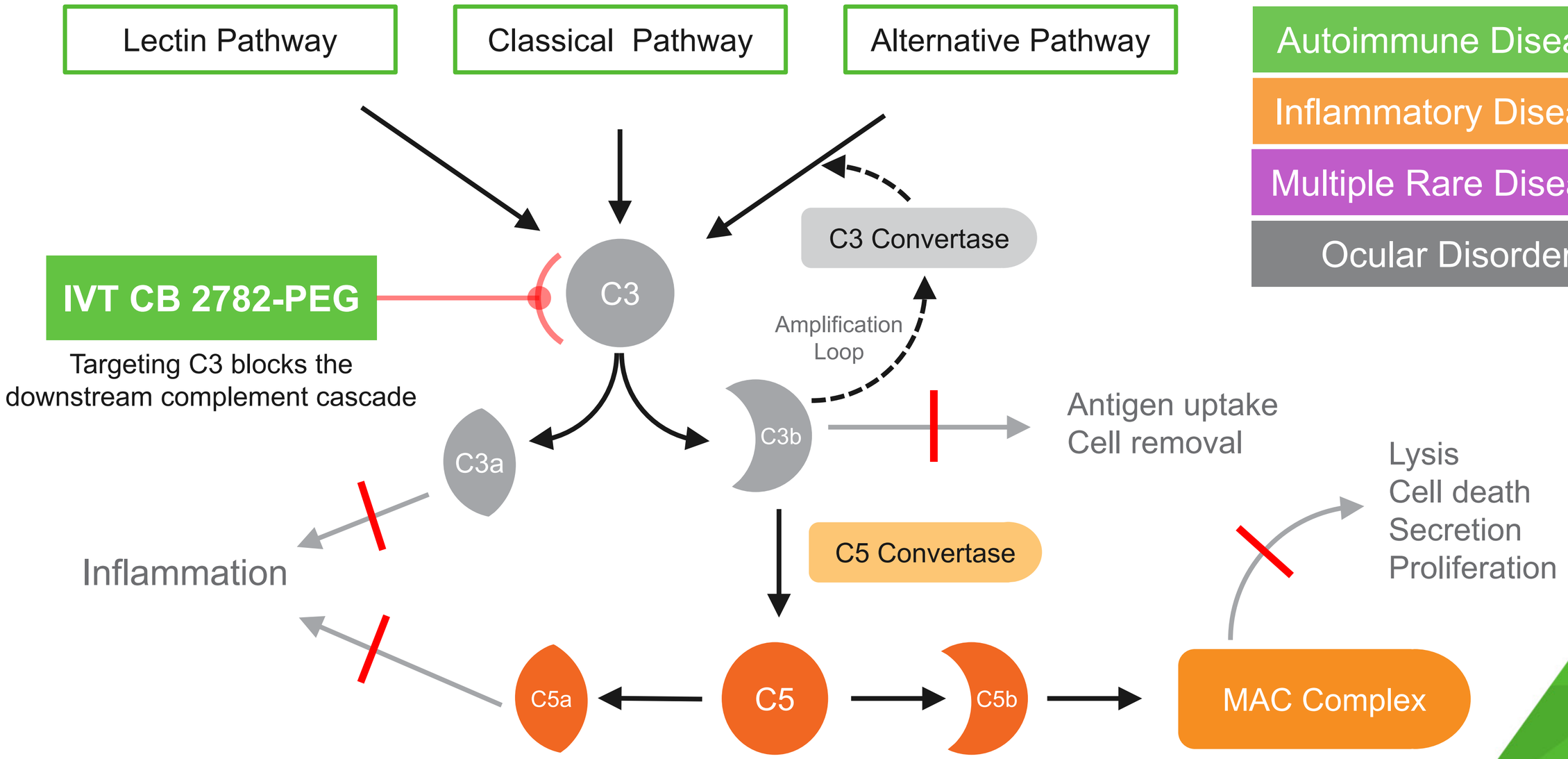
FIX Transgene	AAV Capsid	Study Dose (vg/kg)	FIX Activity (U/mL)
CB 2679d-GT	**Novel Chimeric**	**$8.0x10^{10}$**	**20**
Padua	TAK-748*	$7.4x10^{11}$	20
Padua	TAK-748*	$7.4x10^{10}$	1

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

Blouse *et al.* EAHAD 2019 & 2020

Complement cascade is regulated by proteases

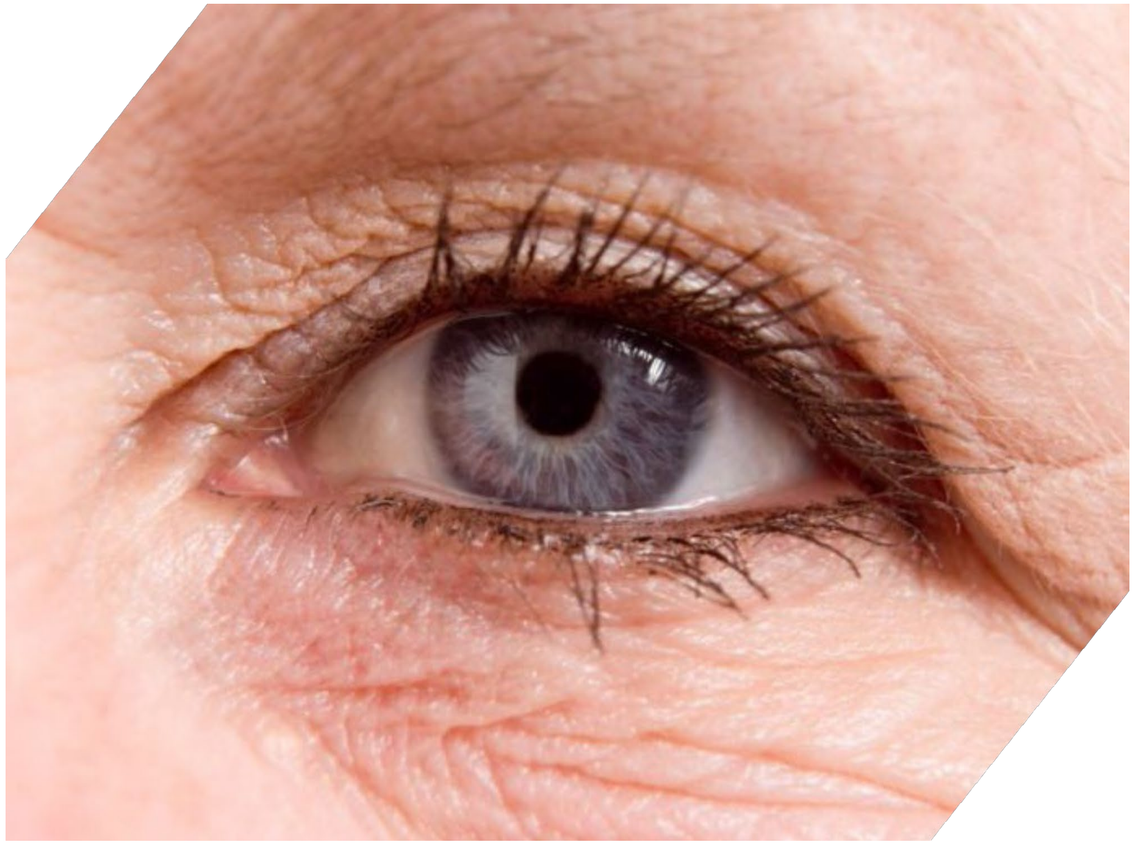
Nasdaq: CBIO



CB 2782-PEG: Complement factor 3 (C3) cleaving protease

Nasdaq: CBIO

Geographic Atrophy in Dry AMD can result in blindness



- Geographic atrophy is an advanced stage of dry age-related macular degeneration (dAMD)
- Dry AMD affects ~1M people in the US and over 5M worldwide
- Global market estimated at >$5B
- C3 is the only clinically (randomized P2) validated target for the treatment of dAMD
- No currently approved drugs

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

CB 2782-PEG long acting anti-C3 protease

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

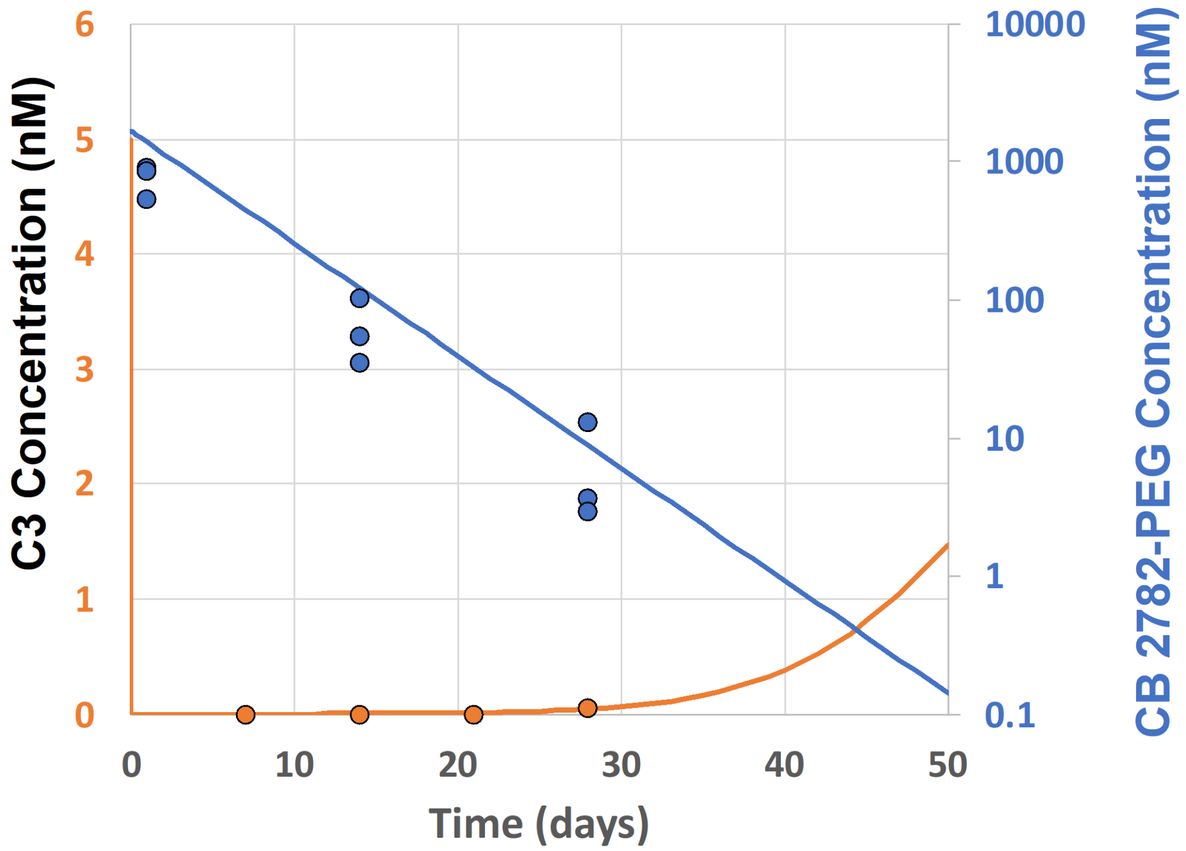
*Furfine *et al.* ARVO 2019

CB 2782-PEG long acting anti-C3 protease

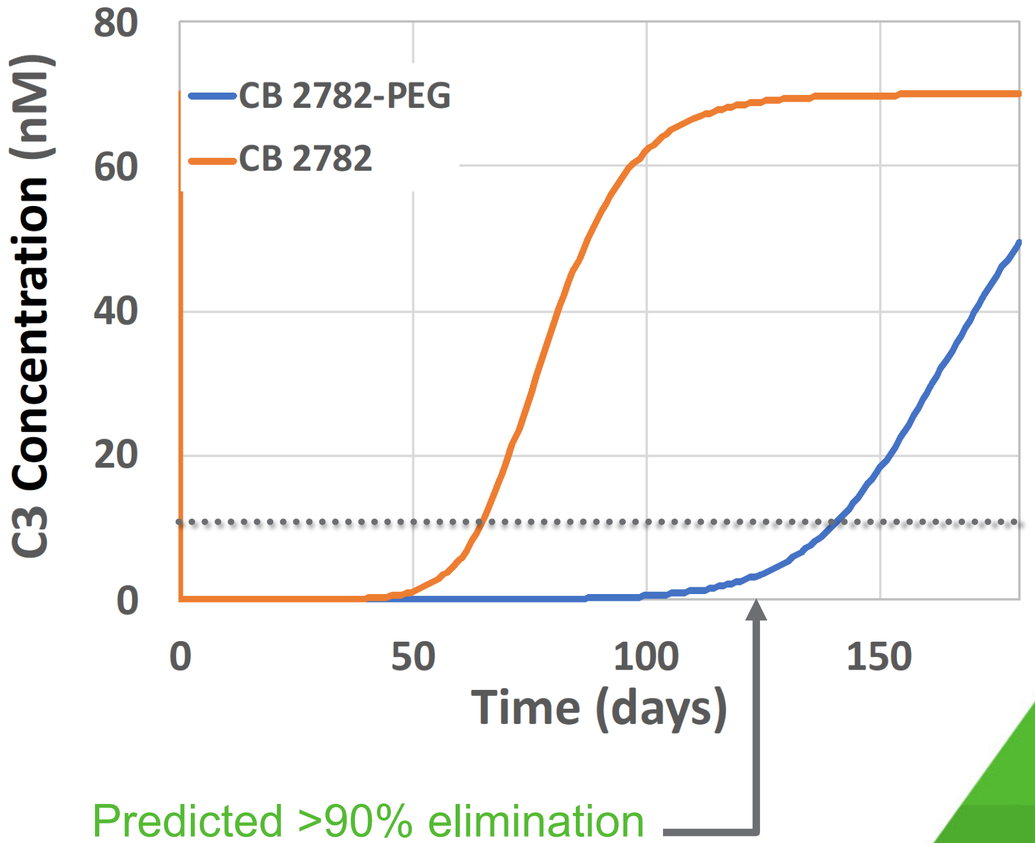
Nasdaq: CBIO

Best-in-class anti-C3 profile for dry AMD with dosing every 3 to 4 months

Non-Human Primates



Human Modeling

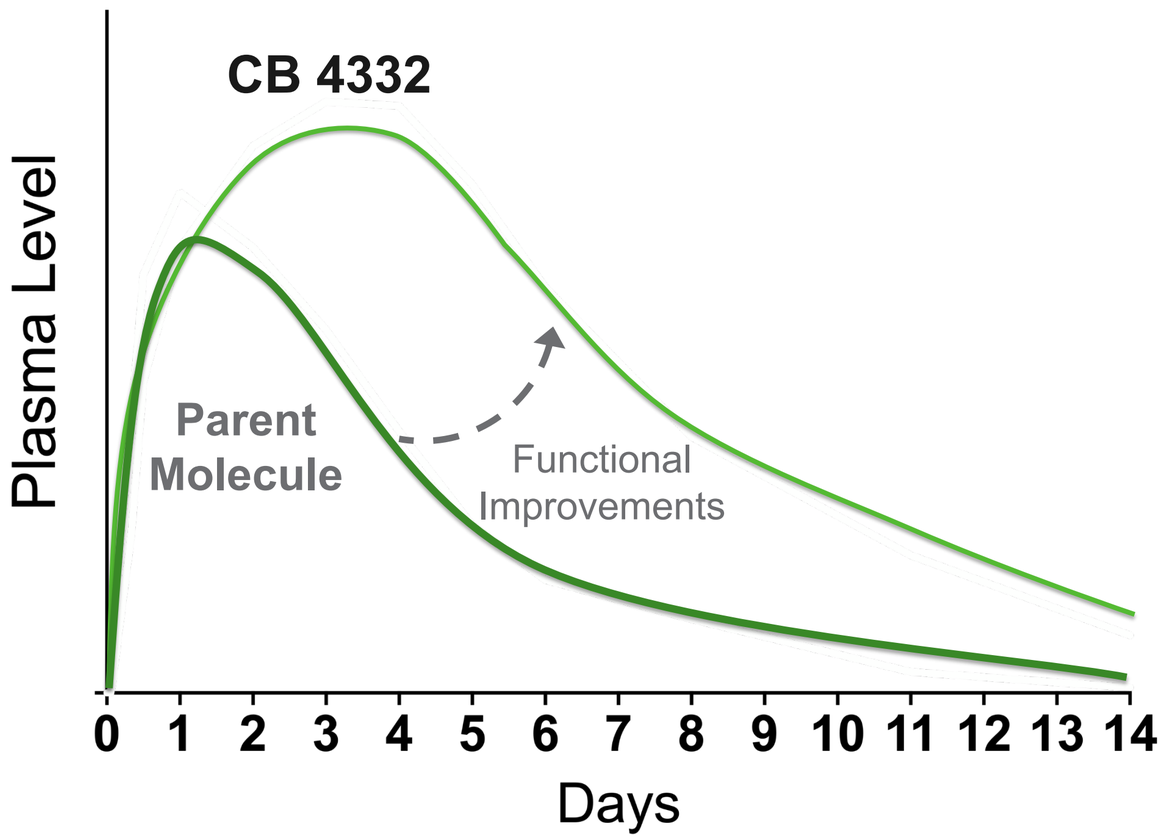


Predicted >90% elimination of C3 at 4 months

CB 4332 SQ long-acting systemic complement regulator

Nasdaq: CBIO

Non-human primate PK supports weekly SQ dosing in humans



Expanding the complement portfolio

+ Leverages Catalyst's proprietary **protease engineering platform**
+ Designed for **SQ administration** & **improved bioavailability**
+ **Simple** & **efficient** production process

Milestones – 2020

Nasdaq: CBIO

	Q1	Q2	Q3	Q4
MarzAA (FVIIa)	**EoP2** ✓	**ToB PK/PD** ✓	• MAA-102 data • Population PK	• Initiate pivotal P3 • Initiate P1/2 in FVII Deficiency, Glanzmann Thrombasthenia, and Hemlibra patients
DalcA (FIX)	**Interim P2b** ✓	**Final P2b** ✓		
CB 2679d-GT (FIX Gene Therapy)	**NextGen Vector** ✓	• NHP Efficacy		• Development Candidate
CB 2782-PEG (dAMD)		Biogen		
CB DC (Systemic complement)				• Development Candidate

Team

President & CEO

Nassim Usman, Ph.D.

Massachusetts Institute of Technology · RPI · Sirna Therapeutics · PRINCIPIA

26 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

Chief Financial Officer

Clinton Musil, M.B.A

Personalis · ARMO Biosciences · Wells Fargo Securities · Hercules Capital · Deutsche Bank · EW Healthcare Partners

16 years in biotech & i-banking

SVP, Translational Research

Grant Blouse, Ph.D.

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

SVP, Business Development

Jeffrey Landau, M.B.A.

Jazz Pharmaceuticals · ONYX Pharmaceuticals · Lilly · Threshold Pharmaceuticals

18 years in biotech

SVP, Technical Operations

Andrew Hetherington, M.B.A.

gsk · Bayer · Novartis

20 years in biotech

Summary

Nasdaq: CBIO

Disruptive approach to billion-dollar markets – protease engineering platform

FVIIa: SQ MarzAA ~$2.2B market

+ P1 PK/PD & preclinical data supports ToB
+ P2 efficacy & safety demonstrated
+ P3 patient enrollment in Q4 2020

FIX: SQ DalcA >$1.8B market

+ Phase 2b efficacy & safety demonstrated
+ Potential for less frequent dosing

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, up to low double digits tiered royalties

SQ systemic complement inhibitor program

+ Large $B+ rare-disease opportunity
+ Multiple indications & applications
+ 1st Development Candidate in Q4 2020

Well capitalized

+ Cash runway into 2022

THANK YOU

Nasdaq: CBIO

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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

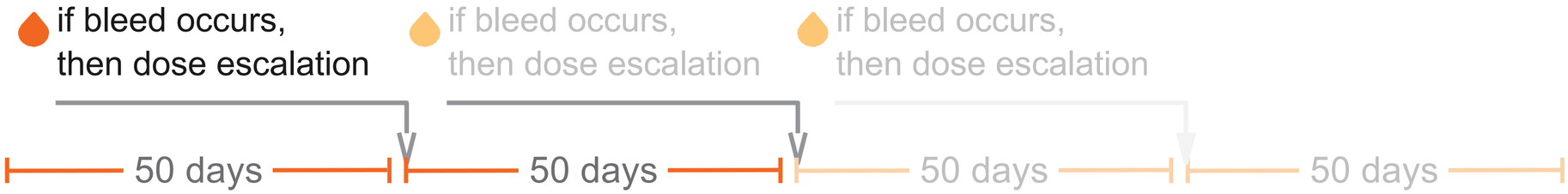
SQ MarzAA has a superior profile to IV NovoSeven – over 100 clinicians & 175 patients surveyed

+ Physicians & patients overwhelmingly prefer SQ MarzAA over IV NovoSeven
+ **SQ MarzAA** can create & expand multiple episodic bleed & prophylaxis markets

MarzAA phase 2/3 SQ clinical trial MAA-201

Nasdaq: CBIO

MarzAA IV
18 µg/kg
PK 24 hours
MarzAA SQ
30 µg/kg
PK 48 hours



Daily MarzAA SQ 30 µg/kg

Daily MarzAA SQ 60 µg/kg

Daily MarzAA SQ 90 µg/kg

Daily MarzAA SQ 120 µg/kg

Endpoint achieved if ABR decreases from ≥12 to ≤6

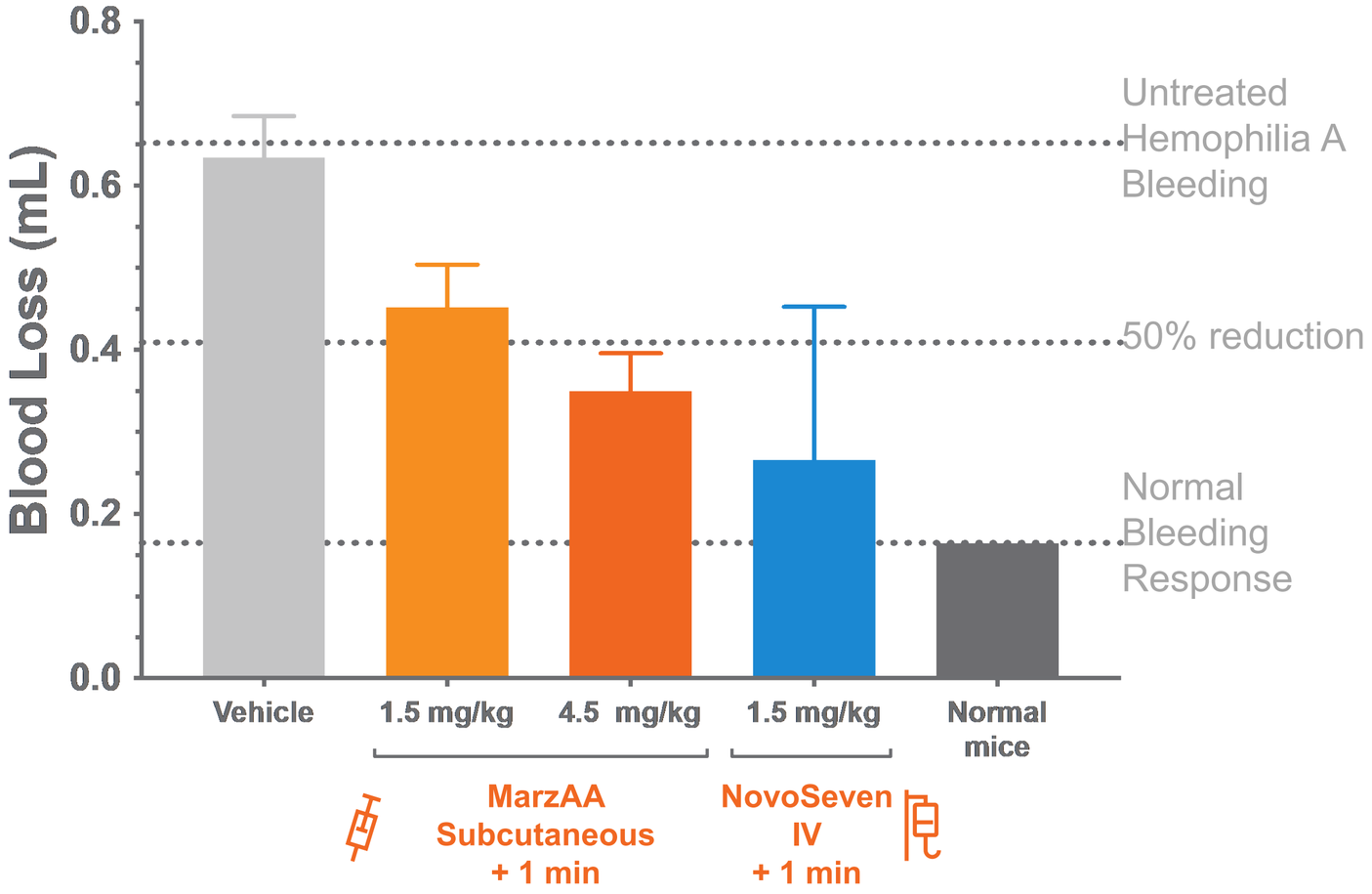
+ Patients with documented annual bleeding rate (ABR) >12
+ Open label SQ study with individual dose escalation if needed in Hemophilia A or B with inhibitors

+ Primary endpoint: reduction in annualized bleed rate **at final dose level**
+ Secondary endpoints: safety and tolerability, inhibitor formation

SQ MarzAA reduces bleeding when dosed *After* the Injury

Nasdaq: CBIO

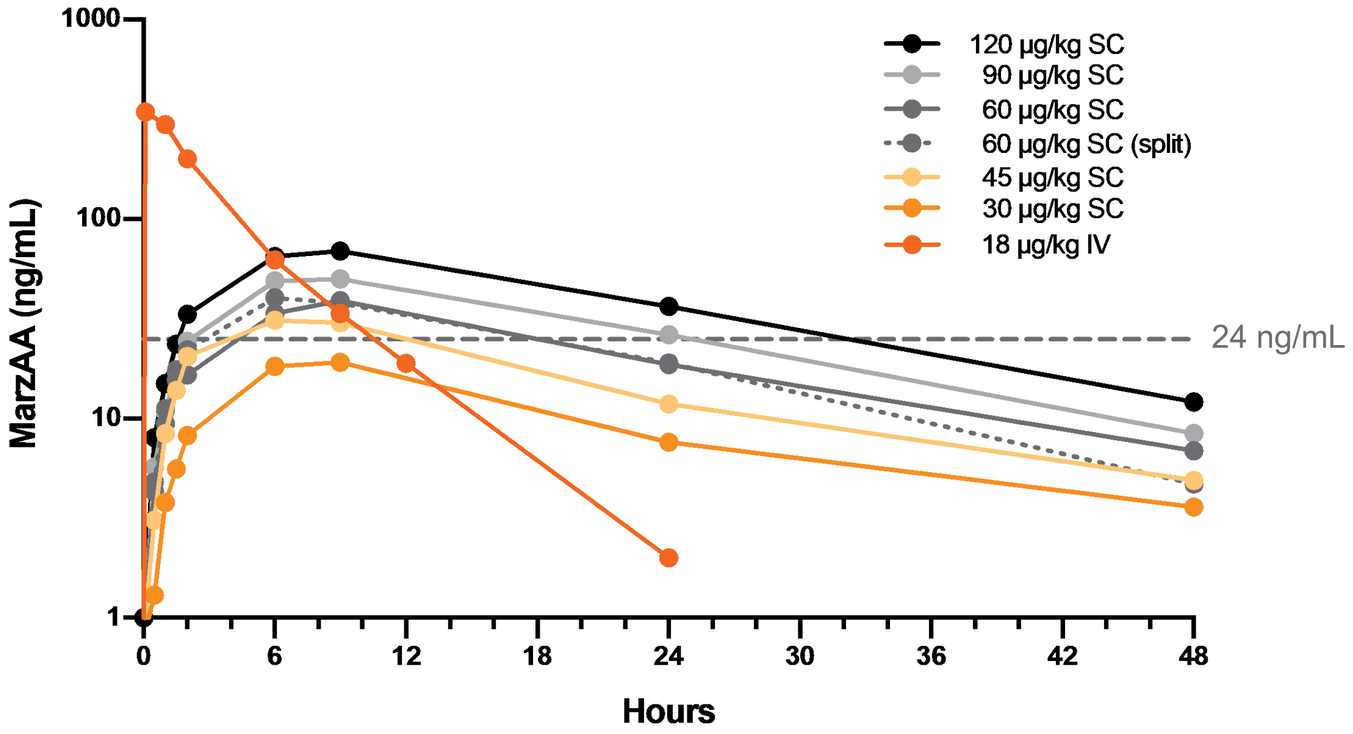
Acute mouse injury model with dosing *after* the injury



Reduced bleeding *After* Injury

+ Hemophilic mice bleed **considerably more** than normal mice
+ **SQ treatment** of MarzAA one min after traumatic bleeding has started significantly **reduces blood loss** and **stops the bleed**
+ The effect is **dose dependent**
+ Reduction in blood loss **is comparable with IV NovoSeven**

MAA-102: PK MarzAA levels support SQ treatment of a bleed



Neuman, 2020

- Target of 24-120 ng/mL to treat a bleed is based on continuous infusion levels of NovoSeven for surgery
- Target levels are rapidly achieved
- 25% and 50% of C_{max} at 1 and 2 hours, respectively
- Dose-proportional increases in C_{max} and AUC
- Target levels can be maintained for 18 hours with a single SQ dose of 60 µg/kg
- No ADA
- Multiple dosing cohorts completed
  - 60 µg/kg 3-hourly; twice and thrice