CATALYST BIOSCIENCES

Corporate Overview
8 January 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 use of MarzAA as a subcutaneous therapy for patients with hemophilia A or B with inhibitors and other bleeding disorders, clinical trial results, anticipated results of a PK study to support treatment of a bleed in 2020, plans for an end-of-Phase 2 meeting regarding MarzAA in early 2020, plans for final Phase 2b clinical trial data for DalcA in the first half 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 quarterly report on Form 10-Q filed with the Securities and Exchange Commission on November 7, 2019, 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.

CATALYST BIOSCIENCES

Essential Medicines – Superior Outcomes

Late-Stage Asset

SQ Marzeptacog alfa (activated)
MarzAA (FVIIa)

Phase 3 Ready

Hemophilia

SQ MarzAA

SQ Dalcinonacog alfa – DalcA (FIX)

Factor IX Gene Therapy

Factor Xa

Complement

IVT Anti-C3
CB 2782-PEG

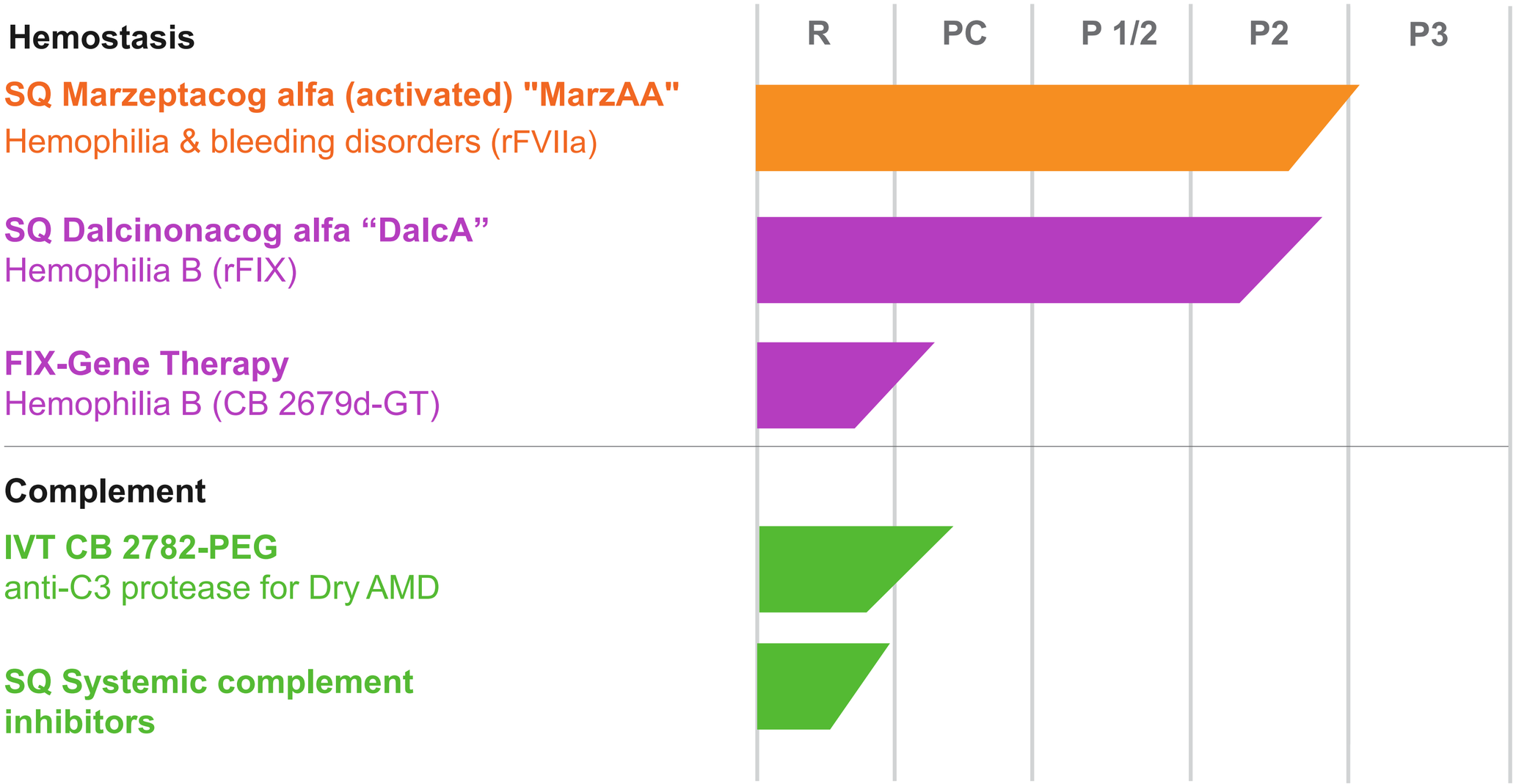
Biogen

SQ Systemic Complement Inhibitors

Protease Engineering Platform

Pipeline

Nasdaq: CBIO



Investment highlights

Nasdaq: CBIO

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

Multi-billion-dollar market opportunities

Anti-C3 collaboration with Biogen

SQ systemic complement inhibitors research program

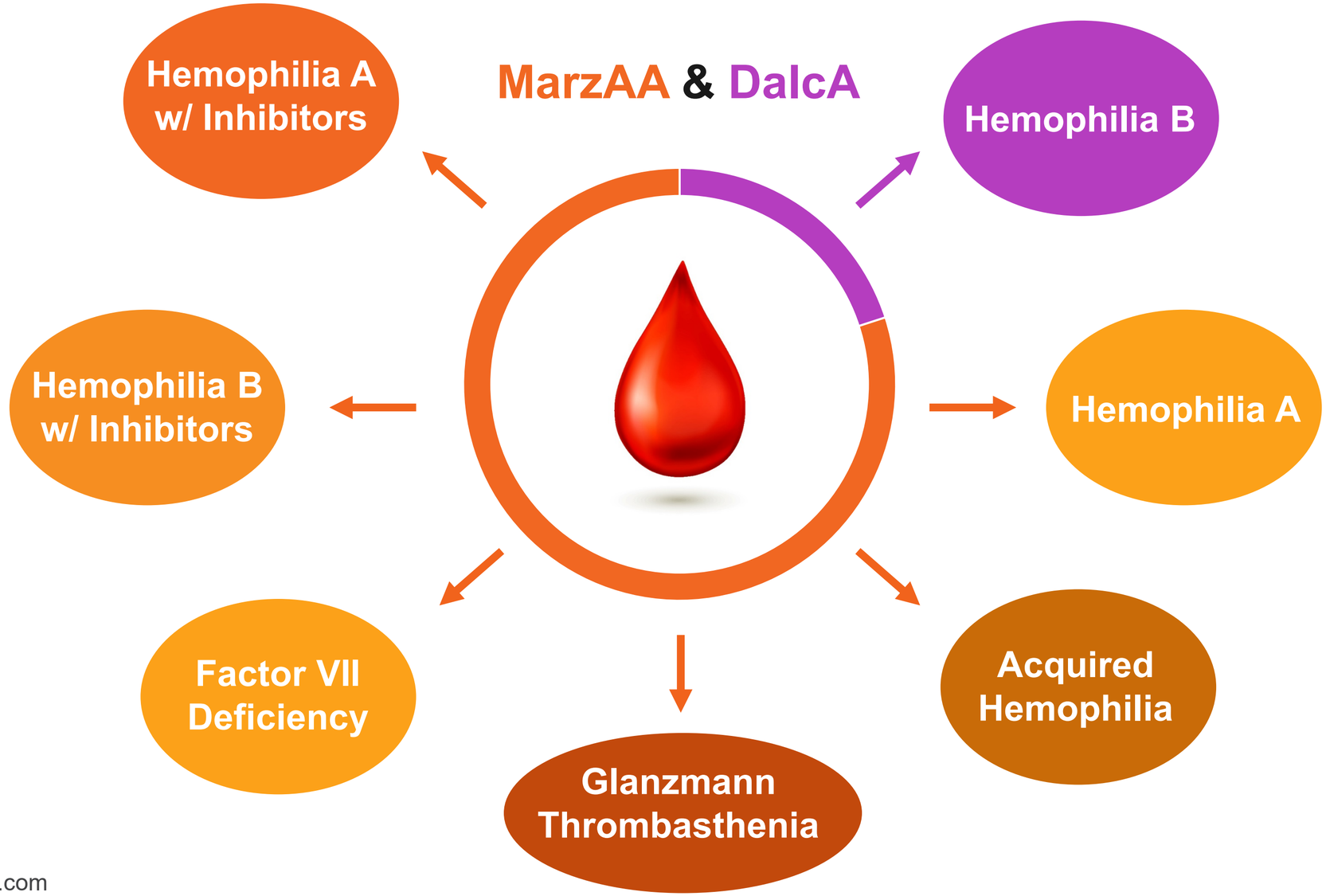
Experienced team

~134 worldwide patents – CBIO retains full ownership of all compounds

Well funded
$85 M cash (Q3 2019)

Addressing unmet needs in orphan bleeding disorders

SQ treatment of bleeds and prophylaxis – $3.7B market



The Catalyst Biosciences subcutaneous solution

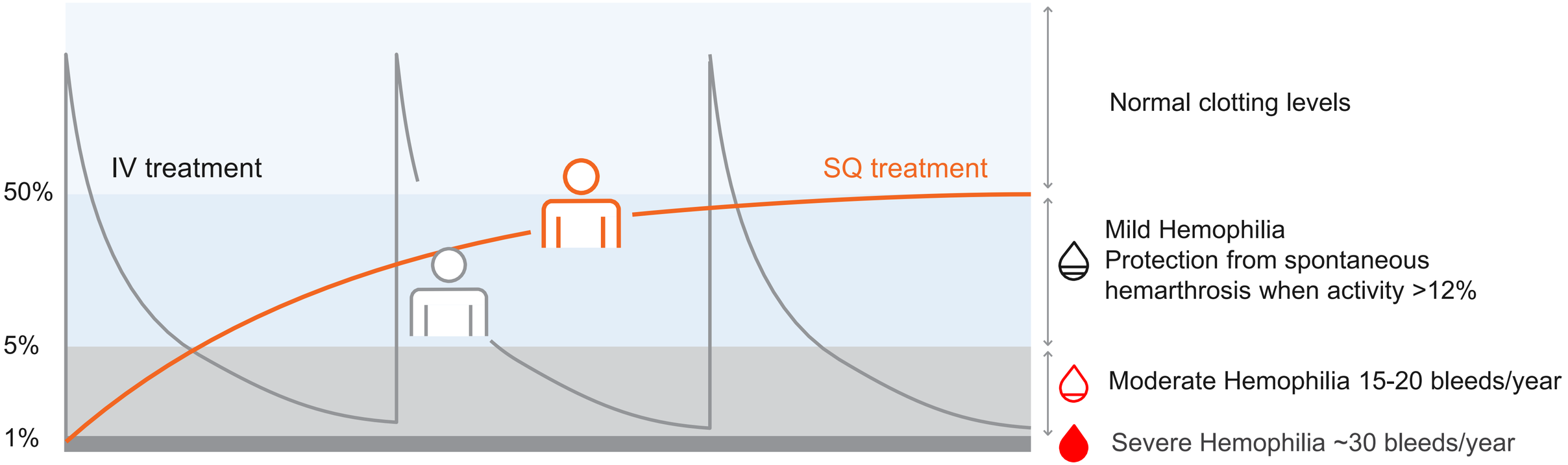
Our highly potent candidates

+ Quick & simple self-administered SQ injection
+ SQ dosing is the future in hemophilia and other rare hematology indications
+ Ideal for pediatric patients
+ 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

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

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

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

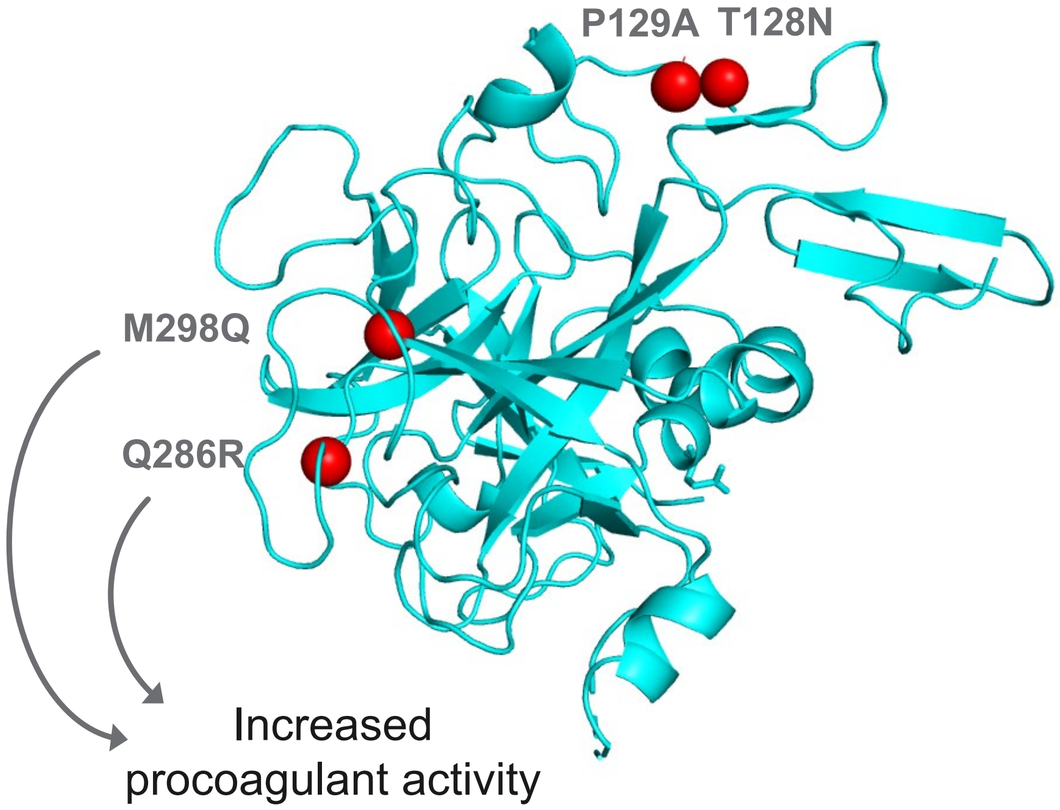
IV NovoSeven
($1.2B 2018 sales)
The most broadly used bypass agent

NovoSeven validates rFVIIa in multiple rare bleeding disorders

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

Marzeptacog alfa (activated): MarzAA rFVIIa

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



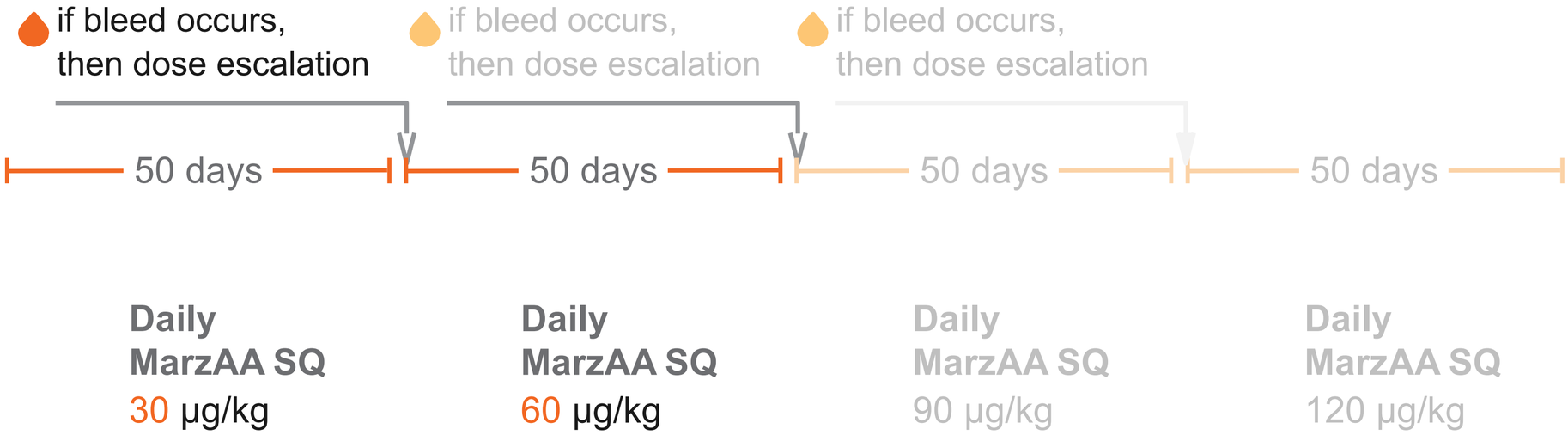
- Four engineered amino acid substitutions within the FVIIa protein
- 9-fold more potent catalytic activity than NovoSeven RT
- **Allows subcutaneous dosing**
- Half-life prolonged when using subcutaneous dosing

Orphan Drug Designation in the US and EU

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

Nasdaq: CBIO

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



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

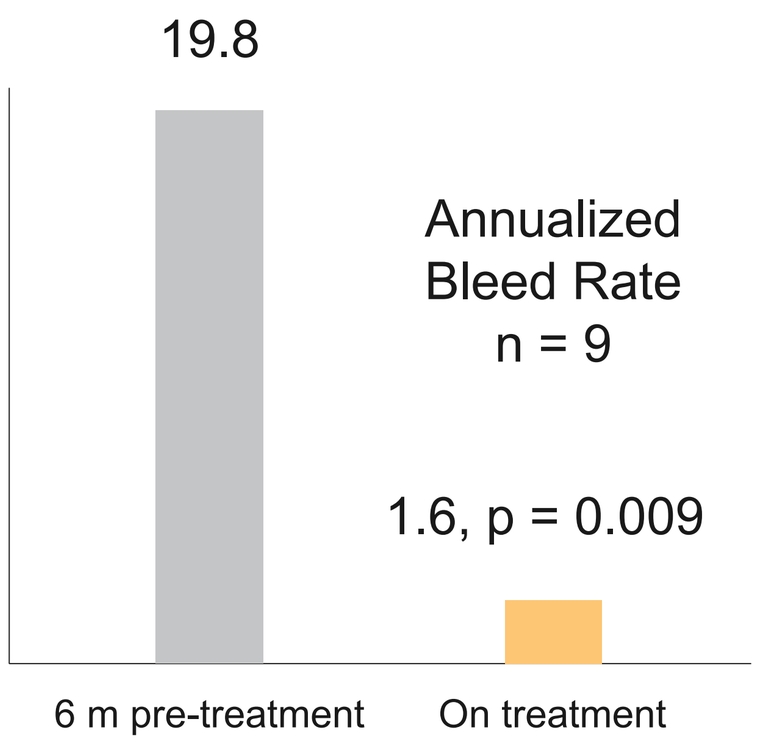
MarzAA Phase 2 demonstrates clinical efficacy

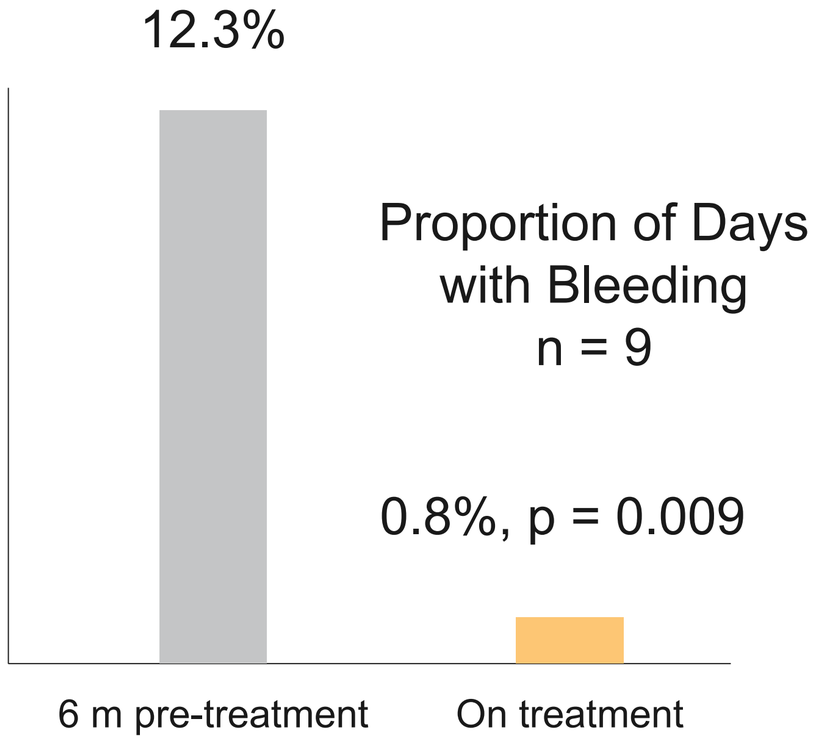
Greater than 90% reduction in all bleeding; Median ABR zero; Median bleeding days zero

Mean Annualized Bleeding Rates (ABR) significantly reduced from 19.8 to 1.6

Mean Proportion of Days with Bleeding (PDB) significantly reduced from 12.3% to 0.8%

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





In a world of SQ prophylaxis:

Patients need a SQ treatment of a bleed option

Individuals on Hemlibra® need additional treatments

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 safely combined with Hemlibra

Blouse *et al.* ASH 2019

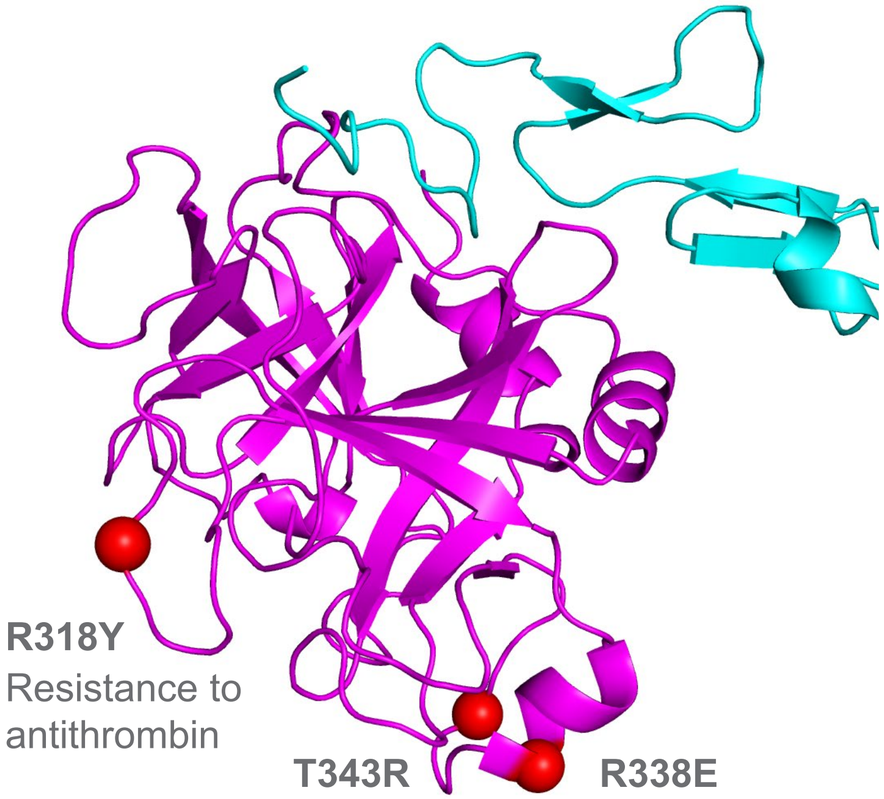
Marzeptacog alfa (activated)

Phase 3 studies 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 combined with Hemlibra has comparable thrombin generation to NovoSeven
- Initiated SQ dose escalation PK study to support treatment of a bleed – final data in 2020
- P3 guidance from EMA & MHRA received – FDA EoP2 meeting in early 2020

Dalcinonacog alfa: DalcA rFIX

SQ prophylaxis is an unmet need in hemophilia B



Phase 1/2 completed

+ 22-fold more potent than BeneFIX in man
+ **FIX activity levels up to 30%**
– Observed 2 nAbs (cousins with same rare genotype) that were non-cross-reactive to FIX
  - Returned to previous FIX therapy - no safety issues
+ Extensive *in vitro* & *in* silico studies showed similar low immunogenicity risk as BeneFIX

Phase 2b study ongoing

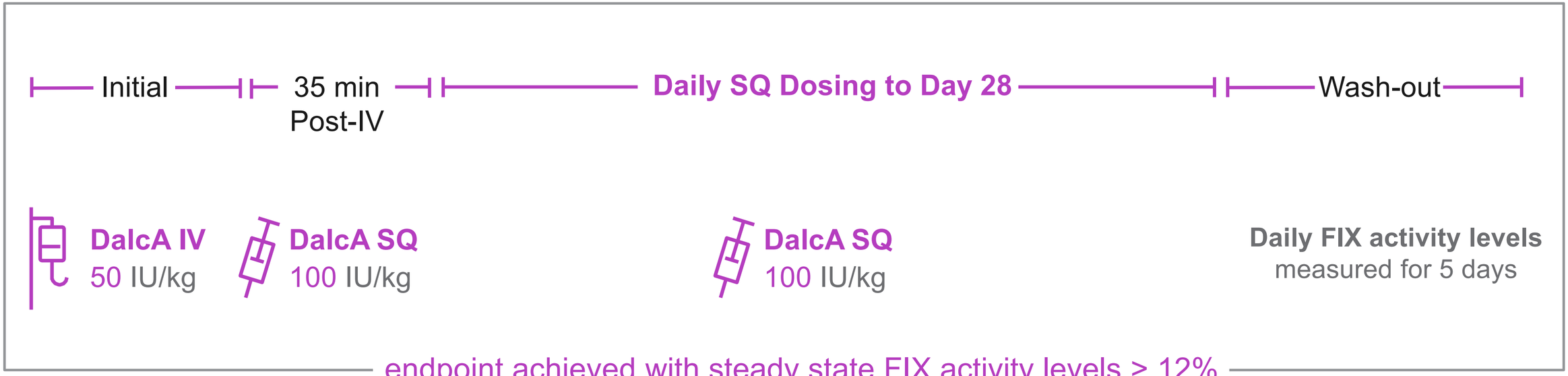
+ No ADAs to date

Orphan Drug Designation in US & EU

Dalcinonacog alfa phase 2b SQ clinical trial design

Nasdaq: CBIO

DLZ – 201 ongoing



+ Target enrollment: 6 patients
+ Rare genotype and HLA signature from P1/2 excluded

+ Primary endpoint: Steady state FIX activity level above 12% with daily dosing
+ Secondary endpoints: safety, lack of neutralizing antibody formation, pharmacokinetics

Dalcinonacog alfa – DalcA

Phase 2b update

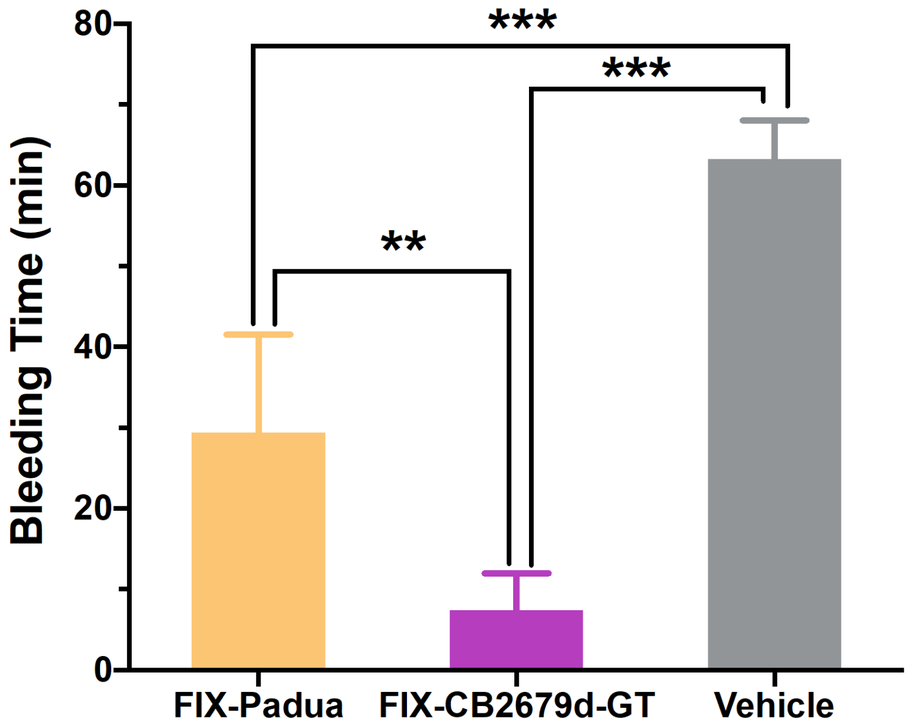
- All study participants identified – study is ongoing
- 2 subjects have successfully completed 28 days of dosing & washout
- FIX activity levels exceeded the trial efficacy endpoint & no ADAs observed
- Final data in 1H 2020

FIX gene therapy: CB 2679d-GT

AAV gene therapy for hemophilia B

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

+ Activity levels elevated throughout the study, no nAbs
+ **3-fold superior FIX activity**
+ **4-5-fold reduction in bleeding time**



Bleeding time +/- SD (*** P<0.001, ** P<0.01)
High vector dose group: $1x10^{10}$ vg/mouse

Optimizing next generation vector construct

+ AAV license and sponsored research agreement with Stanford University School of Medicine
+ Higher activity levels
+ Lower vector dose
+ Improved efficacy & safety

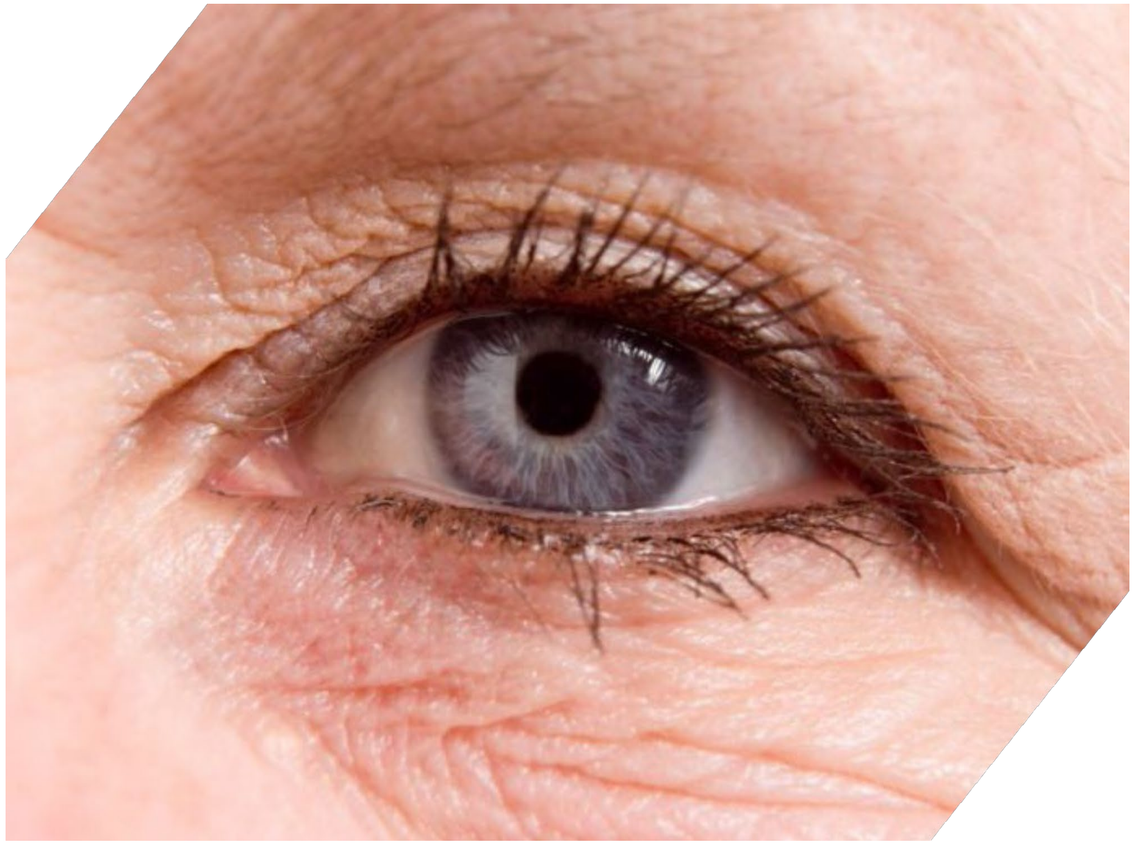
Wholly-owned & issued patents covering gene therapy

Blouse *et al.* EAHAD 2019

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

Nasdaq: CBIO

Geographic Atrophy in Dry AMD

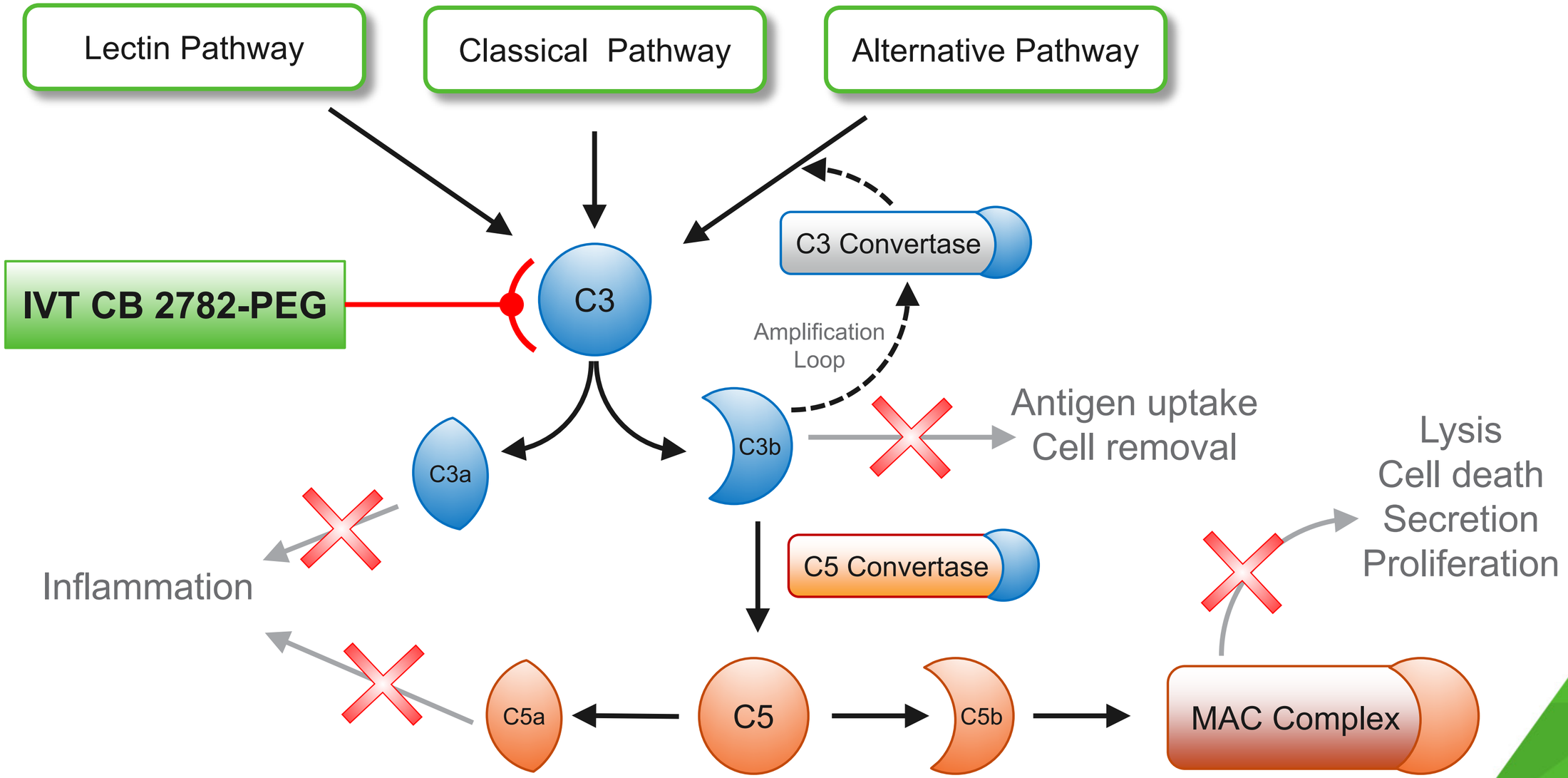


- Geographic atrophy is an advanced stage of dry age-related macular degeneration that results in the irreversible loss of retina and leads to blindness
- Dry AMD affects a million people in the United States and over five million people worldwide
- Global market is estimated at >$5B with no approved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

Nasdaq: CBIO



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 PK & PD data predict best-in-class human intravitreal dosing three or four times a year
+ Dry AMD is a $5B+ market opportunity with no approved drugs

Biogen Collaboration

Biogen

+ 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

Milestones

Nasdaq: CBIO

	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

Selected data

Financial results	Q3 2019
Cash & Cash Equivalents	$85.0 M
Operating Expense (YTD)	$43.3 M
Net Loss (YTD)	($41.6M)
Net Loss per share (YTD)	($3.47)

Share data

Common Stock Outstanding	12,029,992
Officer & Director ownership	7.0%
Fully Diluted Shares*	14,859,051

* Includes ~1M options available for issuance

Team

President & CEO

Nassim Usman, Ph.D.

Massachusetts Institute of Technology · RPI · Sirna Therapeutics · PRINCIPIA

26 years in biotech

SVP, Technical Operations

Andrew Hetherington, M.B.A.

gsk · BAYER · NOVARTIS

20 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

VP, 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

12 years in biotech

VP, 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
+ FDA EoP2 in early 2020, P3 expected in 2020

FIX: SQ DalcA >$1.5B market

+ Interim Phase 2b efficacy demonstrated
+ Final Phase 2b data in 1H 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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