Issuer Free Writing Prospectus
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April 3, 2017

Catalyst Biosciences Nasdaq: CBIO

Essential Medicines for Hemophilia • Greater Convenience • Superior Outcomes

CATALYST BIOSCIENCES

Non-Confidential Company Update
3 April 2017

Forward Looking Statements

This presentation includes forward-looking statements relating to Catalyst Biosciences, Inc. (the "Company"). Forward-looking statements include statements about the potential markets for the Company's product candidates, the potential advantages of the Company's product candidates, product development plans and timelines, potential safety and efficacy of the Company's product candidates, potential sales of product candidates, if approved, the Company's intellectual property and any statement of belief or assumptions underlying any of the foregoing. These statements reflect the current views of the Company's senior management with respect to future events. Forward-looking statements address matters that involve risks and uncertainties, such as the timing of, costs associated with and outcomes of development, clinical and regulatory activities, risks associated with third-party arrangements, potential adverse effects arising from the testing or use of the Company's drug candidates, risks related to the Company's ability to develop, manufacture and commercialize product candidates, to obtain regulatory approval of product candidates and to obtain marketplace acceptance of product candidates, to avoid infringing patents held by other parties and to secure and defend patents of the Company, and to manage and obtain capital, including through any future financing or the conversion of outstanding convertible promissory notes. Further information regarding these and other risks is included in the Company's Form 10-K for the year ended December 2016 and S-1 filed with the Securities and Exchange Commission on March 8, 2017 and March 13, 2017 respectively, under the heading "Risk Factors".

Statement About Free Writing Prospectus

- This presentation highlights basic information about us and the offering. Because it is a summary that has been prepared solely for informational purposes, it does not contain all of the information that you should consider before investing in our company. Except as otherwise indicated, this presentation speaks only as of the date hereof.
- This presentation does not constitute an offer to sell, nor a solicitation of an offer to buy, any securities by any person in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation.
- Neither the Securities and Exchange Commission (the "SEC") nor any other regulatory body has approved or disapproved of our securities or passed upon the accuracy or adequacy of this presentation. Any representation to the contrary is a criminal offense.
- This presentation includes industry and market data that we obtained from industry publications and journals, third-party studies and surveys, internal company studies and surveys, and other publicly available information. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Although we believe the industry and market data to be reliable as of the date of this presentation, this information could prove to be inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions that were used in preparing the forecasts from the sources relied upon or cited herein.
- We have filed a Registration Statement Form S-1 with the SEC, including a preliminary prospectus dated March 31, 2017 (the "Prospectus"), with respect to the offering of our securities to which this communication relates. Before you invest, you should read the Prospectus (including the risk factors described therein) and, when available, the final prospectus relating to the offering, and the other documents filed with the SEC and incorporated by reference into the Prospectus, for free by visiting EDGAR on the SEC website at http://www.sec.gov.
- Alternatively, we or any underwriter participating in the offering will arrange to send you the prospectus if you request it by contacting Ladenburg Thalmann & Co. Inc., 277 Park Avenue, 26th Floor, New York, NY 10172 or by email at prospectus@ladenburg.com.

Stopping bleeding is good – Preventing bleeding is better

- **Hemophilia is a large and growing market opportunity**
  - Orphan disease
  - FVIIa & FIX approved products ~$3.4 B in annual sales
- **Novel products in clinical development**
  - FVIIa: marzeptacog alfa (activated)
    - Phase 2/3 clinical trial start in Q4 2017
    - Phase 2 clinical data in H1 2018
  - FIX: CB 2679d/ISU304
    - Phase 1/2 clinical data in H2 2017

- **Convenient subcutaneous (SQ) delivery**
  - Disruptive to current intravenously dosed products
  - Enabled by our highly potent clinical candidates
  - Simpler, less painful, small dose
  - Especially suited for children
    - Approximately 40% of market
- **Potential to *normalize* coagulation activity with SQ prophylaxis**
  - Not currently attainable with approved coagulation factors
  - Results in better long term health outcomes

Experienced Management & Investors

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Management

- Nassim Usman, Ph.D.
  President & Chief Executive Officer
  - MIT, Ribozyme Pharma, Sirna Therapeutics, Morgenthaler Ventures
- Howard Levy, M.B.B.Ch., Ph.D., M.M.M.
  Chief Medical Officer
  - Lilly, Novo Nordisk, Sangart, Inspiration, CSL
- Fletcher Payne
  Chief Financial Officer
  - IBM, Cell Genesys, Abgenix, Dynavax, Rinat, Plexxikon, CytomX
- Andrew Hetherington, M.B.A.
  Sr. VP, Technical Operations
  - GSK, Bayer, Novartis
- Jeffrey Landau, M.B.A.
  VP Business Development
  - Jazz Pharmaceuticals, Orphan Medical, Eli Lilly, Onyx, Threshold

Investors

EssexWoodlands

NEA
New Enterprise Associates®

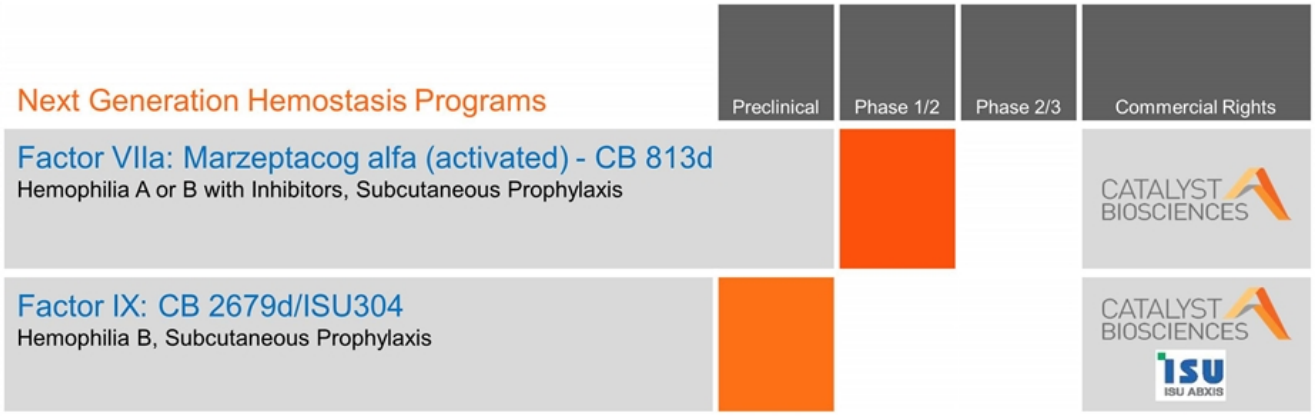
HealthCare VENTURES

Johnson & Johnson
DEVELOPMENT CORPORATION

M
MORGENTHALER

rosettacapital

Catalyst Biosciences Pipeline

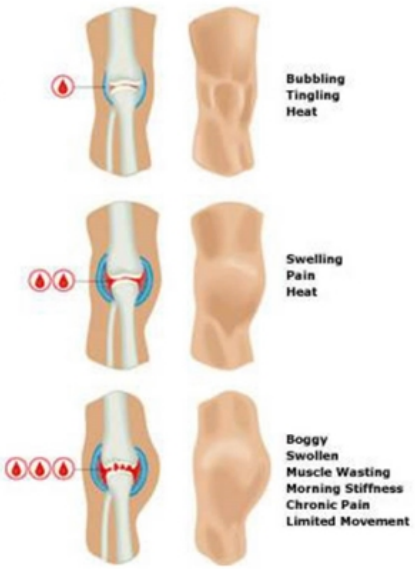


Hemophilia Overview

Disease

- Hereditary, life-long disease
- ~400,000 patients WW*
- Patients need clotting factor to form stable blood clots
- Categories of clotting deficiency
  - Severe <1%
  - Moderate 1-5%
  - Mild 6-40%
  - Normal 50% -150%
- Hemophilia B Patients need FIX
- Inhibitor Patients need bypass agent: FVIIa or FEIBA
- Limb- or life-threatening bleeding
- Joints are destroyed by repeated macro and micro bleeds

Joint Bleeds



Market Characteristics

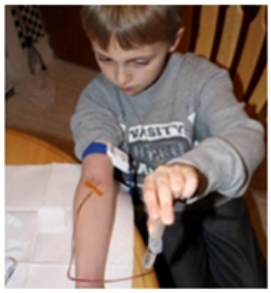
- Recombinant products dominant market
- Intravenously administered by patient or caregiver
- Phase 1/2 trials are in hemophilia patients with pharmacodynamic efficacy endpoints
- Commercial sales can be achieved with a small sales force

Key Unmet Needs for Hemophilia

- **Subcutaneous Prophylaxis**
- **Normalization of clotting activity to prevent bleeding and joint damage**

*Bolton-Maggs & Pasi, The Lancet 2003, v361 p1831

Advantages of Subcutaneous Prophylaxis



"I started helping Mom and Dad with the treatment…I don't want to try to get the needle in the vein yet. Maybe when I'm ten."

Intravenous Delivery

- Intravenous infusion through painful needle stick
- Requires supervision and skilled insertion of needle into vein
- Volumes of infusion varies by agent
- Challenging for patient, family, school
- Activity levels fluctuate, low trough levels

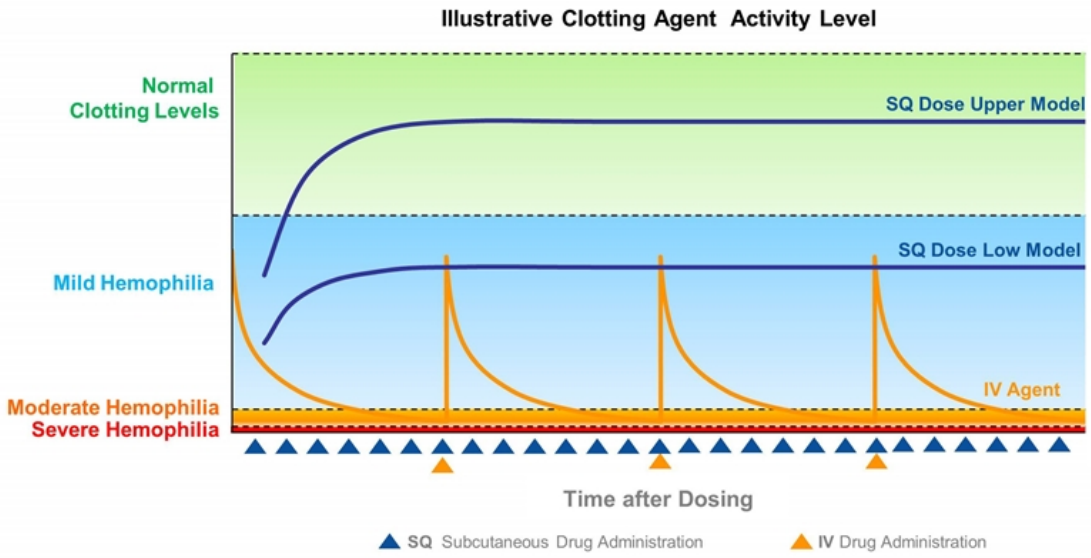
Pediatric use of subcutaneous delivery is common for diabetes and regularly administered at home and school

Subcutaneous Prophylaxis Delivery

- Subcutaneous injections are easier
- Home therapy - family or patient
- Prophylactic use should result in fewer bleeds; reduce damage to joints and muscles
- Fewer demands on healthcare system; reduced hospital stays & outpatient visits

Modeling Predicts Subcutaneous Administration may be a Superior Prophylaxis Regimen Compared with IV Agents

Time in Mild to Normal Levels Predicts Protection from Spontaneous Bleeds



~40+% of Individuals with Hemophilia are Children: KOL's, Individuals & Treaters Want a Better Dosing Method

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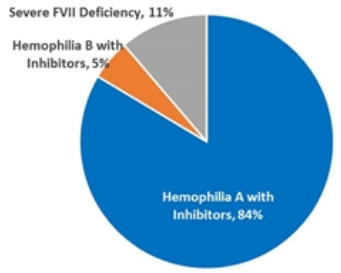
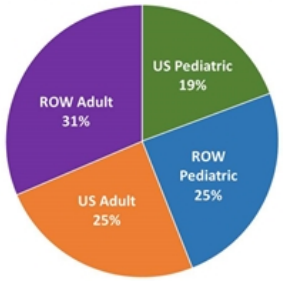
$2.2B FVIIa Market
Treatable Population ~3,000



$1.2B FIX Market, Treatable Population 9,700
Pediatric Population is >40%[1]



[1]GlobalData
[2]WFH 2015 Survey, CBIO market Research

What do Inhibitor Key Opinion Leaders Say…

- "(MarzAA) would become 1st line treatment for all hemophilia B inhibitor patients"
- "(MarzAA) would conservatively capture >10% hemophilia A inhibitor patients, not every patient will go on, or stay on ACE910"
- "Severe FVII deficient patients would want to switch to MarzAA…a daily SQ could "normalize" them"

What do FIX Key Opinion Leaders Say…

- "I would give (CB 2679d) SQ to 100% of my new patients"
- "Venous access in kids is a big issue, guessing 50% will be interested in converting over to SQ (CB 2679d)"
- "Kids who want to lead more active lives will be great on SQ (CB 2679d)"

*SQ = Subcutaneous dose

Global Inhibitor Market & MarzAA Opportunity ~$2.2B[1]

MarzAA is differentiated from current market leaders

Company	Product	Dosing Route & Frequency	2016 Sales	Comments
CATALYST BIOSCIENCES	**Marzeptacog alfa (activated)**	Subcutaneous prophylaxis ~1 mL daily	Not Yet Approved	• Subcutaneous Prophylaxis • Daily ~1 mL subcutaneous injection • Ideal for pediatrics (>45% of US inhibitor patients)
novo nordisk®	NovoSeven® RT Coagulation Factor VIIa (Recombinant) Room Temperature Stable	IV on-demand	~$1.4B[1]	• No prophylaxis (on-demand only) • Requires 2-3 IV infusions to control bleeding
Shire	FEIBA NF (Anti-Inhibitor Coagulant Complex)	IV prophylaxis, 3x per week	~$800M[1]	• Prophylaxis requires 3 IV infusions per week • Each infusion takes ~40min[2]
Roche	ACE910	SQ Weekly	Not Yet Approved	• Subcutaneous Prophylaxis • Only works in Hemophilia A ± Inhibitors • Phase 3 (HAVEN 1) near completion • Significant SAE (multiple Thrombotic Microangiopathy SAEs and one reported death)

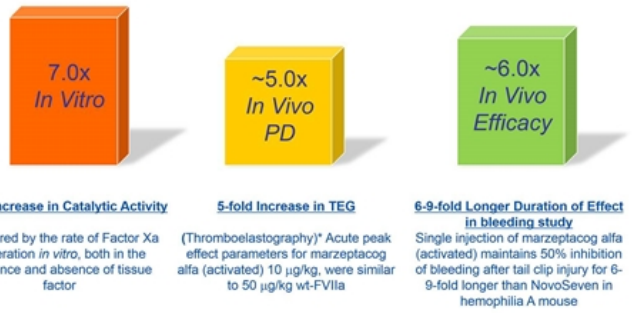
1 - Estimated 2016 Sales of NovoSeven and FEIBA
2 - For a 80 kg (176 lb) adult

Factor VIIa: Marzeptacog alfa (activated)

- Leading next-generation FVIIa with prophylaxis & subcutaneous delivery potential
- 6-9 fold improvements in potency and duration of effect *vs* NovoSeven
- Phase 1 intravenous Clinical Trial Results
  - 25 severe hemophilia patients with and without inhibitors
  - Demonstrated Proof-of-Mechanism
  - Excellent safety and tolerability**
  - No serious drug-related AEs
  - Good correction of PT and aPTT for ~12 h

**http://clinicaltrials.gov/ct2/show/NCT01439971?term=FVIIa&rank=2

Marzeptacog alfa (activated) Potency Advantage



7-fold Increase in Catalytic Activity

Measured by the rate of Factor Xa generation *in vitro*, both in the presence and absence of tissue factor

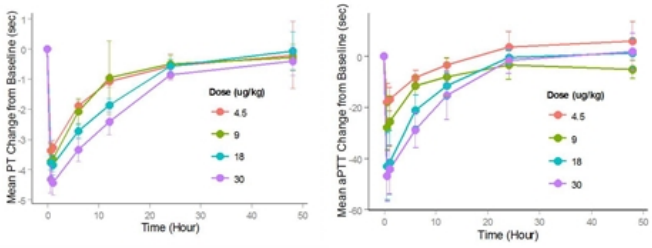
5-fold Increase in TEG

(Thromboelastography)* Acute peak effect parameters for marzeptacog alfa (activated) 10 μg/kg, were similar to 50 μg/kg wt-FVIIa

6-9-fold Longer Duration of Effect in bleeding study

Single injection of marzeptacog alfa (activated) maintains 50% inhibition of bleeding after tail clip injury for 6-9-fold longer than NovoSeven in hemophilia A mouse

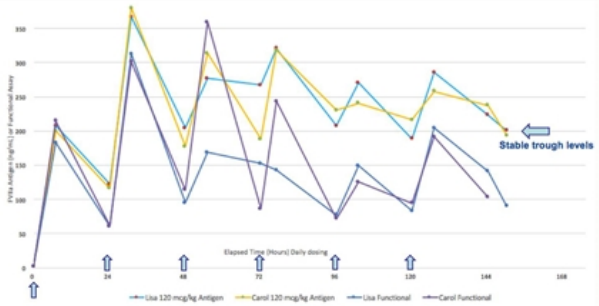
Phase 1 Clinical Trial Data



Marzeptacog alfa (activated) Corrects Coagulation in Hemophilic A Dogs

Antigen & Activity Levels

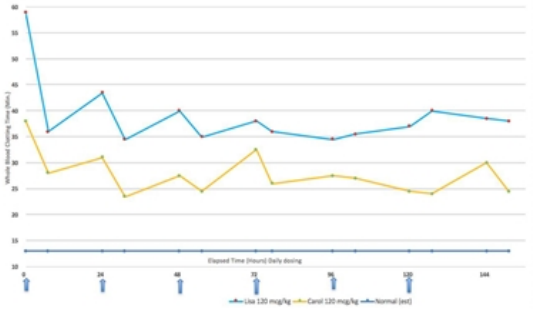
- Gradually increasing trough to stable level



⬆ Dosed daily SQ @ 120 µg/kg

Whole Blood Clotting Time (WBCT)

- Reduction in WBCT to ~25-40 min
- Consistent with gene therapy study showing hemophilic dogs had no bleeding for 18 months



⬆ Dosed daily SQ @ 120 µg/kg

Data supports daily subcutaneous dosing of MarzAA for prophylaxis

MarzAA Phase 2 of Phase 2/3 Trial Design

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Phase 2 Multi-Dose / Dose Escalation Study

- Hemophilia A and B with and without Inhibitors
- Open label Subcutaneous (SQ) individual dose escalation study if a breakthrough bleed occurs
- 12 adult subjects
- Study start 4Q 2017

Phase 2 Clinical Data

- Interim data available 1H 2018
- Study end points
  - Annualized bleed rate (ABR) *vs* recorded historical ABR
  - Breakthrough bleed requiring escalation to higher dose level

* Individuals with any breakthrough bleed will move to a higher dose level and start a new 50 exposure days

** After 50 exposure days with no bleeds individuals will move to safety follow-up

Global FIX Market & CB 2769d/ISU304 Opportunity $1.2B[1]

CB 2679d/ISU304 is differentiated from current market leaders

Company	Product	Dosing Route & Frequency	2016 Sales	Comments
CATALYST BIOSCIENCES	CB 2679d/ISU304	Subcutaneous prophylaxis ~1 mL daily	Not Yet Approved	• Subcutaneous Prophylaxis • Daily ~1 mL subcutaneous injection • Ideal for pediatrics (>45% of US Hemophilia B patients)
Pfizer	BeneFIX	IV prophylaxis 2-3 times a week	~$700M[1]	• Several minutes to complete BeneFIX infusion
Bioverativ / sobi (Pioneer in Rare Diseases)	ALPROLIX™ [Coagulation Factor IX (Recombinant), Fc Fusion Protein]	IV prophylaxis, Every 7 – 10 days	~$300M[1]	• Prophylaxis requires one IV infusion per week • Higher dose / Kg or more frequent dosing may be needed in children
CSL Behring	IDELVION	SQ Weekly	FDA Approval March 2016	• IV Prophylaxis in Adults 7-day dosing • 14-day dosing only in patients 12 years and older

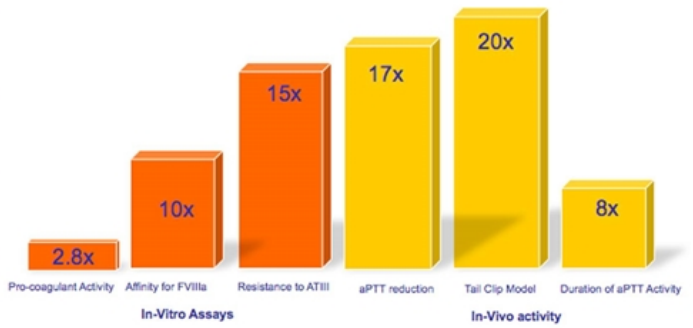
Estimate the treatable FIX patient population in the major markets is approximately 9,700

1 - Estimated 2016 Sales of BeneFIX, Alprolix and other approved FIX products

Factor IX Program: CB 2679d/ISU304

- Designed as best-in-class high potency recombinant FIX product
- Significantly more potent than currently available products
- Preclinical subcutaneous (SQ) studies support clinical concept
- Preclinical IND-enabling development completed, IND approved in Korea
- Phase 1/2 intravenous and SQ trial to initiate in Q2 2017
- Alliance with ISU Abxis a Korean biosimilar company

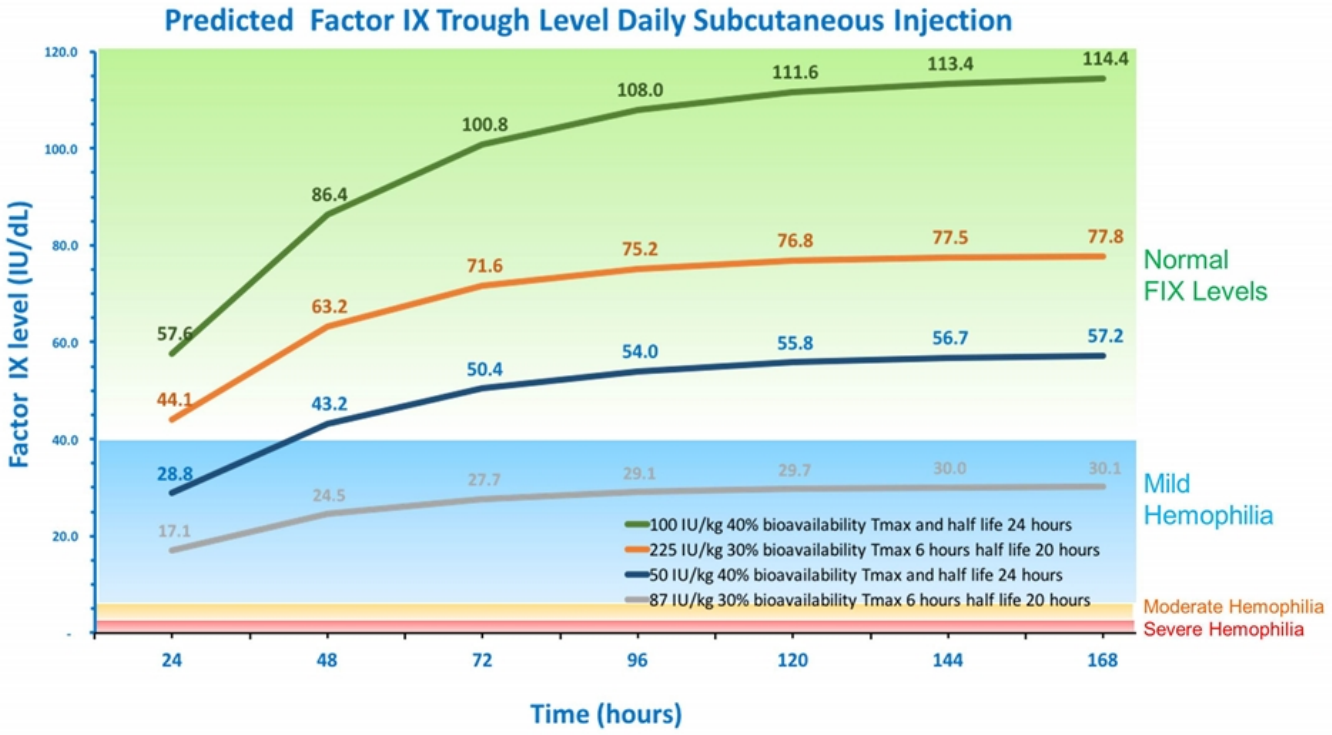
CB 2679 Potency Advantage



Catalyst – ISU Alliance Terms

- Upfront & milestone payments to Catalyst
- ISU Abxis responsible for costs through proof-of-concept Phase 1/2
- **Catalyst controls global development & commercialization post-Phase 1/2 (ex-Korea)**
- Profit sharing on products worldwide

Modeling Predicts Normal FIX Activity in Hemophilia B Individuals



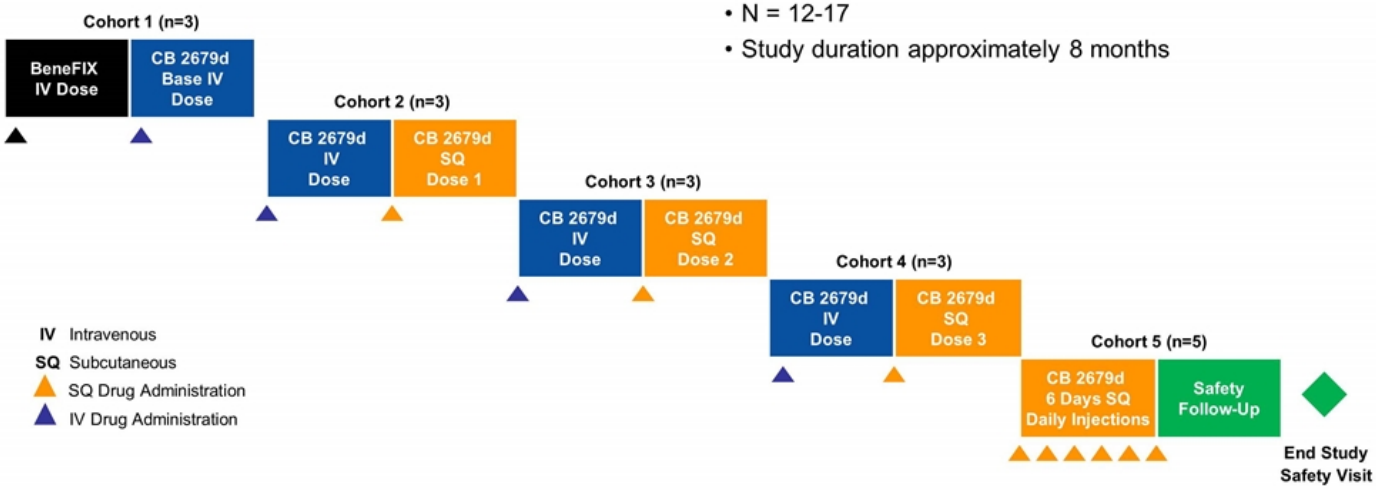
CB 2679d/ISU304 Phase 1/2 Sequential Cohort Design

ISU – Catalyst Collaboration

- ISU conducts clinical trial
- CBIO has minimal financial commitments
- CBIO receives milestone at start and conclusion of study
- WW development returns to CBIO at end of Phase 1/2 study

Phase 1/2 Multi-Dose Study

- Open label study
- IV cross-over to SQ dose
- Single SQ dose escalation followed by multi-dose SQ arm
- Study start Q2 2017
- Interim safety, PK and PD data available in H2 2017
- N = 12-17
- Study duration approximately 8 months



Investor Milestones – CBIO

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Milestones & Planned Clinical Data Presentations 2017 & 2018

Q2-2017	Q3-2017	Q4-2017	Q1-2018	Q2-2018	Q3-2018	Q4-2018
Start FIX CB 2679d/ISU304 Phase 1/2	ISTH: FIX & FVIIa preclinical poster presentations	ASH: Interim FIX clinical data presentation Start FVIIa MarzAA Phase 2	EAHAD: FIX & FVIIa clinical data presentations		ISTH FIX & FVIIa clinical data presentations	

Investor Highlights – CBIO

- Disruptive approach to a $3.4 Billion market
  - **Subcutaneous (SQ) Prophylactic** dosing will be much more convenient, especially for children
  - **Normalization of FIX clotting activity** could dramatically reduce spontaneous bleeding and improve quality of life
- FVIIa: Marzeptacog alfa (activated) ~$2.2 Billion market
  - Plan to start Phase 2 of a Phase 2/3 program in 4Q 2017
- FIX: CB 2679d/ISU304 ~$1.2 Billion market
  - Plan to start Phase 1/2 trial in Q2 2017
  - Phase 1/2 trial is fully-funded by our development partner ISU

Select Financial Data – CBIO

	Select Financial Data
Cash[1]	$19.0M
Cash Backed - R/C Notes[1]	$12.8M
Revenue[2,3]	$3.9M
Expenses[2]	$20.8M
	Share Data
Shares Outstanding[1]	1,241,636
60 Day Average Volume[1]	556,119 shares
Market Capitalization[1,4]	$13.05M

1. As of March 28, 2017. Cash, shares outstanding and market capitalization amounts reflect adjustments to give effect to the sale of 241,600 shares of common stock for approximately $3.5 million of net proceeds after March 28, 2017.
2. For the year ended December 31, 2016.
3. Consists of Contract Revenue and Other Income.
4. Based on $10.51 closing price on March 29, 2017.

CBIO Capitalization Ownership Table

March 28, 2017, as adjusted [5]	Issued and Outstanding Shares [4]	Ownership %
5% or Greater Stockholders		
Essex Woodlands Health Ventures[2]	78,623	6.33%
NEA	43,462	3.50%
HealthCare Ventures[3]	69,401	5.59%
Johnson & Johnson Innovation—JJDC	66,951	5.39%
Morgenthaler Partners	59,125	4.76%
Rosetta Capital	51,455	4.14%
Total 5% or Greater stockholders	**369,017**	**29.72%**
Directors and Executive Officers		
Nassim Usman, Ph.D.	5,225	0.42%
Fletcher Payne	1,668	0.13%
Howard Levy, M.B.B.Ch., Ph.D., M.M.M.[1]	0	0.00%
Harold E. Selick, Ph.D.	1,107	0.09%
Stephen A. Hill, M.D.	1,380	0.11%
Jeff Himawan[2]	78,623	6.33%
John P. Richard	217	0.02%
Augustine Lawlor[3]	69,401	5.59%
Errol B. De Souza	146	0.01%
All Directors and Executive Officers	**157,767**	**12.71%**
Public Float	**862,876**	**69.50%**
Total Shares Issued and Outstanding	**1,241,636**	**100.00%**

1) Dr. Levy has been granted options to purchase common stock, and as of March 28, 2017, Dr. Levy has not exercised any of his options.

2) Jeff Himawan is a Manager of the Funds affiliated with Essex Woodlands Health Ventures and may be deemed to beneficially own the shares held by such funds.

3) Augustine Lawlor a Manager of the Funds affiliated with HealthCare Ventures and may be deemed to beneficially own the shares held by such funds.

4) Total shares issued and outstanding and ownership percentages exclude: a) all shares of common stock issuable upon the exercise of stock options to any of the Directors or Named Executive Officers, b) all shares of common stock issuable upon the exercise of warrants held by any of the stockholders above, c) all shares of common stock issuable upon conversion of outstanding redeemable convertible notes held by any of the stockholders above.

5) Shares as of March 28, 2017. Reflects adjustments as follows, based on 1,000,036 shares of common stock outstanding as of March 28, 2017, plus 241,600 shares from the April 3, 2017 settlement of subsequent sales of common stock.

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www.catalystbiosciences.com