CATALYST BIOSCIENCES

December 18th 2018

Research & Development Day

CATALYST BIOSCIENCES

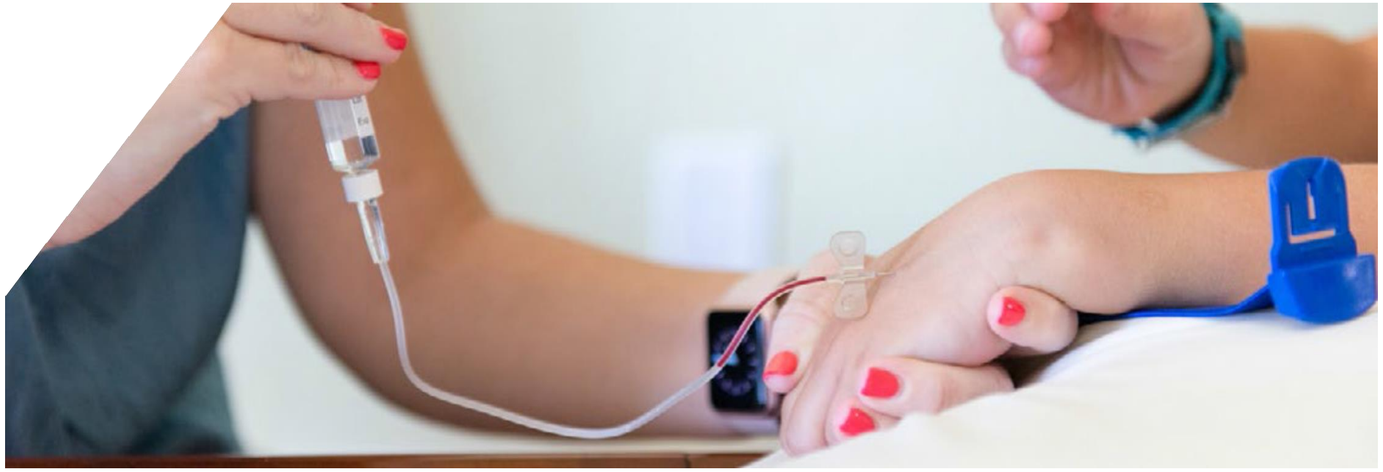
Forward looking statements

This presentation includes forward-looking statements that involve substantial risks and uncertainties. All statements, other than statement of historical facts, included in this presentation are forward-looking statements. Examples of such statements include, but are not limited to, the potential benefits of subcutaneous administration of dalcinonacog alfa (formerly CB 2679d/ISU304) and marzeptacog alfa (activated), the potential for long-term dosing of dalcinonacog alfa to maintain FIX activity in the high-mild hemophilia range, statements relating to Catalyst's clinical trial timelines, including plans for a Phase 2b clinical trial of dalcinonacog alfa, including initiation in the first quarter of 2019 and presentation of data at ISTH, plans for a Phase 3 trial of dalcinonacog alfa, plans for the completion of the ongoing clinical trial of marzeptacog alpha (activated) and presentation of data at EAHAD and ISTH and for a Phase 3 trial of marzeptacog alfa (activated), and the potential market opportunities for these products. Actual results or events could differ materially from the plans and expectations and projections disclosed in these forward-looking statements.

Various important factors could cause actual results or events to differ materially from the forward-looking statements that Catalyst makes, including, but not limited to, the risk that trial initiation or enrollment may be delayed and that ongoing or future trials may not achieve their endpoints, that subsequent clinical trials will not replicate the results from earlier clinical studies on small numbers of patients, that potential adverse effects may arise from the testing or use of Catalyst's products, including the generation of antibodies or inhibitors, the risk that costs required to develop or manufacture Catalyst's products will be higher than anticipated, the risk of competition from other hemophilia treatments, including those in development, Catalyst's ability not to infringe third party intellectual property rights, and other factors described in the "Risk Factors" section of Catalyst's Quarterly Report on Form 10-Q for the quarter ended September 31, 2018, which was filed with the Securities and Exchange Commission on November 1, 2018. Forward looking statements in this presentation speak only as of the date hereof. Catalyst does not assume any obligation to update any forward-looking statements, except as required by law.

Catalyst Biosciences: CBIO

Nasdaq: CBIO



We are working to establish a new standard of care in hemophilia prophylaxis by developing highly potent subcutaneous treatments that improve the quality of life for patients with hemophilia with inhibitors, acquired hemophilia & hemophilia B

Investment highlights

Nasdaq: CBIO

Novel subcutaneous compounds with orphan drug designation

Market: $3.4B in annual sales

2018

FVIIa & FIX SQ efficacy clinically demonstrated

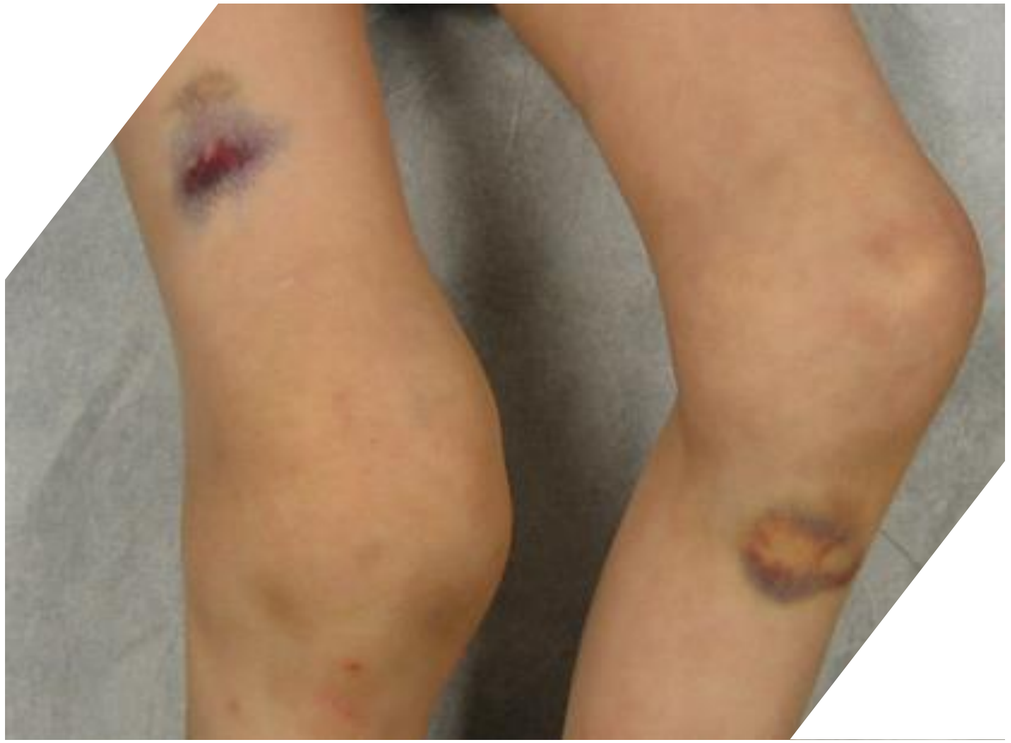
Experienced team

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

Well funded

$129 M cash (Q3 2018)

Life with hemophilia



Hemophilia A or B – inhibitors

- A complication in factor replacement therapy that neutralizes the treatment
- 30% of Hem A (FVIII) patients and 5% of Hem B (FIX) patients develop inhibitors
- Patients are at high risk for hemorrhagic stroke and premature mortality

Hemophilia B

- Rare disorder, FIX deficient, mostly inherited but can be caused by a spontaneous mutation
- Causes spontaneous bleeding, mostly into joints, resulting in disabling joint damage

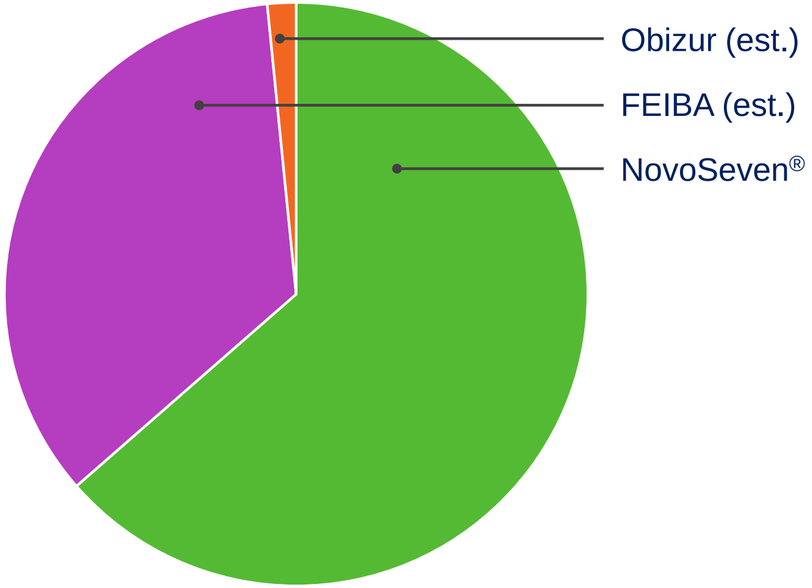
Acquired Hemophilia

- Rare disorder, occurs spontaneously, bleeding caused by anti-FVIII nAbs
- Currently treated with immunosuppressants + IV bypass agents (FVIIa, FEIBA® or Obizur®)
- Unmet need to adequately treat & prevent re-bleeds

Market

FVIIa & Bypassing Agents: $2.2B market

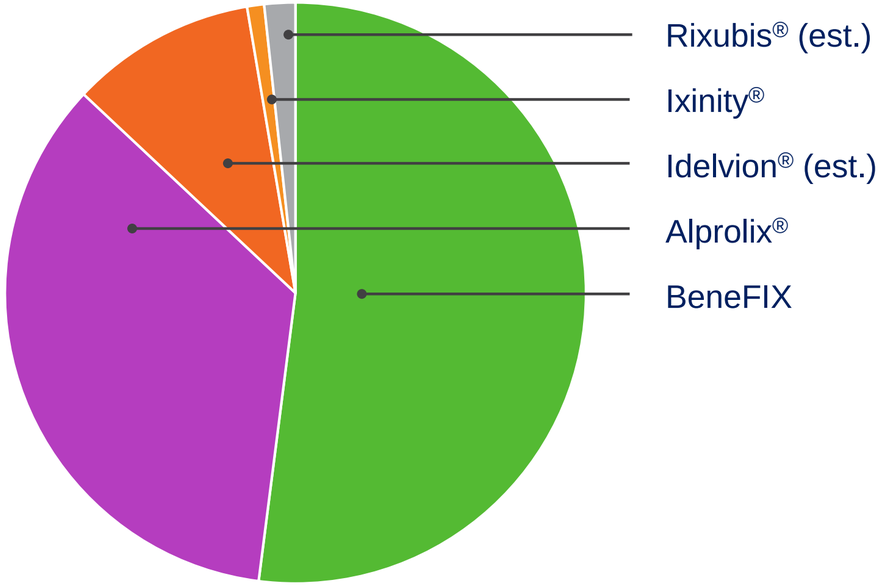
2017 Sales



In 2017 over 2,400 US and EU5 patients were treated with FVIIa and bypassing agents for hemophilia with inhibitors, acquired hemophilia and factor VII deficiency

Hemophilia B, FIX: $1.2B market

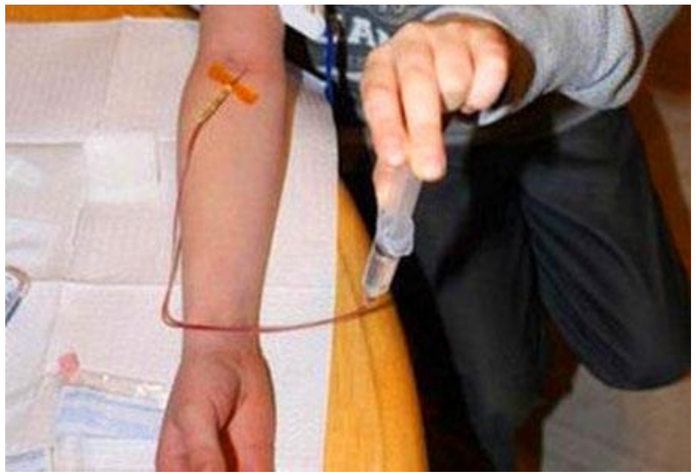
2017 Sales

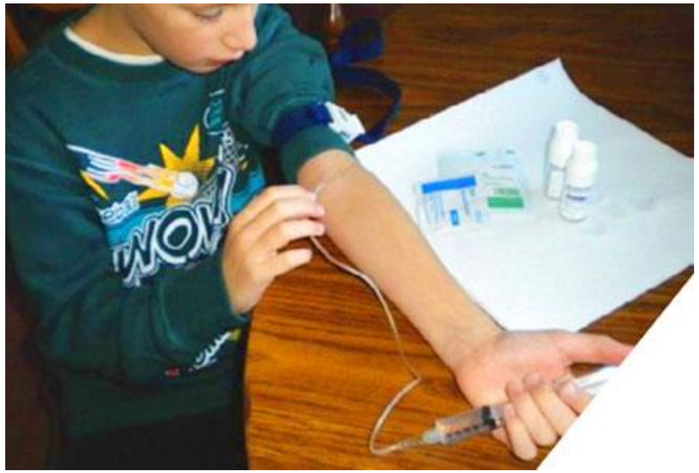


In 2017 over 6,000 US and EU5 hemophilia B patients were treated with recombinant FIX

Sources: WFH Annual Global Survey, GlobalData, Roche, Novo Nordisk, Aptevo, SOBI, Bioverativ. *Hemlibra® had global sales of $58M in 1H 2018

Available treatments





- Regular intravenous (IV) infusions are necessary to maintain higher clotting levels
- IV treatments are very unpleasant and time-consuming
- Inconvenience affects compliance, outcomes and quality of life
- Especially difficult for pediatric patients & their families

The Catalyst Biosciences solution

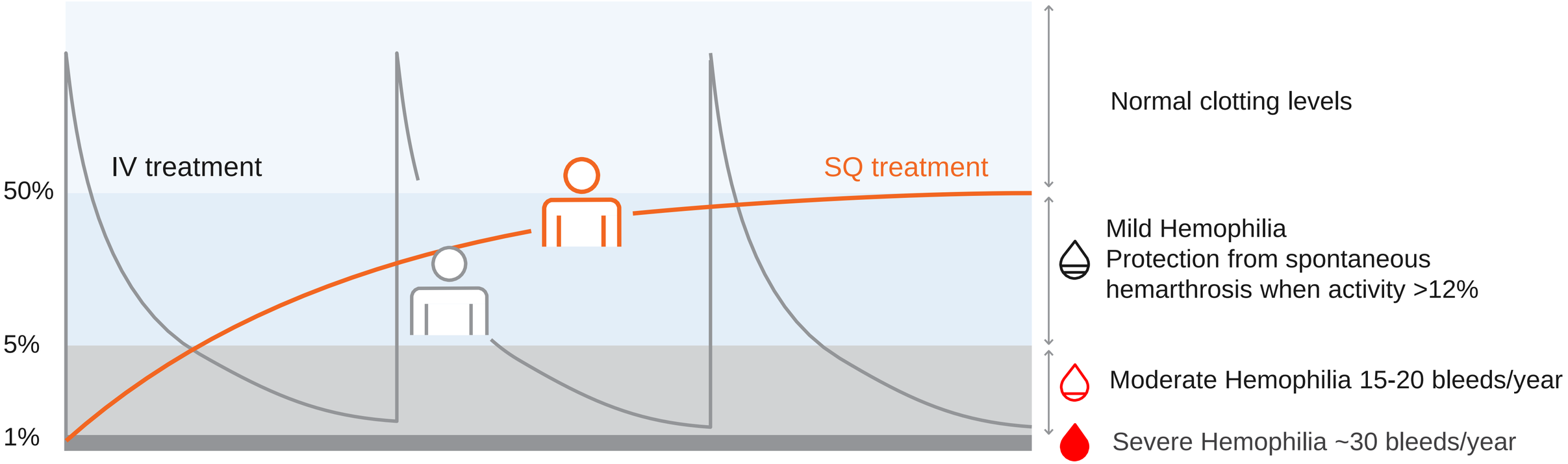
Our highly potent solution:

+ Quick & simple subcutaneous injection – allows for self-administration including in pediatric patients
+ Much higher & stable factor levels – keeps patients at safe levels for much longer

The new standard in hemophilia prophylaxis

Nasdaq: CBIO

Patients in high mild range are protected from spontaneous bleeds



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

Pipeline

Nasdaq: CBIO

Team

President & CEO

Nassim Usman, Ph.D.

Massachusetts Institute of Technology · RPI · Sirna Therapeutics

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

Chief Financial Officer

Fletcher Payne

RiNAT · Cell Genesys · Dynavax Innovating Immunology · IBM · CytomX Therapeutics · Plexxikon · Abgenix

26 years in biotech

VP, Business Development

Jeffrey Landau, M.B.A.

Jazz Pharmaceuticals · Onyx Pharmaceuticals · Lilly · Threshold Pharmaceuticals

16 years in biotech

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December 18th 2018

Dalcinonacog alfa

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Dalcinonacog alfa

Dalcinonacog alfa, a novel clinical stage SQ FIX product candidate differentiated from IV market leaders:

- Simpler, less painful, small dose
- SQ enhances pharmacokinetics
- Potential to maintain continuous protective levels
- Disruptive to all current intravenous products
- Especially well suited for children

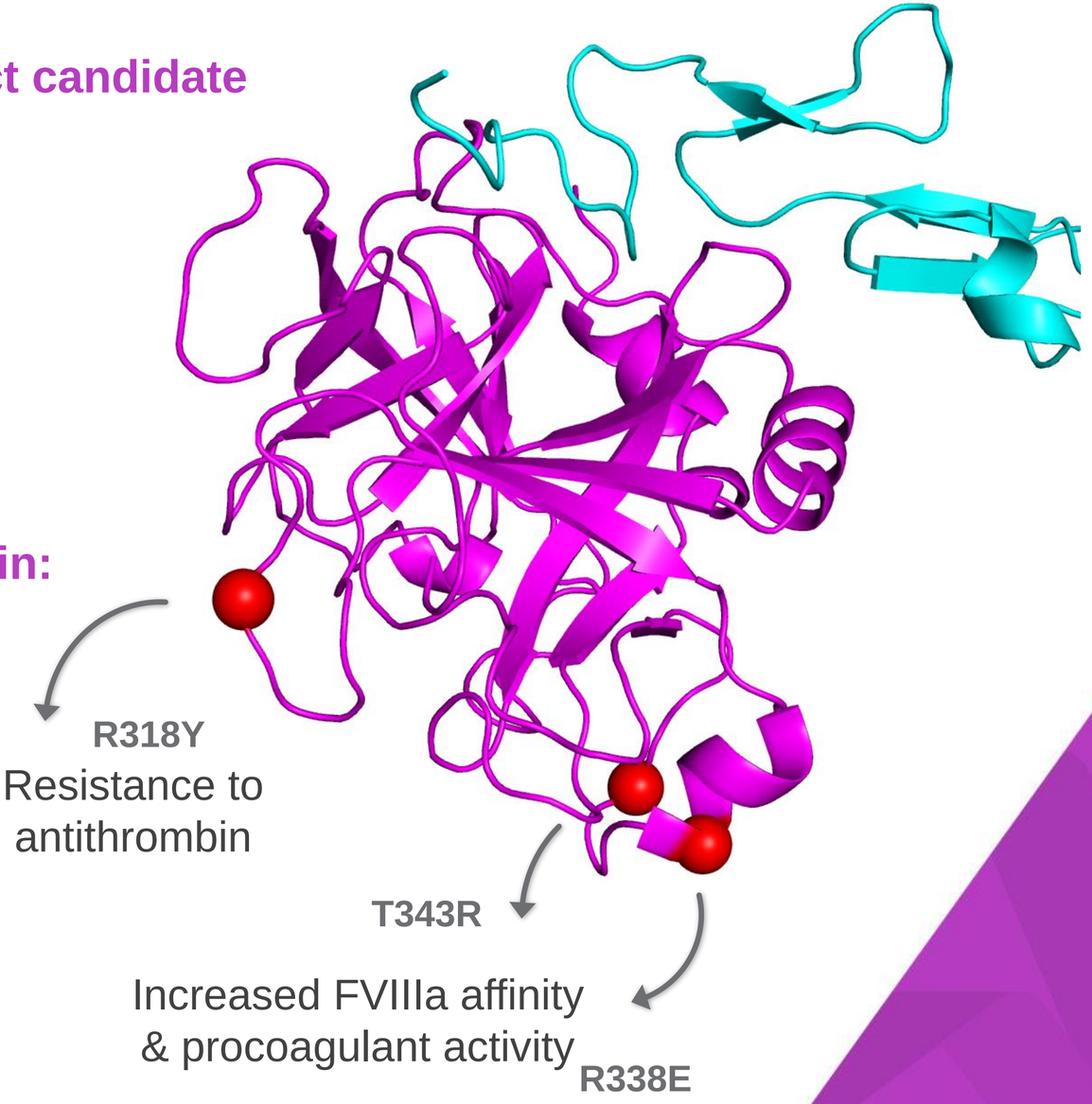
Three point mutations in two loops within the FIX protein:

- Catalytic activity increased
- Affinity for activated factor VIII increased
- Resistance to inhibition by antithrombin improved

Best-in-class high-potency recombinant FIX product

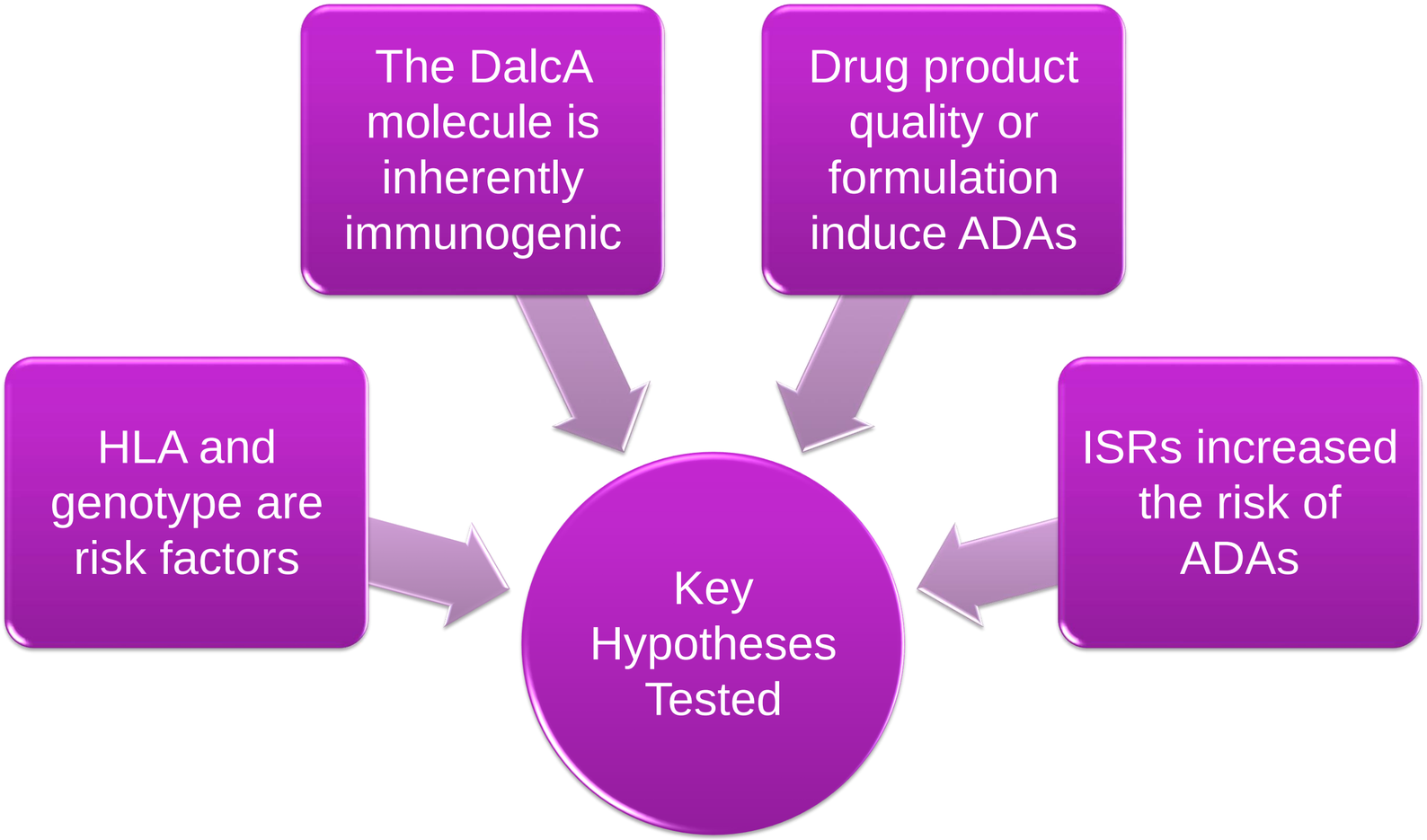
- 22-fold more potent than BeneFIX in man

Orphan Drug Designation in US & EU



Retrospective immunogenicity assessment

A comprehensive assessment of immunogenicity addressed several key hypotheses



"Considering our global and regional *in silico* analysis alongside whole protein and peptide *in vitro* experiments … we find the risk that wildtype FIX and therapeutic candidate DalcA will create or contribute to anti-therapeutic immune response to be minimal."

EpiVax

DalcA has low immunogenicity & should proceed to P2b

Nasdaq: CBIO

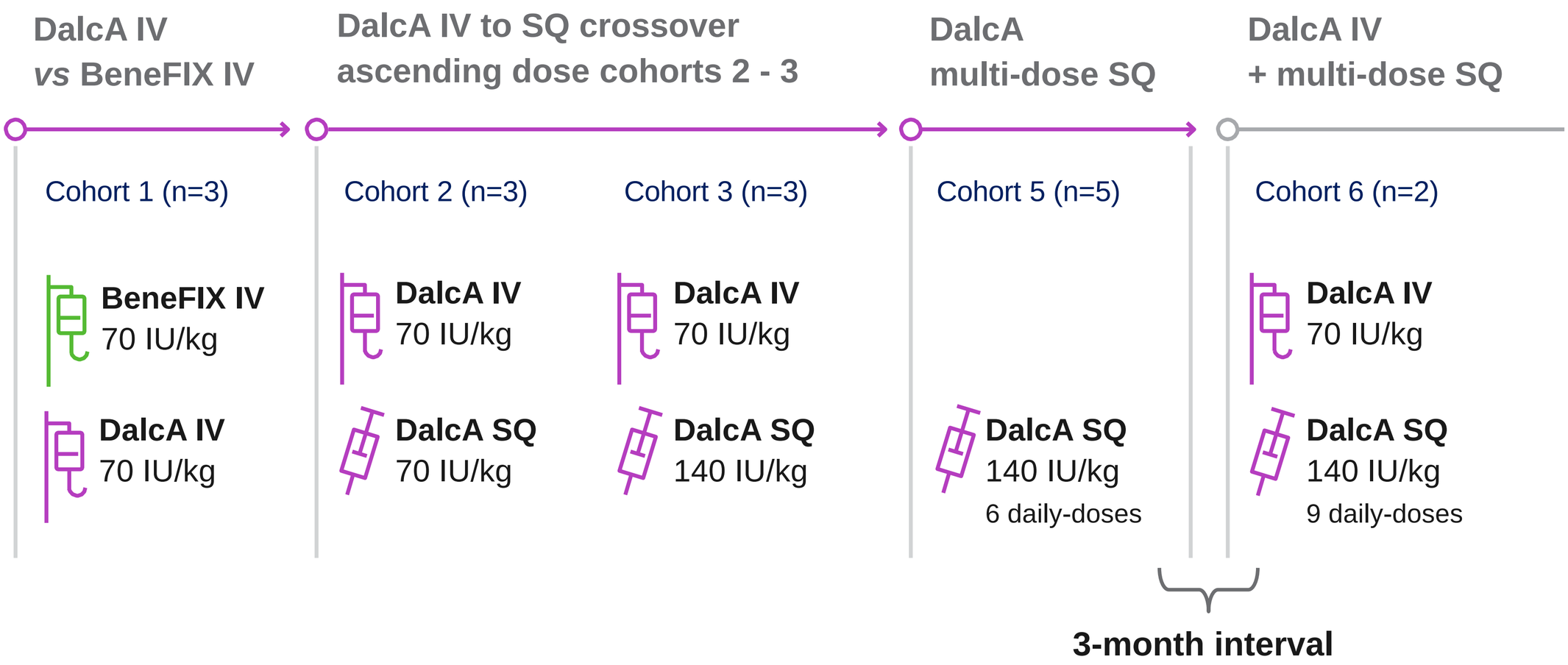
Moving forward with dalcinonacog alfa after preclinical immunogenicity risk assessment

- *In Silico* and *in vitro* risk is equivalent to that of competitors such as BeneFIX
- Drug product characterization shows DalcA comparable to other rFIX products
- No significant ISRs were observed in a 7d monkey PK/tox study
- Clinical, regulatory and immunology KOLs provided positive opinions
- Back in the clinic: Preclinical immunogenicity profile is similar to commercial FIX products

Dalcinonacog Phase 1/2 open label design

Nasdaq: CBIO

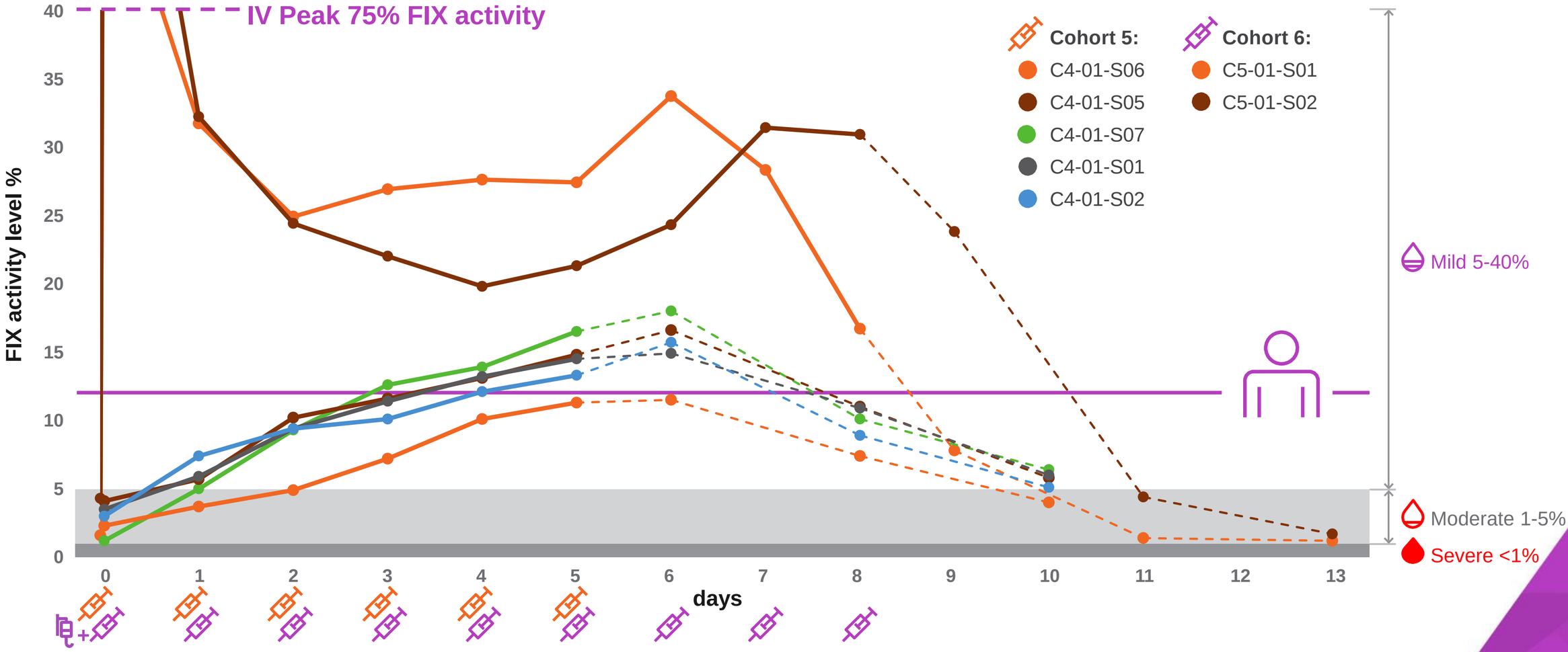
Subcutaneous treatment of hemophilia B



Phase 1/2: Cohort 5 & 6 FIX activity results

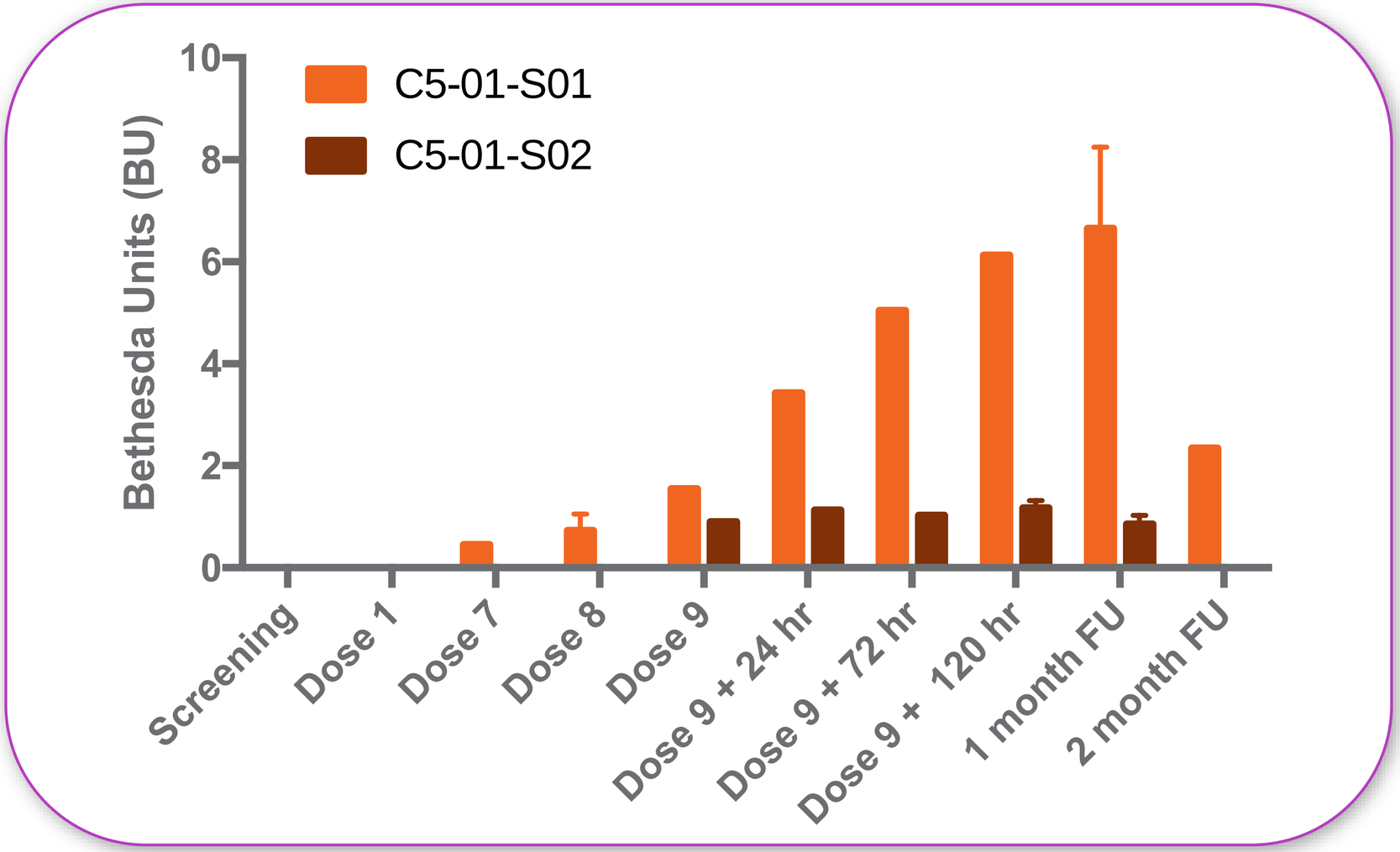
Nasdaq: CBIO

6/7 patients had trough levels >12%, sufficient to protect against spontaneous joint bleeds



Phase 1/2: Cohort 6 FIX nAb development timeline

Time course of neutralizing antibody development after prior exposure in Cohort 5



The DalcA drug product is not inherently immunogenic

Nasdaq: CBIO

Investigation Hypothesis	Conclusion
In Silico & *In vitro* Immunogenicity (Molecule is inherently immunogenic)	Same profile as WT FIX & BeneFIX
HLA Typing / Immunogenicity (Certain HLA types increase risk of ADAs)	Restrict genotype & potential at risk HLAs
DP Quality Characterization (Drug quality induces ADAs)	Same as BeneFIX & RIXUBIS
DP Formulation Characterization (Formulation induces ADAs)	No consistent ISRs in NHP 7-day SQ study
SQ Dosing (Route of Administration induces ADAs)	No issues with MarzAA with >325 days dosing & Idelvion with 15 exposure days

HLA and genotyping

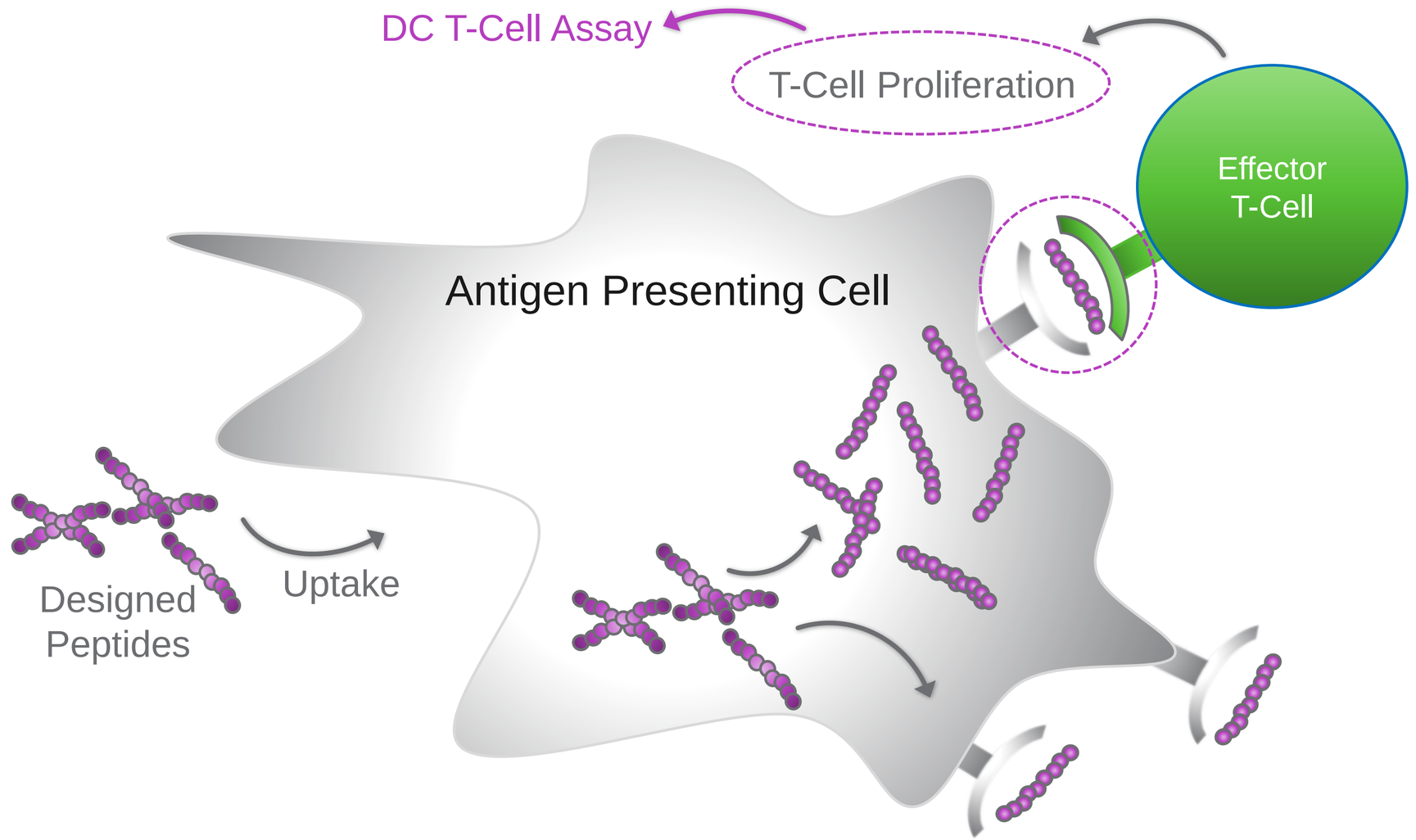
HLA and genotyping of 7/11 Korean subjects in the P1/2 trial

Subject ID	DRB1		DPB1		DQA1		DQB1		Genotype	Phenotype
C5-01-S01	03:01	04:01	02:01	02:01	03:01	05:01	02:01	03:01	128G>A	Arg43Gln: propeptide
C5-01-S02	01:01	13:01	02:01	04:01	01:01	01:01	05:01	06:01	128G>A	Arg43Gln: propeptide
C4-01-S02	01:01	08:01	02:01	05:01	01:01	01:01	05:01	06:01	1150C>T	Arg384Term: Truncation
C4-01-S07	08:01	12:01	02:01	05:01	03:01	05:01	03:01	03:01	1045G>T	Gly349Term: Truncation
C2-03-S01	04:01	13:01	04:01	05:01	01:01	03:01	03:01	06:01	880C>T	Arg294Term: Truncation
C3-02-S03	11:01	15:01	05:01	05:01	01:01	05:01	03:01	06:01	1219T>G	Cys407Gly: Protease
C3-02-S04	09:01	09:01	02:01	05:01	03:01	03:01	03:01	03:01	127C>T	Arg43Trp: propeptide

nAb

+ The two subjects in cohort 6 that developed the nAbs are cousins and have the same genotype
  - Genotype is an Arg to Gln mutation at amino acid -4 (defective propeptide cleavage site)
+ Only common HLA type is DPB1 02:01

Preclinical toolkit for evaluation of immunogenicity

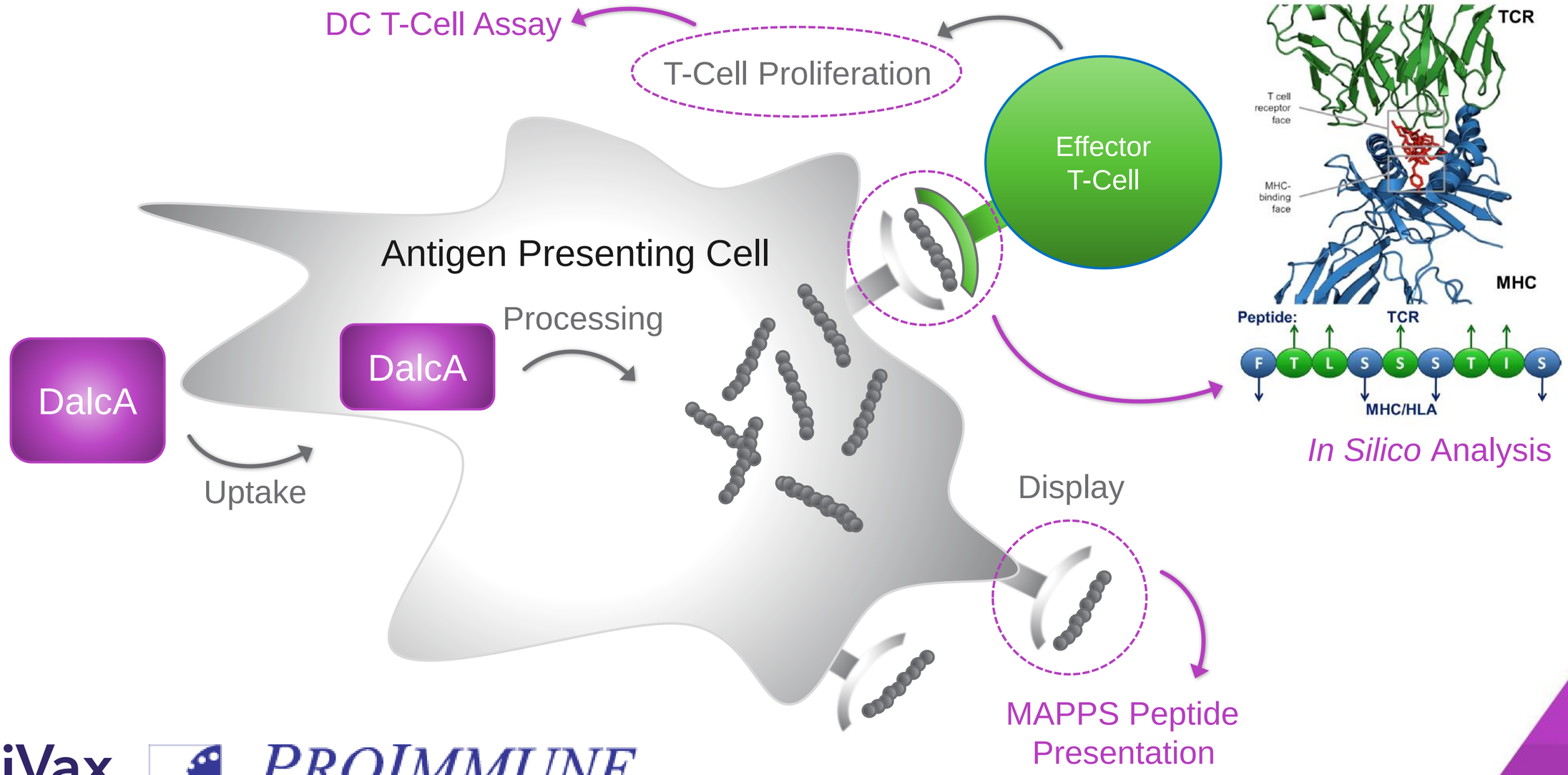


EpiVax

PROIMMUNE
www.proimmune.com

Preclinical toolkit for evaluation of immunogenicity

Nasdaq: CBIO

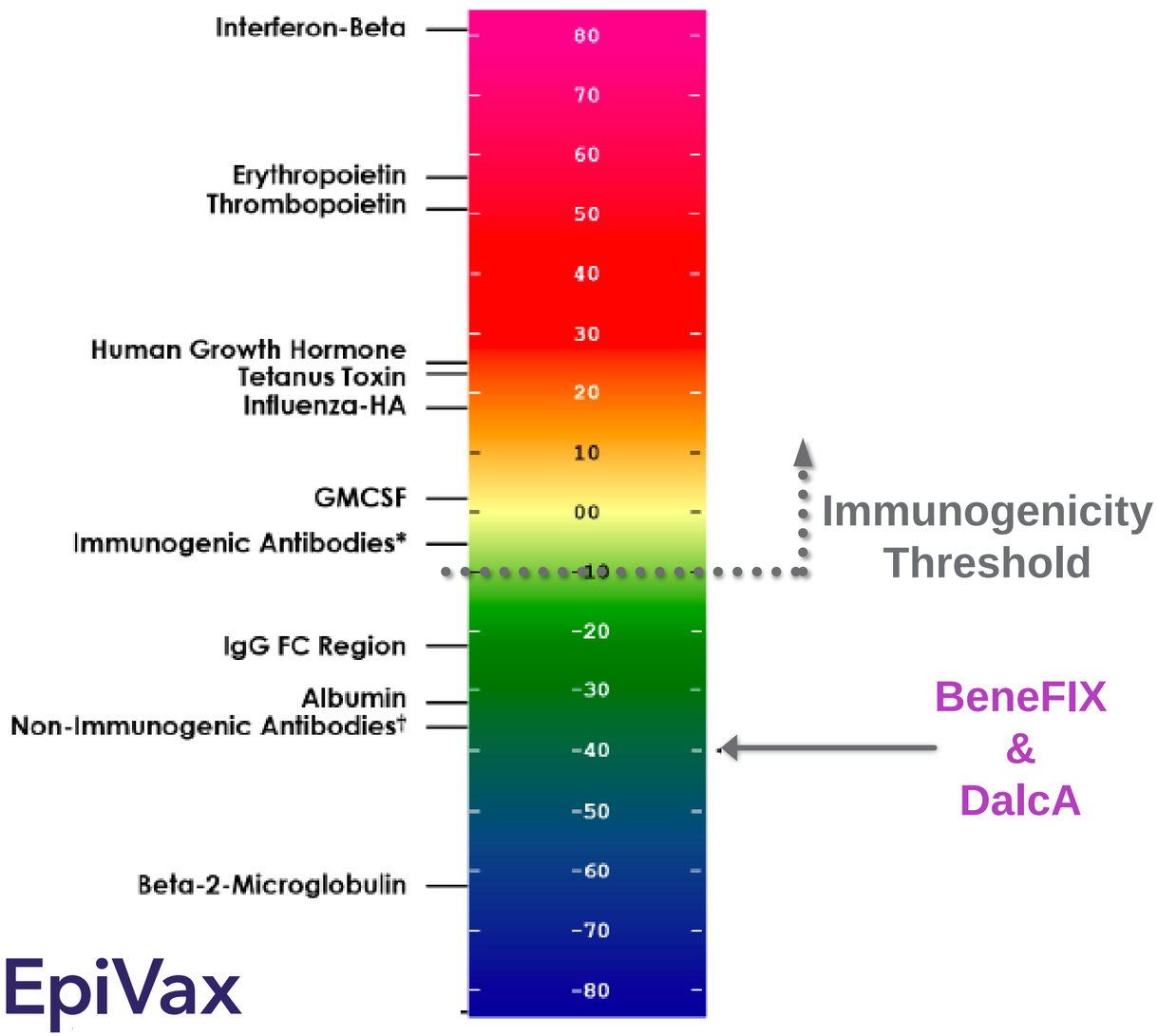


EpiVax

PROIMMUNE
www.proimmune.com

The *in silico* immunogenicity assessment shows low risk

Nasdaq: CBIO



In Silico immunogenicity risk assessment

+ Overall immunogenicity risk is low and on par with BeneFIX
+ Factor IX protein sequence contains fewer putative Class II T cell epitopes than would be expected in a randomly generated sequence of similar length of -42.54 (BeneFIX -41.65)
+ These scores fall in the lower range of the scale, indicating a weak potential for immunogenicity

DalcA shows a similar *in silico* risk as BeneFIX at R318Y

Nasdaq: CBIO

In Silico immunogenicity assessment at the R318Y site

	Frame Start	AA Sequence	Frame Stop	Hydro-phobicity	DRB1*0101 Z-Score	DRB1*0301 Z-Score	DRB1*0401 Z-Score	DRB1*0701 Z-Score	DRB1*0801 Z-Score	DRB1*1101 Z-Score	DRB1*1301 Z-Score	DRB1*1501 Z-Score	Hits
BeneFIX	310	WGRVFHKGR	318	-1.2	0.99	0.51	0.61	1.26	1.63	1.39	0.92	0.67	0
	311	GRVFHKGRS	319	-1.19	-0.35	0.22	-0.25	-1.09	1.00	1.04	0.36	1.24	0
	312	RVFHKGRSA	320	-0.94	0.55	0.03	0.50	0.85	-0.87	0.18	1.09	0.32	0
	313	VFHKGRSAL	321	-0.02	0.74	1.71	-0.63	1.41	1.67	1.00	2.03	0.79	3
	314	FHKGRSALV	322	-0.02	2.73	2.29	2.67	2.59	1.74	2.32	2.01	2.48	8
	315	HKGRSALVL	323	0.09	1.24	-0.06	0.30	1.33	0.69	0.54	1.15	1.12	0
	316	KGRSALVLQ	324	0.06	-0.20	0.84	0.26	0.21	0.35	0.47	0.49	0.29	0
	317	GRSALVLQY	325	0.34	0.37	1.27	0.87	0.23	-0.34	0.14	1.38	0.16	0
	318	RSALVLQYL	326	0.81	0.04	0.72	-0.64	0.17	0.26	0.07	-0.26	1.16	0
DalcA	310	WGRVFHKGY	318	-0.84	0.93	0.59	0.53	1.02	0.58	1.31	1.00	0.61	0
	311	GRVFHKGYS	319	-0.83	-0.54	0.03	-0.43	-1.28	0.80	0.84	0.17	1.05	0
	312	RVFHKGYSA	320	-0.59	0.37	-0.11	0.71	0.88	-0.67	-0.12	1.28	0.80	0
	313	VFHKGYSAL	321	0.33	0.76	0.59	-0.63	1.42	0.51	-0.13	0.93	0.59	0
	314	FHKGYSALV	322	0.33	2.58	2.13	2.52	2.44	1.58	2.16	1.85	2.33	7
	315	HKGYSALVL	323	0.44	0.61	-0.06	0.47	1.36	0.72	0.37	1.41	1.49	0
	316	KGYSALVLQ	324	0.41	-0.49	0.55	-0.02	-0.07	0.04	0.18	0.20	0.01	0
	317	GYSALVLQY	325	0.7	0.01	0.90	0.52	-0.13	-0.72	-0.24	1.02	-0.19	0
	318	YSALVLQYL	326	1.17	1.45	1.30	0.73	1.56	1.74	1.51	0.31	1.72	2

EpiVax

DalcA shows a similar risk as BeneFIX at R338E

Nasdaq: CBIO

In Silico immunogenicity assessment at the R338E site

BeneFIX

Frame Start	AA Sequence	Frame Stop	Hydro-phobicity	DRB1*0101 Z-Score	DRB1*0301 Z-Score	DRB1*0401 Z-Score	DRB1*0701 Z-Score	DRB1*0801 Z-Score	DRB1*1101 Z-Score	DRB1*1301 Z-Score	DRB1*1501 Z-Score	Hits
330	LVDRATCLR	338	0.32	0.41	-0.46	-0.64	0.26	0.16	0.15	0.50	-0.07	0
331	VDRATCLRS	339	-0.19	0.47	1.26	1.99	0.42	0.71	0.98	1.37	1.13	1
332	DRATCLRST	340	-0.73	-0.11	-0.93	-0.47	0.32	0.14	0.34	-0.56	0.40	0
333	RATCLRSTK	341	-0.78	-1.52	-0.63	-1.28	-1.76	0.34	-0.96	-0.57	-0.92	0
334	ATCLRSTKF	342	0.03	0.71	0.43	0.91	1.02	0.49	-0.03	0.65	0.43	0
335	TCLRSTKFT	343	-0.24	0.46	-2.06	-0.18	0.54	0.27	-0.06	-0.74	-0.32	0
336	CLRSTKFTI	344	0.33	0.67	1.45	-1.15	0.53	0.26	0.98	1.03	1.19	0
337	LRSTKFTIY	345	-0.09	0.58	1.21	0.37	0.78	0.23	-0.51	2.00	0.59	1
338	RSTKFTIYN	346	-0.9	-0.90	-0.66	-0.70	-0.56	0.26	-0.75	-0.22	-0.73	0

DalcA

330	LVDRATCLE	338	0.43	-0.21	-0.86	-0.99	0.03	0.31	-0.22	0.10	-0.66	0
331	VDRATCLES	339	-0.08	0.23	1.02	1.76	0.18	0.46	0.74	1.13	0.90	1
332	DRATCLEST	340	-0.62	-0.43	-1.01	-0.51	0.17	0.11	-0.38	-0.64	0.13	0
333	RATCLESTK	341	-0.67	-2.31	-1.39	-1.28	-1.89	-0.45	-1.72	-1.32	-1.49	0
334	ATCLESTKF	342	0.14	0.43	0.15	0.64	0.74	0.20	-0.32	0.37	0.16	0
335	TCLESTKFT	343	-0.13	0.78	-1.21	0.84	0.65	-0.77	-0.01	-1.18	-0.94	0
336	CLESTKFTI	344	0.44	0.21	0.99	-1.59	0.08	-0.22	0.52	0.58	0.76	0
337	LESTKFTIY	345	0.02	0.07	0.69	-0.13	0.27	-0.31	-1.04	1.49	0.09	0
338	ESTKFTIYN	346	-0.79	-0.82	-1.30	-0.62	-0.48	0.34	-0.67	-0.85	-1.34	0

EpiVax

DalcA shows a similar risk as BeneFIX at T343R

Nasdaq: CBIO

In Silico immunogenicity assessment at the T343R site

BeneFIX

Frame Start	AA Sequence	Frame Stop	Hydro-phobicity	DRB1*0101 Z-Score	DRB1*0301 Z-Score	DRB1*0401 Z-Score	DRB1*0701 Z-Score	DRB1*0801 Z-Score	DRB1*1101 Z-Score	DRB1*1301 Z-Score	DRB1*1501 Z-Score	Hits
335	TCLRSTKFT	343	-0.24	0.46	-2.06	-0.18	0.54	0.27	-0.06	-0.74	-0.32	0
336	CLRSTKFTI	344	0.33	0.67	1.45	-1.15	0.53	0.26	0.98	1.03	1.19	0
337	LRSTKFTIY	345	-0.09	0.58	1.21	0.37	0.78	0.23	-0.51	2.00	0.59	1
338	RSTKFTIYN	346	-0.9	-0.90	-0.66	-0.70	-0.56	0.26	-0.75	-0.22	-0.73	0
339	STKFTIYNN	347	-0.79	-0.98	-1.59	-0.09	-0.20	0.10	-0.18	-0.48	0.53	0
340	TKFTIYNNM	348	-0.49	0.53	-0.35	-0.47	1.00	-0.97	-0.84	-0.31	0.31	0
341	KFTIYNNMF	349	-0.1	0.50	0.57	1.19	1.15	-0.03	0.95	0.13	0.55	0
342	FTIYNNMFC	350	0.61	1.21	0.24	1.37	1.14	2.25	1.44	0.62	2.53	2
343	TIYNNMFCA	351	0.5	-0.19	-0.66	-0.87	-0.72	-0.82	0.20	-0.69	-0.40	0

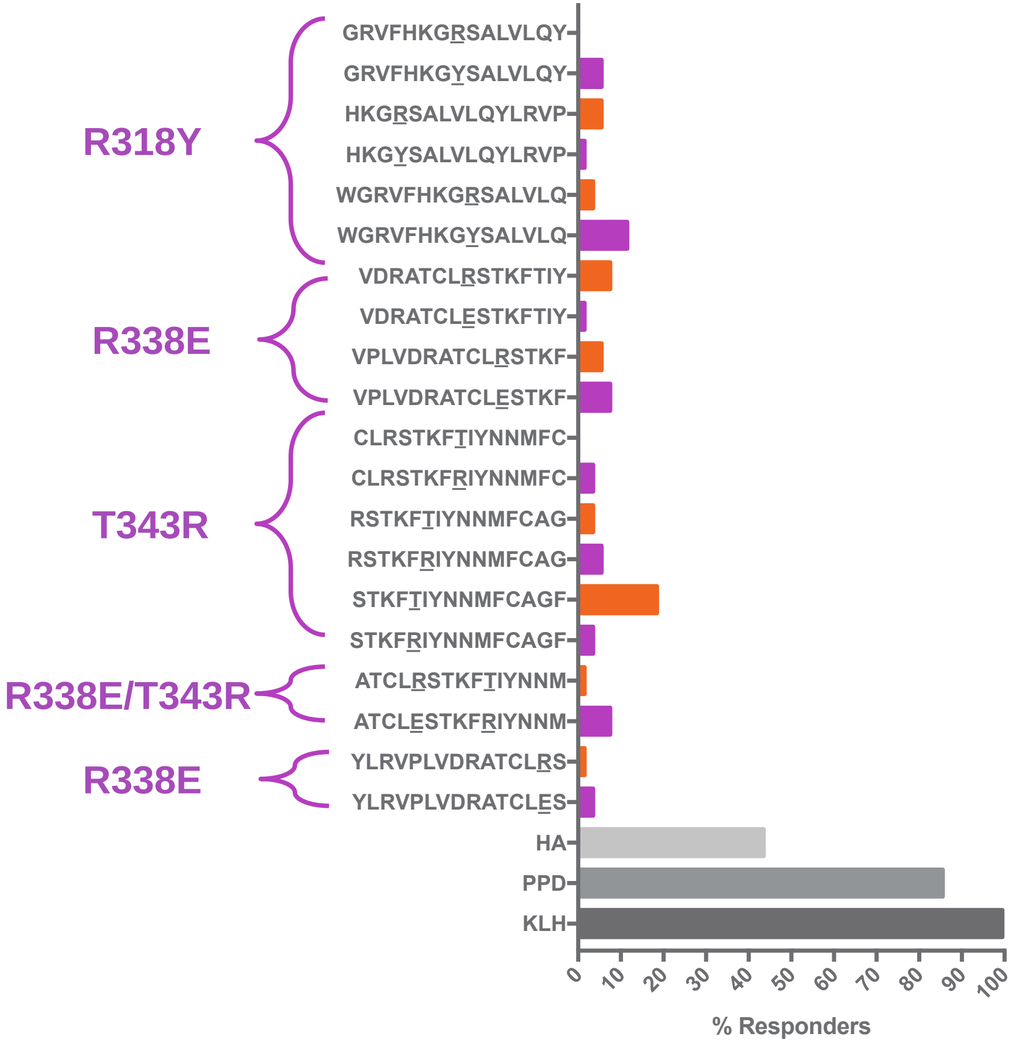
DalcA

Frame Start	AA Sequence	Frame Stop	Hydro-phobicity	DRB1*0101 Z-Score	DRB1*0301 Z-Score	DRB1*0401 Z-Score	DRB1*0701 Z-Score	DRB1*0801 Z-Score	DRB1*1101 Z-Score	DRB1*1301 Z-Score	DRB1*1501 Z-Score	Hits
335	TCLRSTKFR	343	-0.67	0.10	-0.91	-0.47	-0.12	0.64	-0.38	0.39	-0.67	0
336	CLRSTKFRI	344	-0.09	0.80	1.58	-1.02	0.66	0.40	1.12	1.16	1.32	0
337	LRSTKFRIY	345	-0.51	0.72	1.28	0.34	0.98	0.35	0.80	1.61	0.50	0
338	RSTKFRIYN	346	-1.32	-1.16	-0.40	-2.08	-0.83	0.53	-0.49	0.03	-0.70	0
339	STKFRIYNN	347	-1.21	-0.76	-1.38	0.12	0.01	0.33	0.04	-0.26	0.74	0
340	TKFRIYNNM	348	-0.91	0.52	-0.48	-1.03	0.52	-0.69	-0.44	-0.18	0.19	0
341	KFRIYNNMF	349	-0.52	0.98	1.05	1.66	1.62	0.47	1.44	0.61	1.01	1
342	FRIYNNMFC	350	0.19	1.46	0.51	1.62	1.39	2.52	1.70	0.88	2.78	3
343	RIYNNMFCA	351	0.08	-0.30	-0.02	-0.97	-0.82	-0.93	0.09	-0.07	0.21	0

EpiVax

Peptides from DalcA show low immunogenicity risk

% Responding Donors



DC-T cell stimulation: Peptides

+ Overall immunogenicity risk profile for the individual peptides is low and on par with BeneFIX
+ Peptides covered all three amino acid substitutions and selected from *in silico* data
+ Peptides identified in MAPPS experiment have partial or full overlap with tested peptides

BeneFIX derived peptide

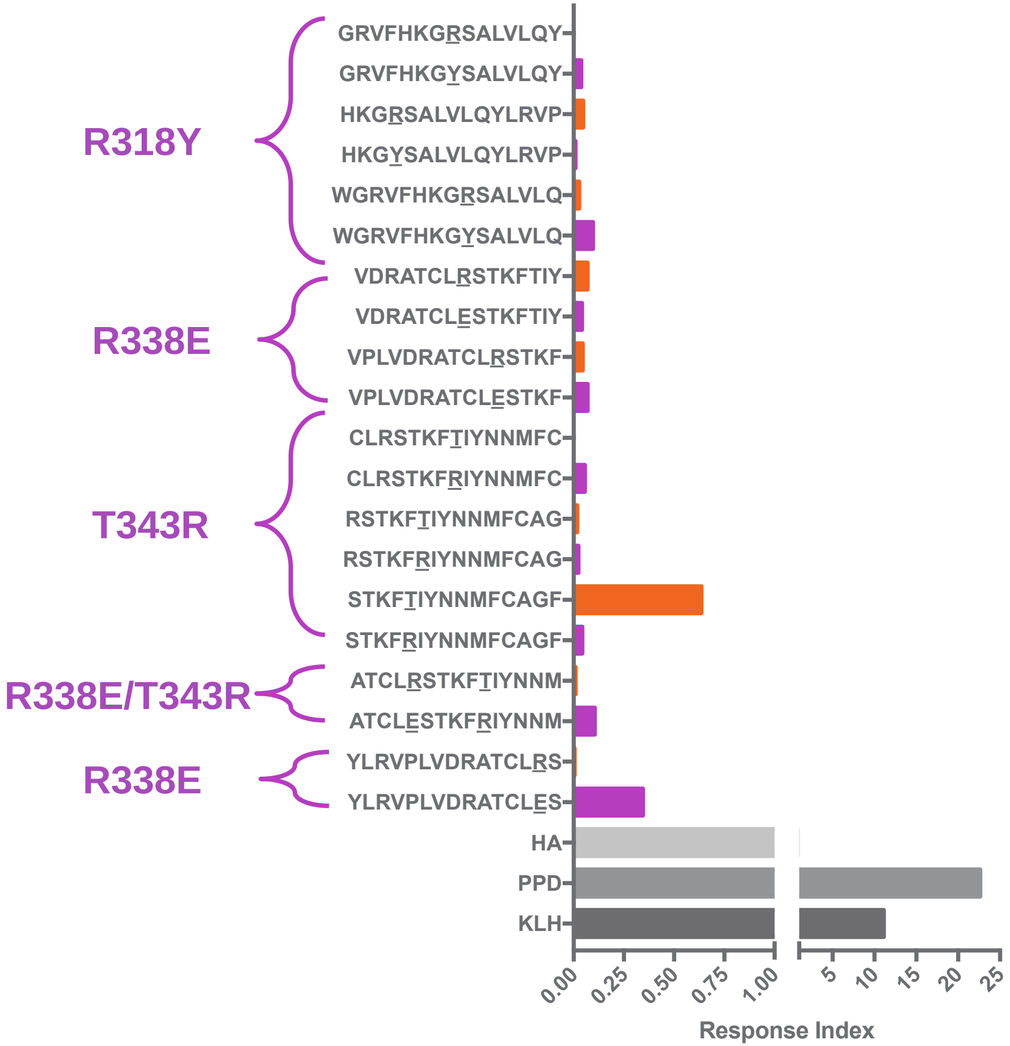
DalcA derived peptide

Control peptide or protein

Peptides from DalcA show low immunogenicity risk

Nasdaq: CBIO

Response Index



DC-T cell stimulation: Peptides

+ Overall immunogenicity risk profile for the individual peptides is low and on par with BeneFIX
+ Peptides covered all three amino acid substitutions and selected from *in silico* data
+ Peptides identified in MAPPS experiment have partial or full overlap with tested peptides

BeneFIX derived peptide

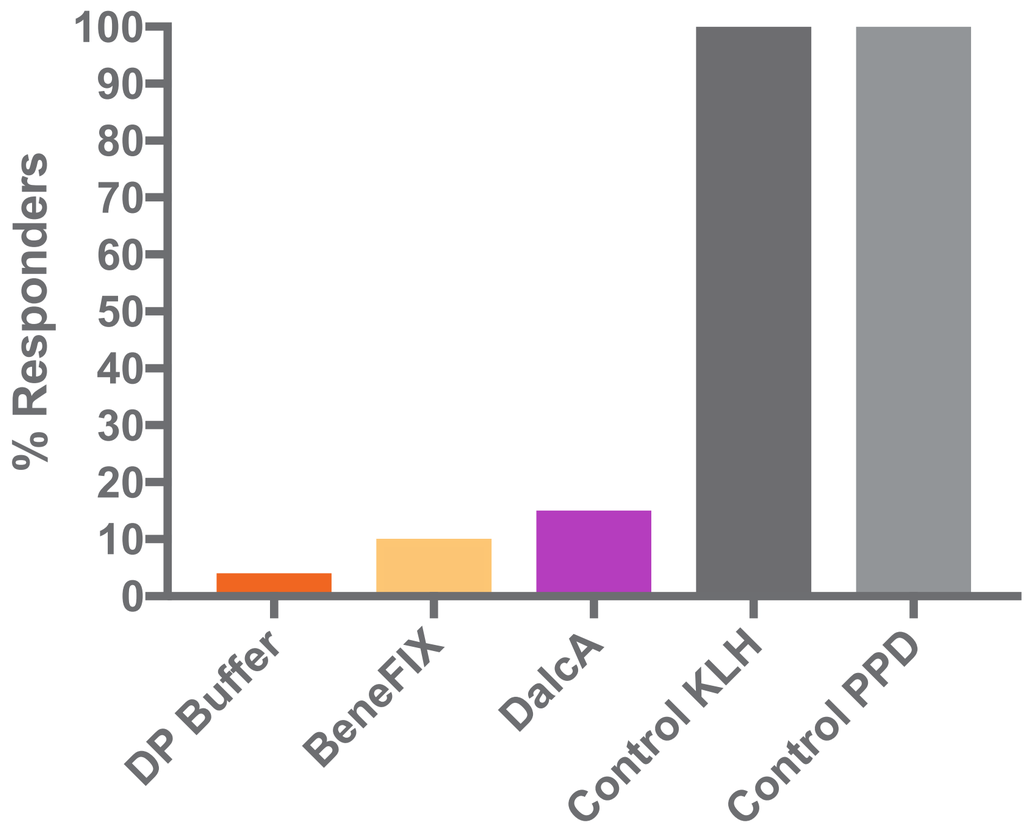
DalcA derived peptide

Control peptide or protein

The DalcA drug product shows low immunogenicity risk

Nasdaq: CBIO

Responding Donors



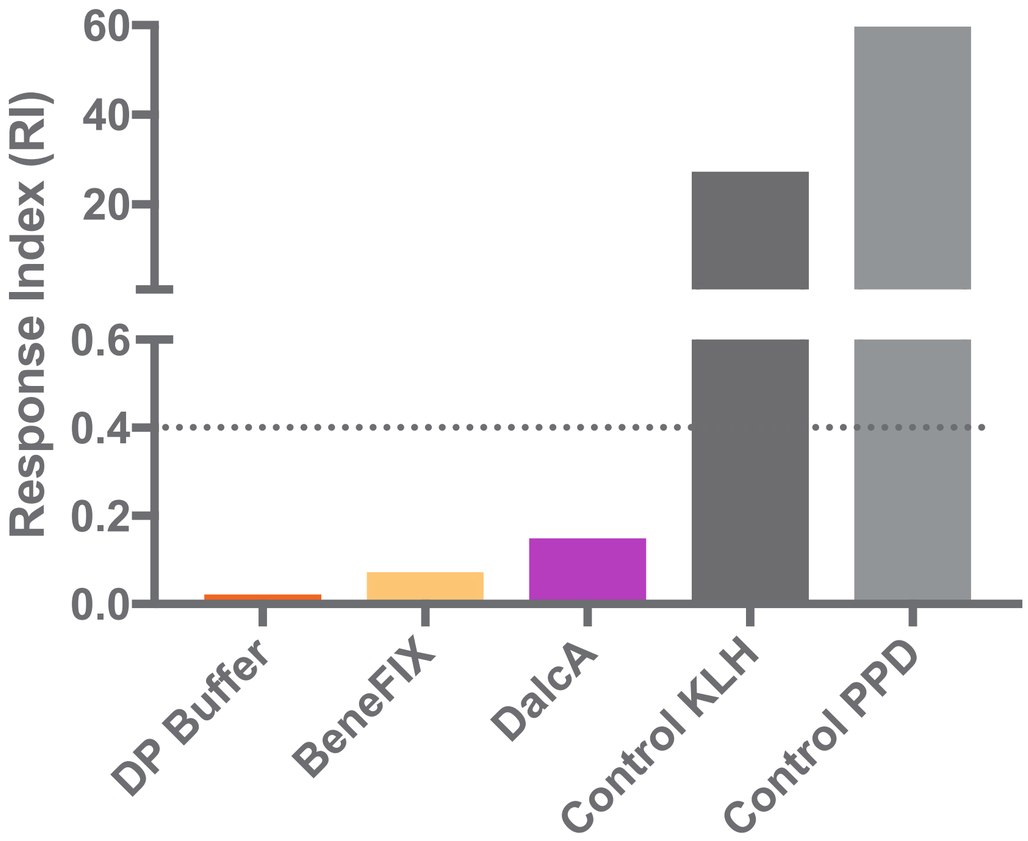
DC-T cell stimulation: Drug Product

+ Overall immunogenicity risk profile risk is low and on par with BeneFIX
  - Formulation buffer was at background
+ 8/52 responders to DalcA and 5/52 responders to BeneFIX (52/52 responders for both controls)
+ No significant HLA association was evident

The DalcA drug product shows low immunogenicity risk

Nasdaq: CBIO

Response Index



DC-T cell stimulation: Drug Product

+ Overall immunogenicity risk profile risk is low and on par with BeneFIX
  - Formulation buffer was at background
+ Clinical therapeutics with low risk have Response Index values (RI) between 0.1 and 0.4
  - Consistent with range of responses observed for other clinical grade therapeutics with low risk (less than an RI of 0.4)
+ No significant HLA association was evident

Presented peptides are comparable for DalcA & BeneFIX

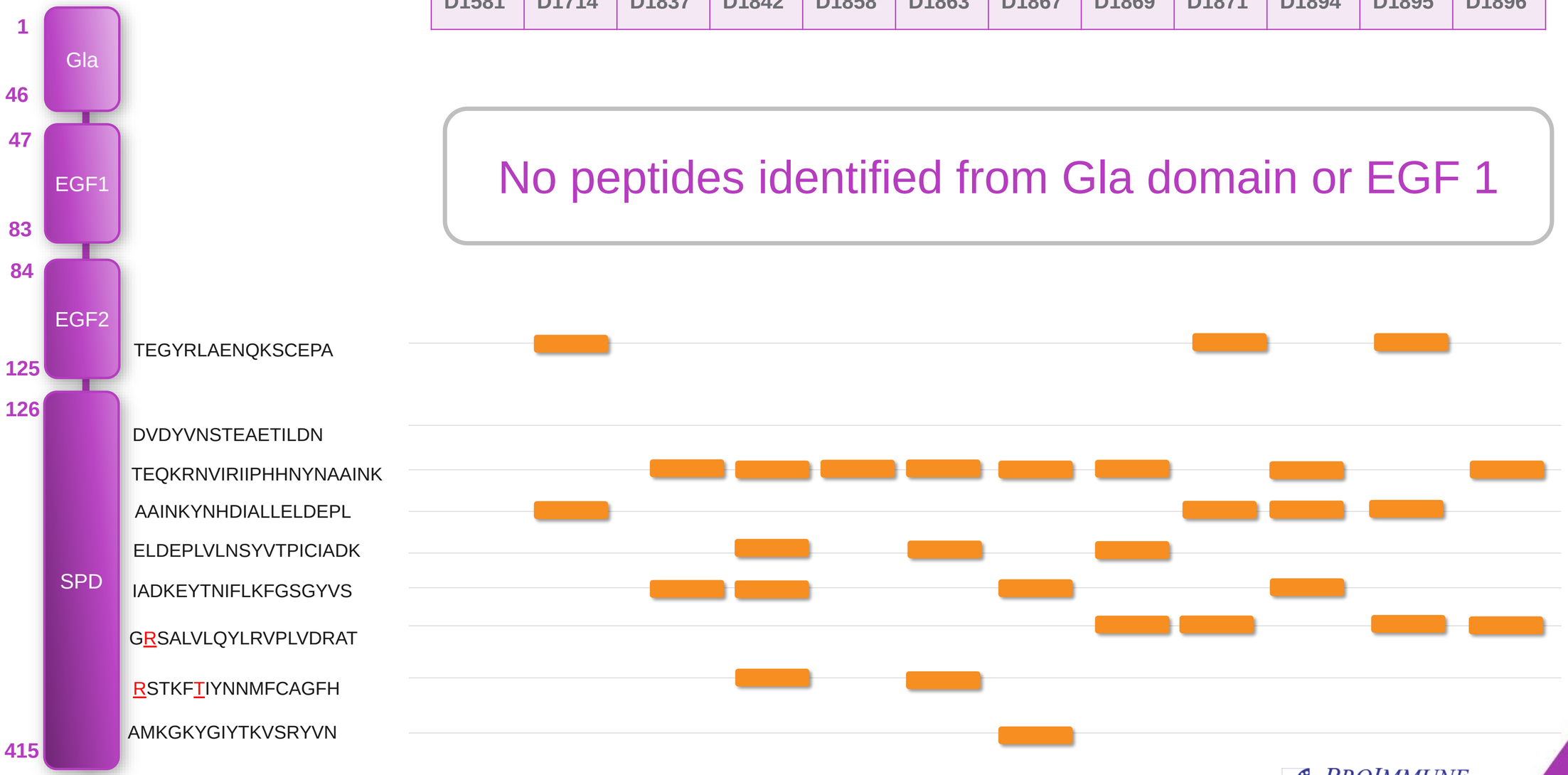
Nasdaq: CBIO

BeneFIX HLA-DR

Donors

D1581	D1714	D1837	D1842	D1858	D1863	D1867	D1869	D1871	D1894	D1895	D1896

No peptides identified from Gla domain or EGF 1



Presented peptides are comparable for DalcA & BeneFIX

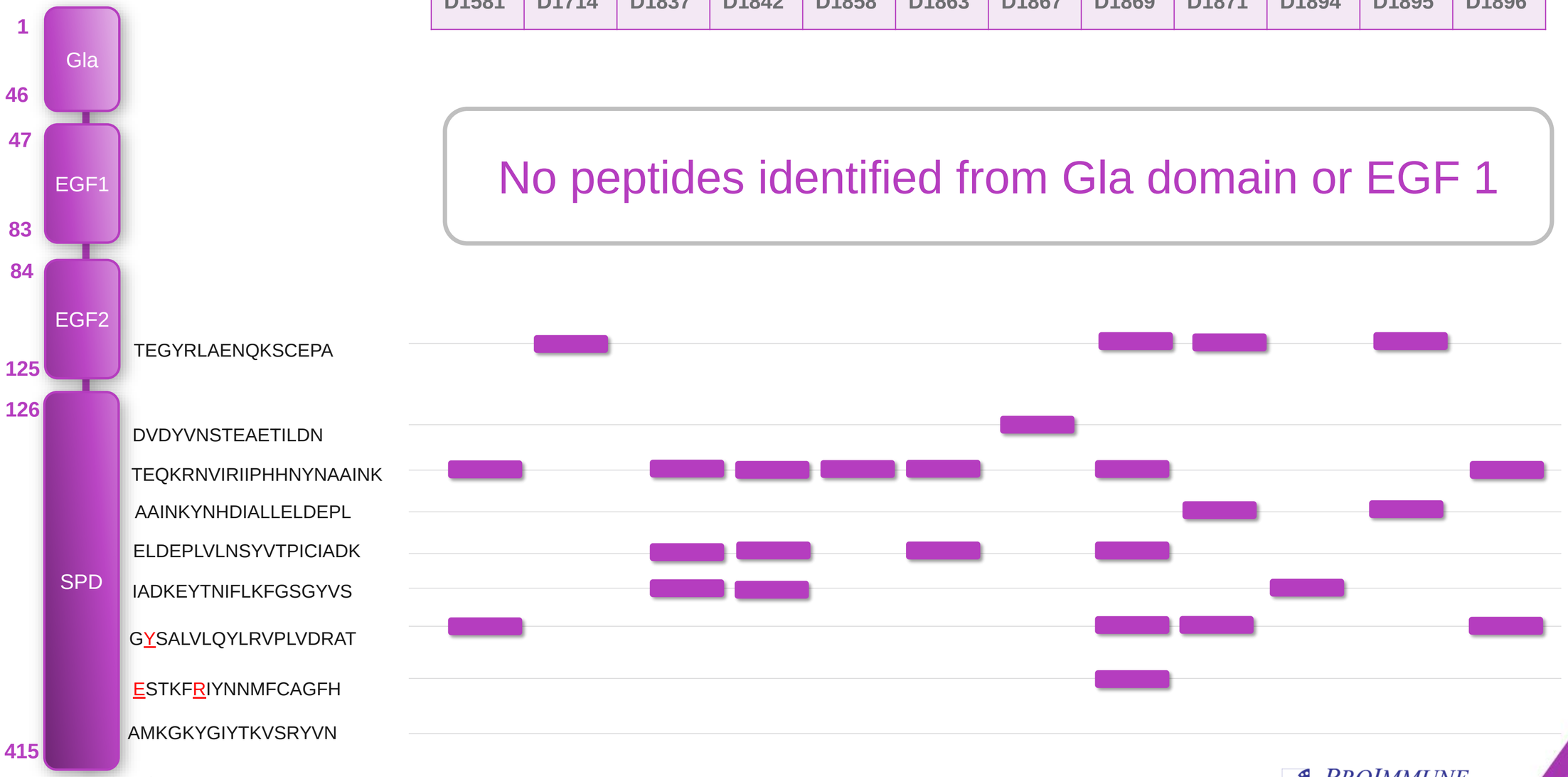
Nasdaq: CBIO

DalcA HLA-DR

Donors

D1581	D1714	D1837	D1842	D1858	D1863	D1867	D1869	D1871	D1894	D1895	D1896

No peptides identified from Gla domain or EGF 1



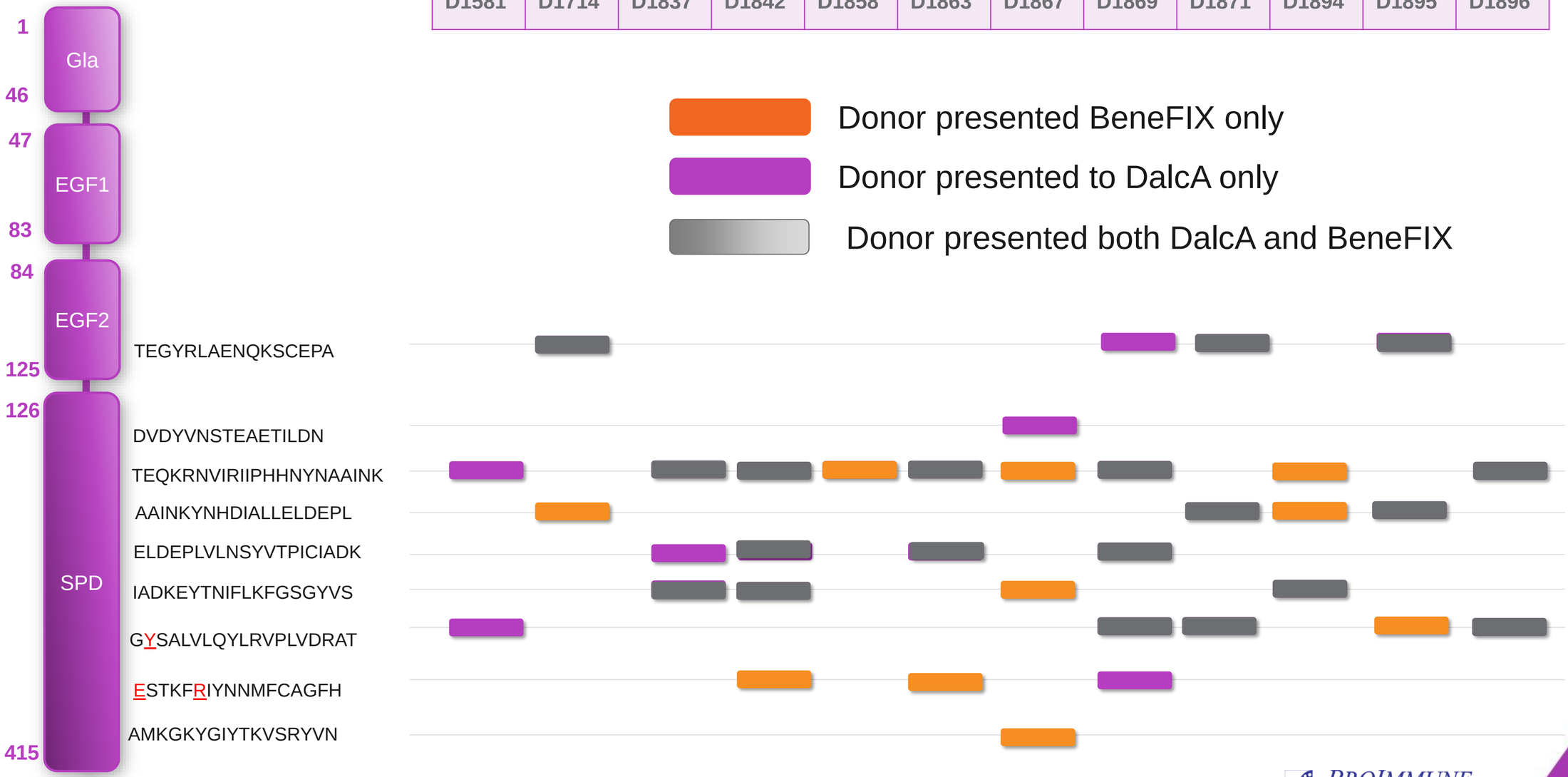
Presented peptides are comparable for DalcA & BeneFIX

Nasdaq: CBIO

Overlap HLA-DR

Donors

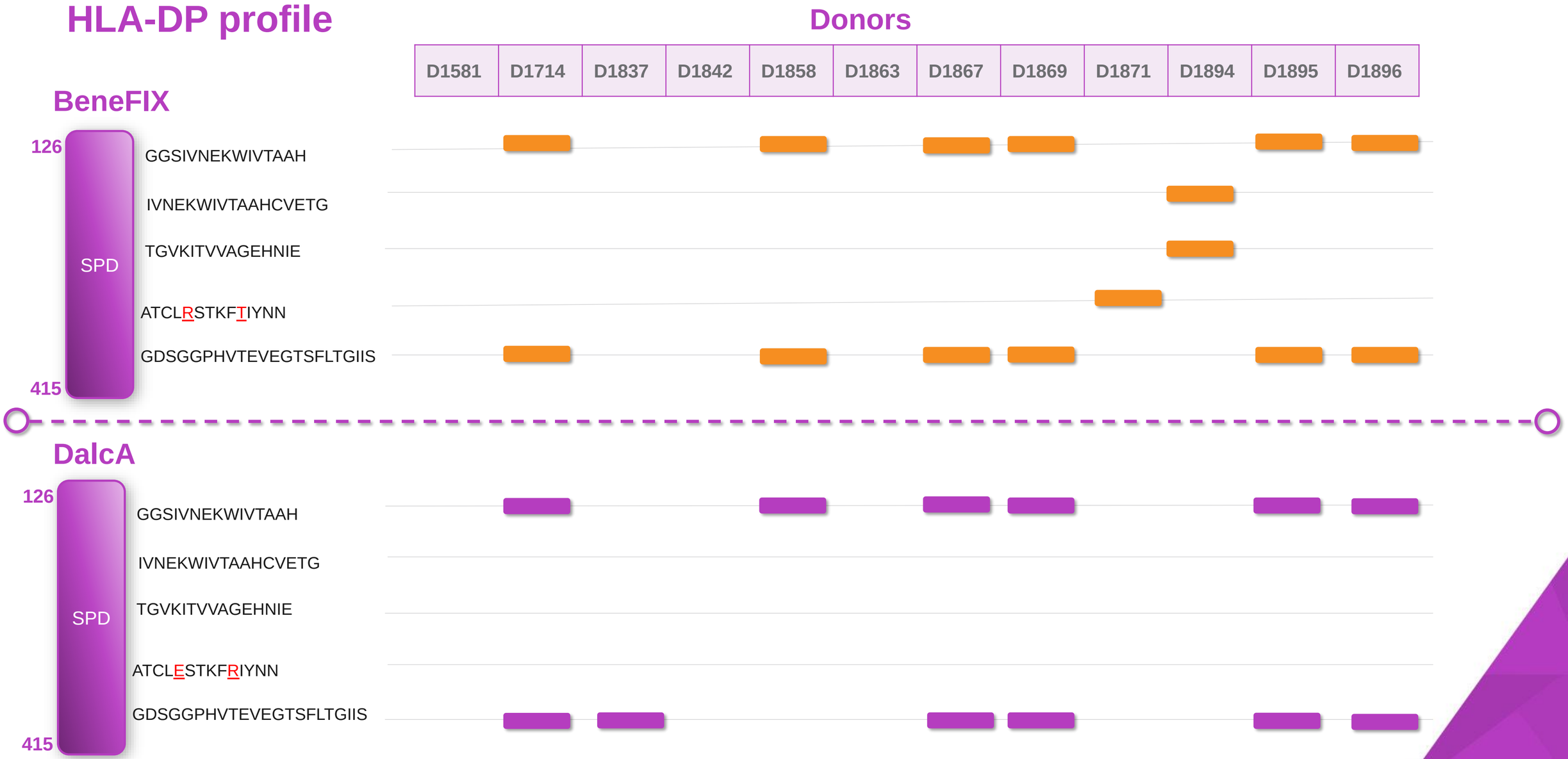
D1581	D1714	D1837	D1842	D1858	D1863	D1867	D1869	D1871	D1894	D1895	D1896



Presented peptides are comparable for DalcA & BeneFIX

Nasdaq: CBIO

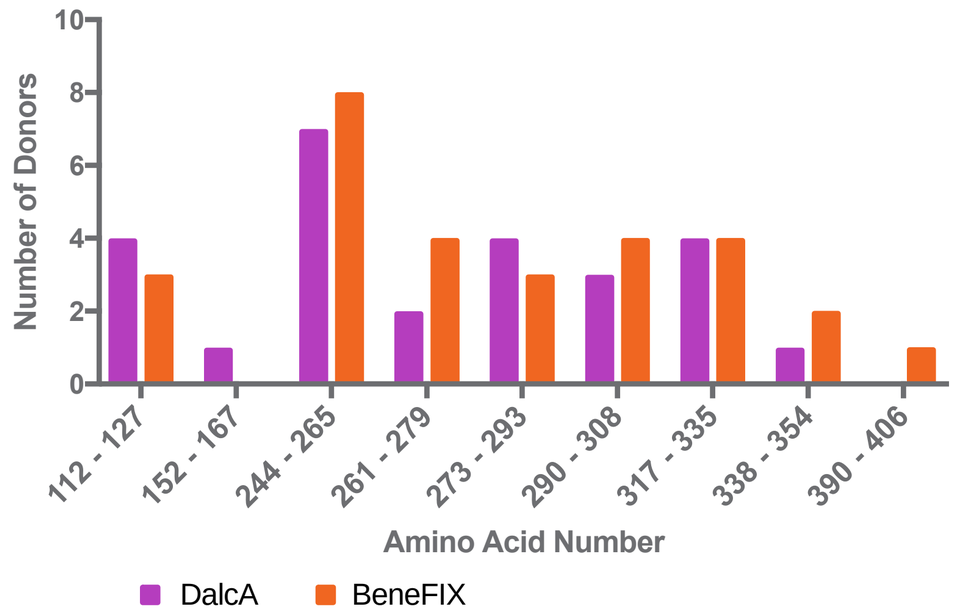
HLA-DP profile



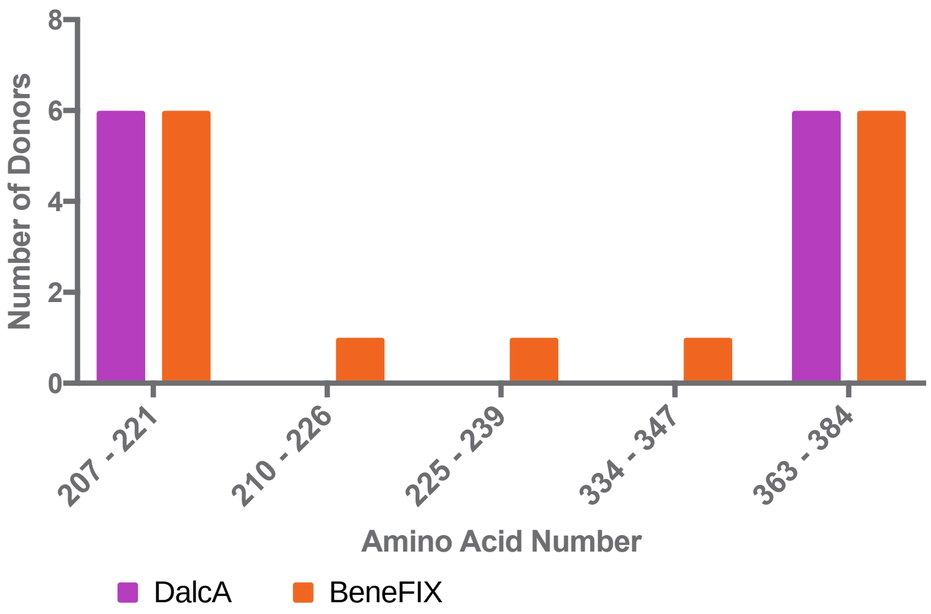
Comparable peptide presentation by HLA-DR and HLA-DP

Nasdaq: CBIO

Peptide presentation by HLA-DR

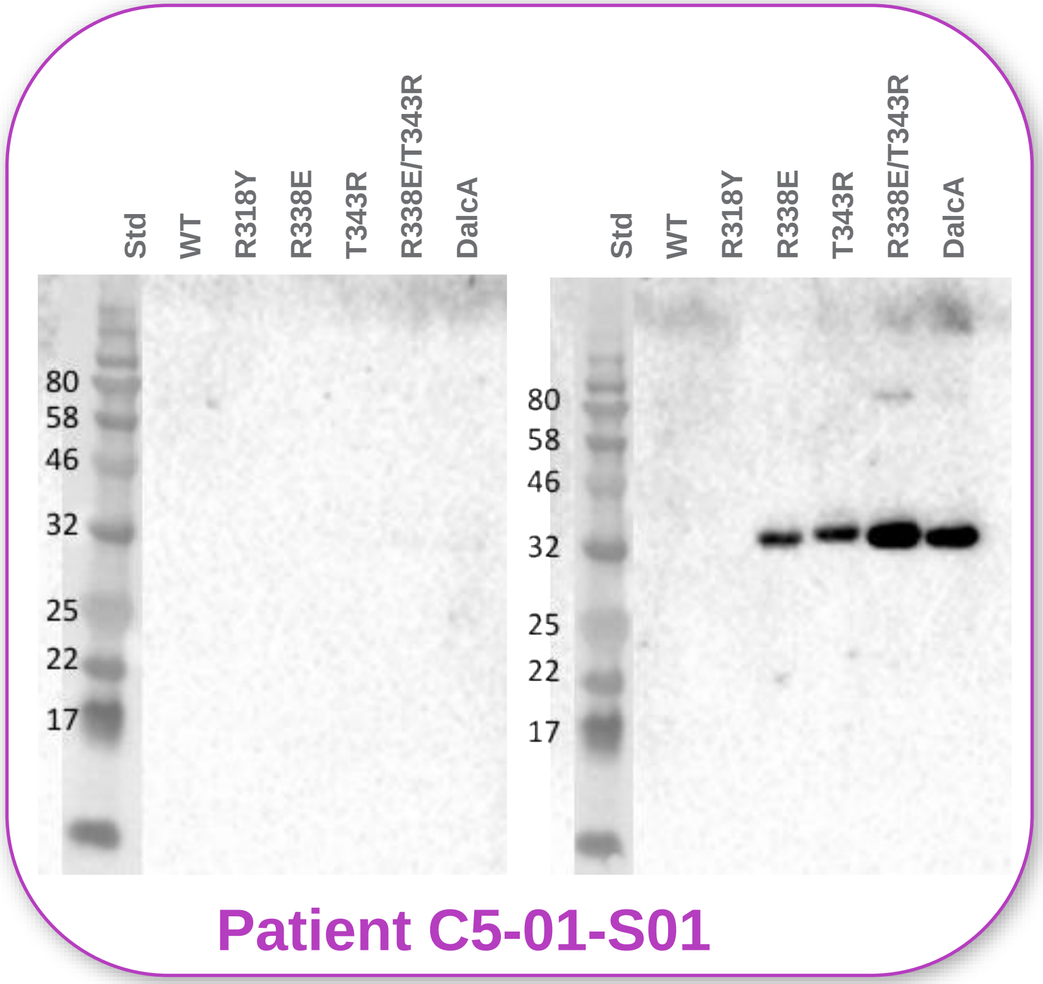


Peptide presentation by HLA-DP

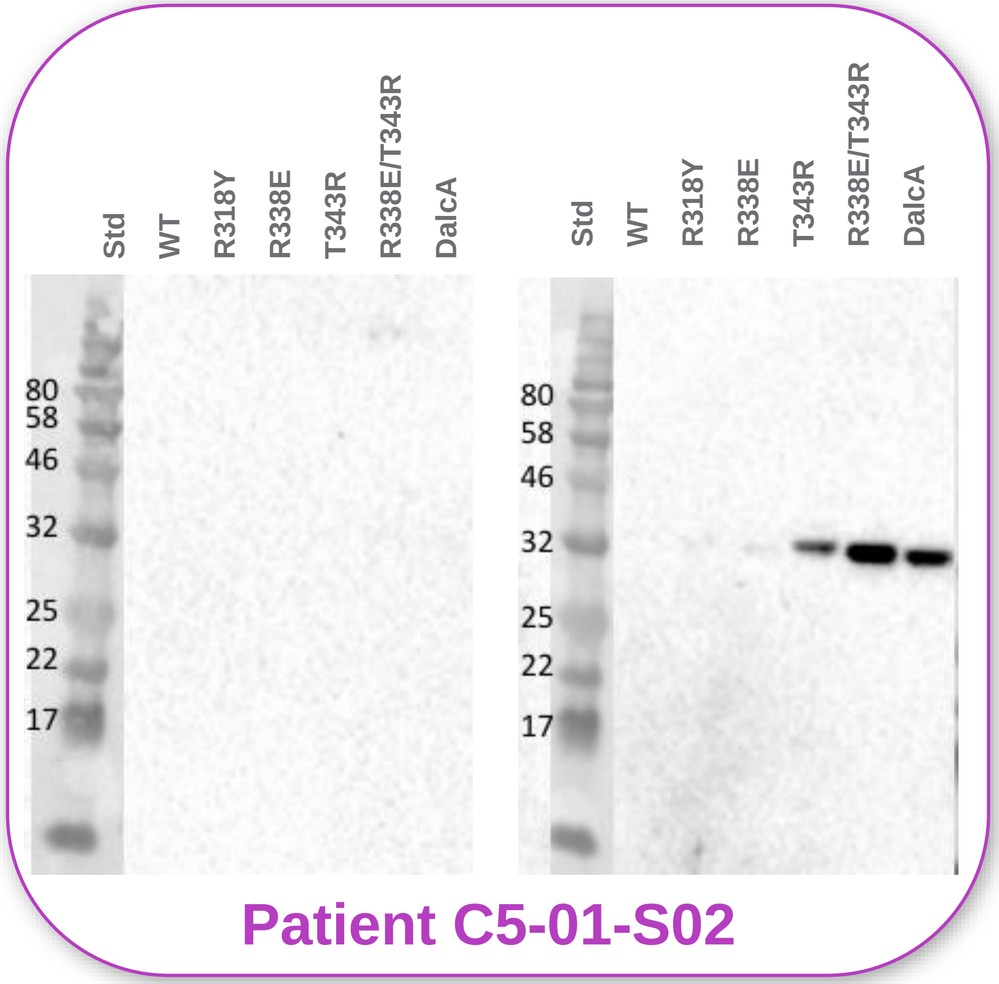


Epitope mapping identified nAb binding to the T343R region

Overview of native western blot analysis



Patient C5-01-S01

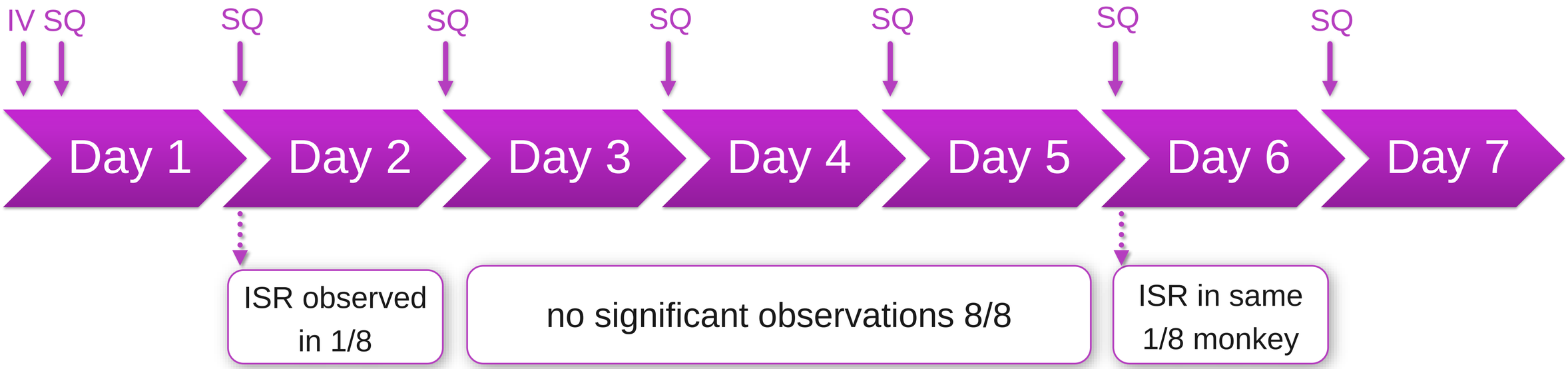


Patient C5-01-S02

+ Neutralizing antibody epitopes are centered on R338E and T343R

Consistent ISRs were not observed in the 7-day tox study

Nasdaq: CBIO



- Lack of consistent response across sites within an animal and between animals indicate that the monkey model does not show ISRs as recorded in ISU 304 P1/2 trial
- No ISRs were observed in a previous minipig SQ multidose study
- One observed mild ISR in >325 doses of MarzAA in man and no ISRs in a similar NHP study

DalcA is comparable to BeneFIX & RIXUBIS

Multiple industry standard characterizations performed

- Potency
- Biological Activity
- Product Purity
- Biophysical and Structural Properties
- Chemical Modifications
- Post Translational Modifications
- Host Cell Impurities
- Product and Process Related Impurities
- Thermal Stability upon Reconstitution

Product quality & stability attributes are comparable to marketed rFIX products

What may have led to the development of nAbs?

The DalcA molecule is not inherently immunogenic – What now to consider in the clinic

- The nAbs were associated with the rare genotype and/or certain HLA types
- The nAbs did not cross-react with BeneFIX or RIXUBIS so do not present a safety risk
- The nAbs were a rare event observed early in the trial within a restricted population

Conclusion – Evaluate further safety & efficacy in a Phase 2b trial

+ Broaden the subject population to have a diverse ethnic and genotypic background
+ Exclude the rare genotype of the two subjects who developed nAbs in the P1/2 trial
+ Consider HLA profile and exclude those with HLA types that may be deemed at risk
+ Execute the P2b trial (28 days of dosing) with careful monitoring for development of nAbs

DalcA Phase 2b SQ clinical trial design: DLZ-201

Nasdaq: CBIO

Moving forward with the phase 2b study: DLZ-201

- Enrollment: 6 patients
- Single IV dose followed by 28 day SQ dosing
- Primary endpoint: Steady state FIX activity level above 12% with daily dosing
- Secondary endpoints: no inhibitor formation, pharmacokinetics, pharmacodynamics

DalcA regulatory next steps

Next steps to Phase 3 & agency approvals

CBIO has obtained the perspective of ex-FDA experts on nAb

+ Proceed with care with Phase 2b in 6 patients
+ Preclinical immunogenicity assessment was comprehensive – no issues identified
  - Complementary on the completeness of CBIO's investigation of nAb

CBIO received scientific advice from MHRA

+ Additional data (Phase 2b) is needed to assess nAb
+ Global Phase 3 clinical study design:
  - 20 adult patients with Hemophilia B
  - 6 months prophylactic dosing
+ Toxicology package is sufficient

Pre-IND meeting with FDA will be scheduled after completion of the Phase 2b study

Final Phase 3 clinical study design will incorporate EMA, MHRA and FDA guidance

Conclusions on the dalcinonacog alfa program

Moving forward in clinical development after an extensive immunogenicity risk assessment

Preclinical immunogenicity assessment shows that dalcinonacog alfa is equivalent to that of competitors such as BeneFIX

A comprehensive evaluation of the drug product shows comparable quality to marketed rFIX products

KOLs and subject experts agree with the immunogenicity risk assessment and proceeding with the P2b to evaluate the safety and efficacy of dalcinonacog alfa

CATALYST BIOSCIENCES

December 18th 2018

Marzeptacog alfa (activated)

CATALYST BIOSCIENCES

Marzeptacog alfa (activated)

Marzeptacog alfa (activated), a novel clinical stage SQ FVIIa product candidate differentiated from IV market leaders:

+ Simpler, less painful, small dose
+ SQ enhances pharmacokinetics
+ Potential to maintain continuous protective levels
+ Disruptive to current intravenous bypass products
+ Especially well suited for children

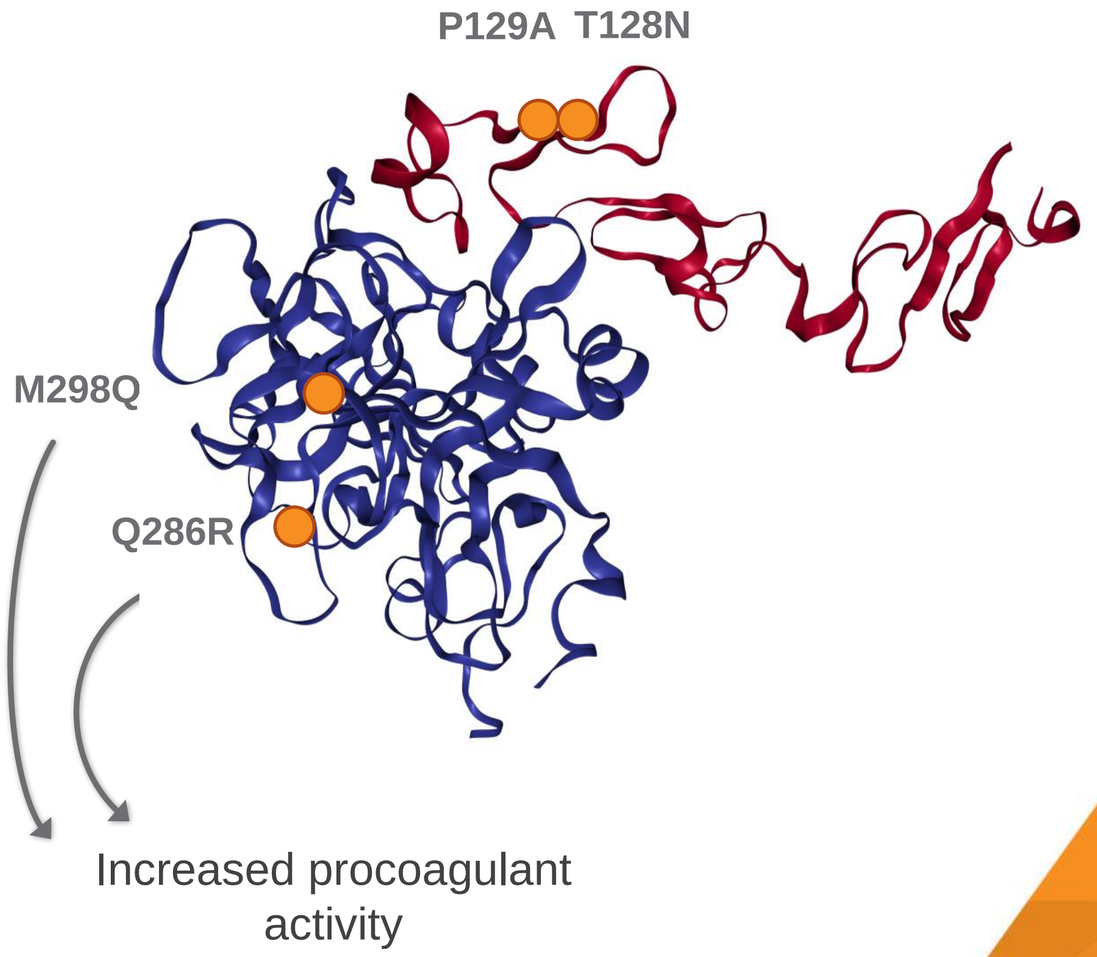
Four point mutations within the FVIIa protein

+ Catalytic activity increased

Best-in-class high-potency rFVIIa product

+ 9-fold more potent than NovoSeven RT

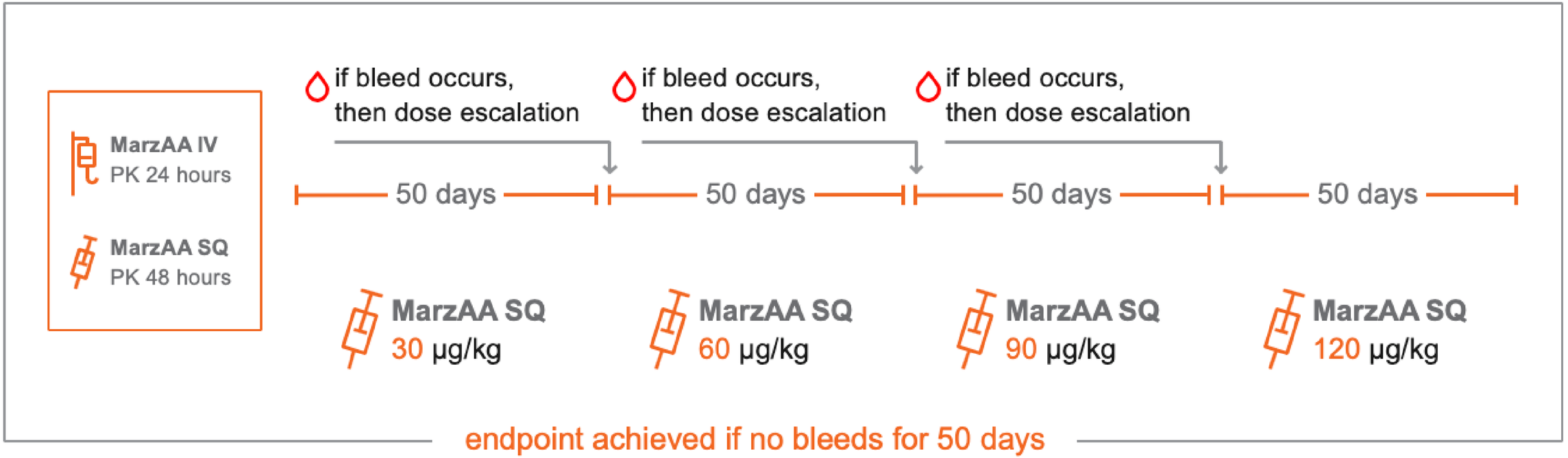
Orphan Drug Designation in US



MarzAA phase 2 SQ clinical trial design

Nasdaq: CBIO

Hemophilia with inhibitors: FVIIa



+ Open label SQ study with individual dose escalation if needed
+ Hemophilia A or B with inhibitors
+ Up to 12 adult patients with documented annual bleeding rate (ABR) >12
+ Primary endpoint: reduction in annual bleed rate
+ Secondary endpoints: safety and tolerability, no inhibitor formation

Subject demographics & disposition

High pre-treatment ABRs reduced to a median of 0

+ 13 subjects have been consented and 9 enrolled (Median ABR 16.25; Range 12.2-27.7)
+ 5 subjects have completed dosing with clinically significant reduction in ABR
+ 4 subjects had no bleeds at their final dose level
+ IV half-life of 3.9 hours was increased to SQ half-life of 13.1 hours
+ No anti-drug antibodies have been detected to date
+ After more than 325 SQ injections, only one injection site reaction of swelling that resolved without sequelae

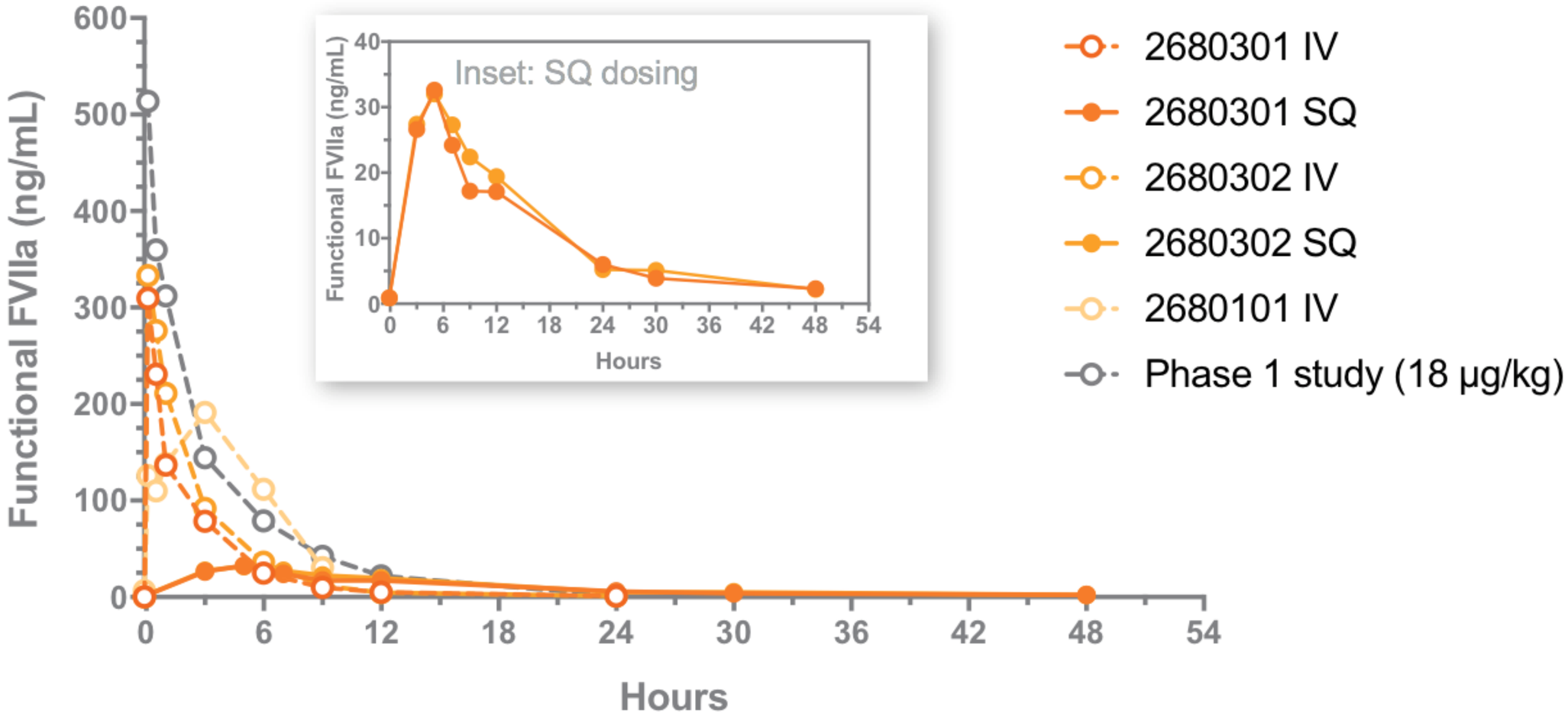
Subject demographics & disposition

Nasdaq: CBIO

Subject ID	Age	Highest Inhibitor level BU	Age when inhibitor diagnosed	Hemophilia A or B	ABR	ABR on treatment	Proportion of days with bleeding	Proportion of days with bleeding on treatment
2680101	36	16	15	A	12.2	Revoked consent	Revoked consent	Revoked consent
2680301	18	5	14	A	26.7	Zero at 60 µg/kg 3.8 overall	18%	Zero at 60 µg/kg 1% overall
2680302	30	2.7	26	A	18.3	Fatal unrelated SAE	11%	Fatal unrelated SAE
6430201	29	4.2	27	A	15.9	Zero	12%	Zero
6430202	35	4.7	35	A	16.6	Zero	11%	Zero
0510101	43	5.5	39	A	22.2	Untreated traumatic hematoma Day 4. ABR 7.3	22%	2%
0510104	31	1.73	31	B	27.7	Dosing		Dosing
6430204	18	56	6	A	15.9	Dosing		Dosing
6430203	23	4.5	21	A	15.2	Zero	4%	Zero
7100101	23	2.94	19	A		In screening		In screening

MarzAA Phase 2 study interim PK results

FVIIa functional activity after IV or SQ administration

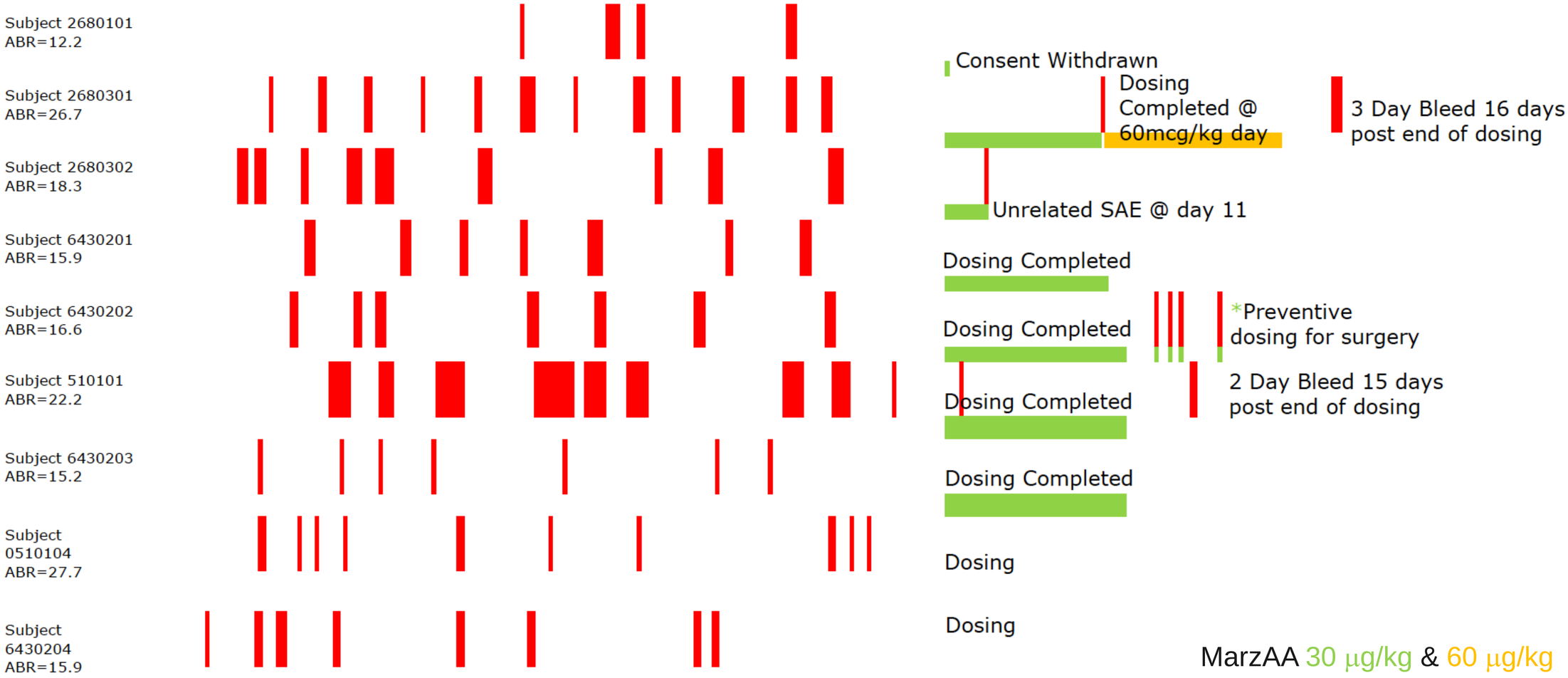


MarzAA pharmacokinetics

Route	Half-life alpha (hr)	Half-life beta (hr)	Mean Residence Time (hr)	Cmax (ng/mL)	Tmax (hr)	AUC_{0-t} (ng/mL*hr)	AUC_{0-inf} (ng/mL*hr)	Bioavailability (%)
IV Median ± Interquartile Range	1.1 ± 1.2	3.9 ± 1.4	4.5 ± 2.5	309.5 ± 267.0	0.083 ± 1.5	1042.0 ± 410.4	1048.3 ± 497.8	22 ± 25
SQ Median ± Interquartile Range		13.1 ± 12.2	20.6 ± 16.5	22.0 ± 20.3	6 ± 3.5	332.5 ± 253.6	411.1 ± 179.5	

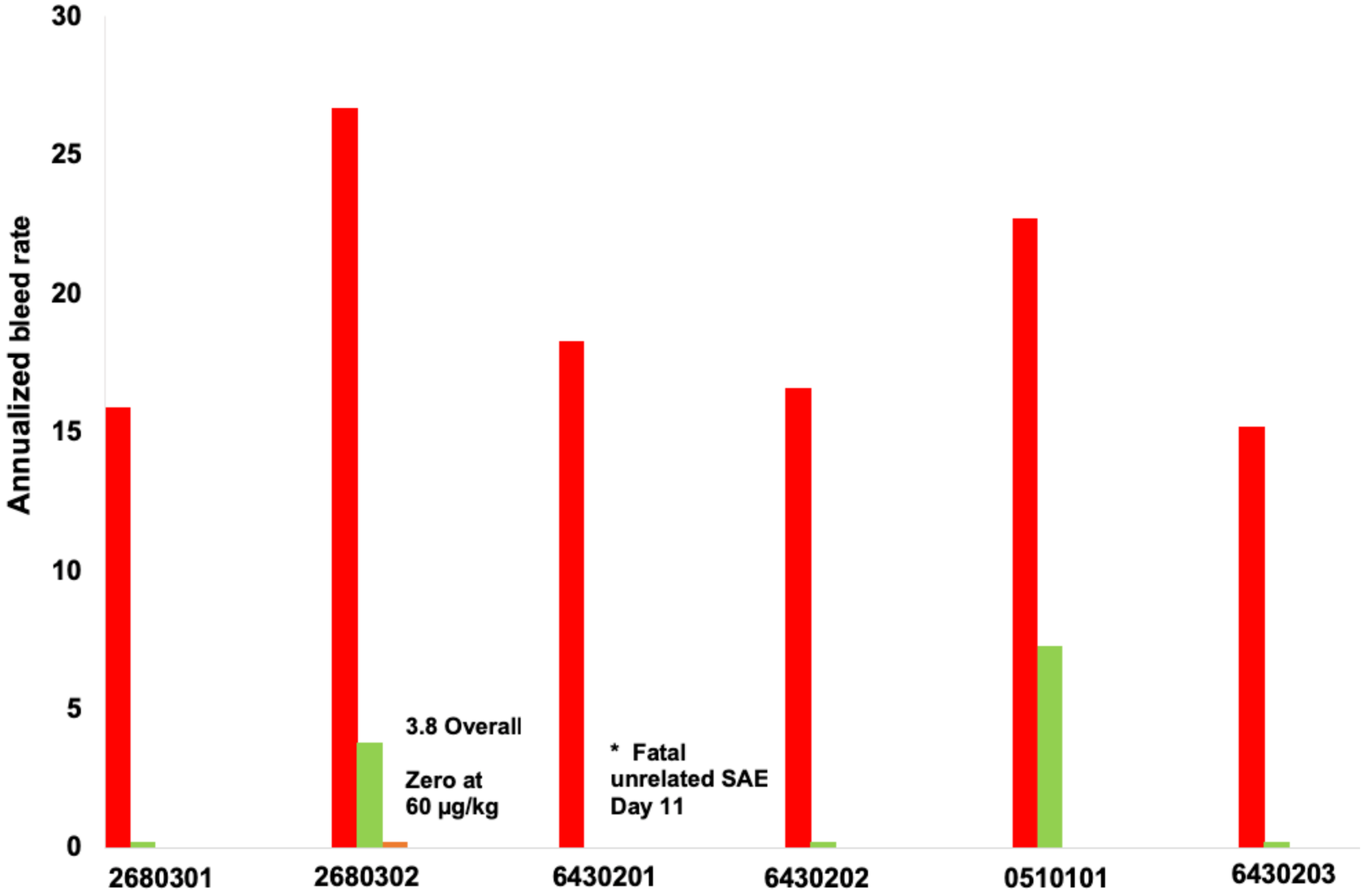
MarzAA reduces annualized bleed rate (ABR)

Nasdaq: CBIO



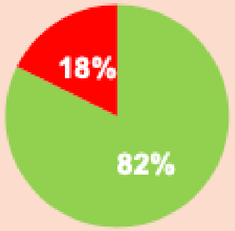
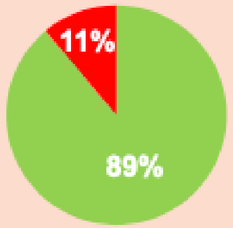
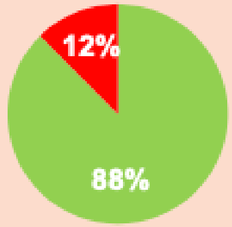
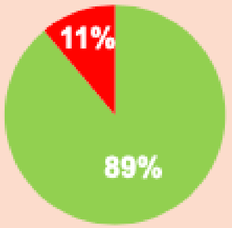
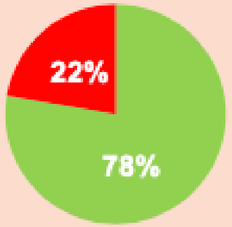
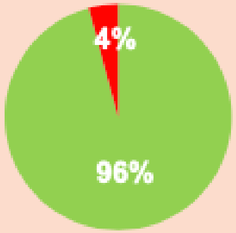
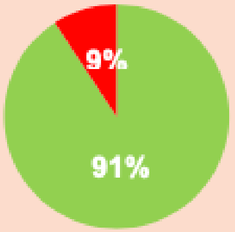
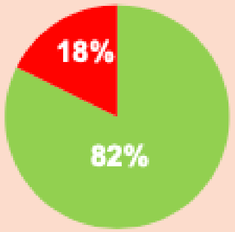
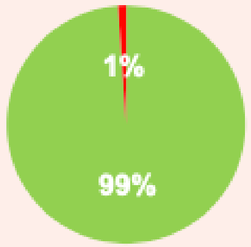
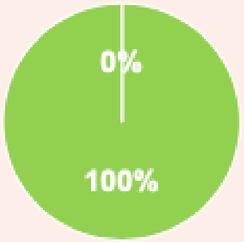
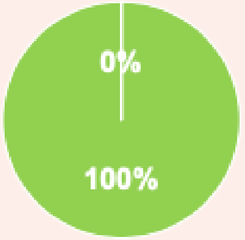
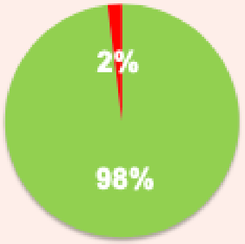
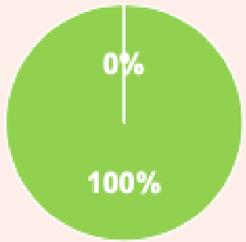
Pre-treatment ABR & ABR during treatment

Nasdaq: CBIO



Pre- and on-treatment proportion of bleeding days efficacy

Nasdaq: CBIO

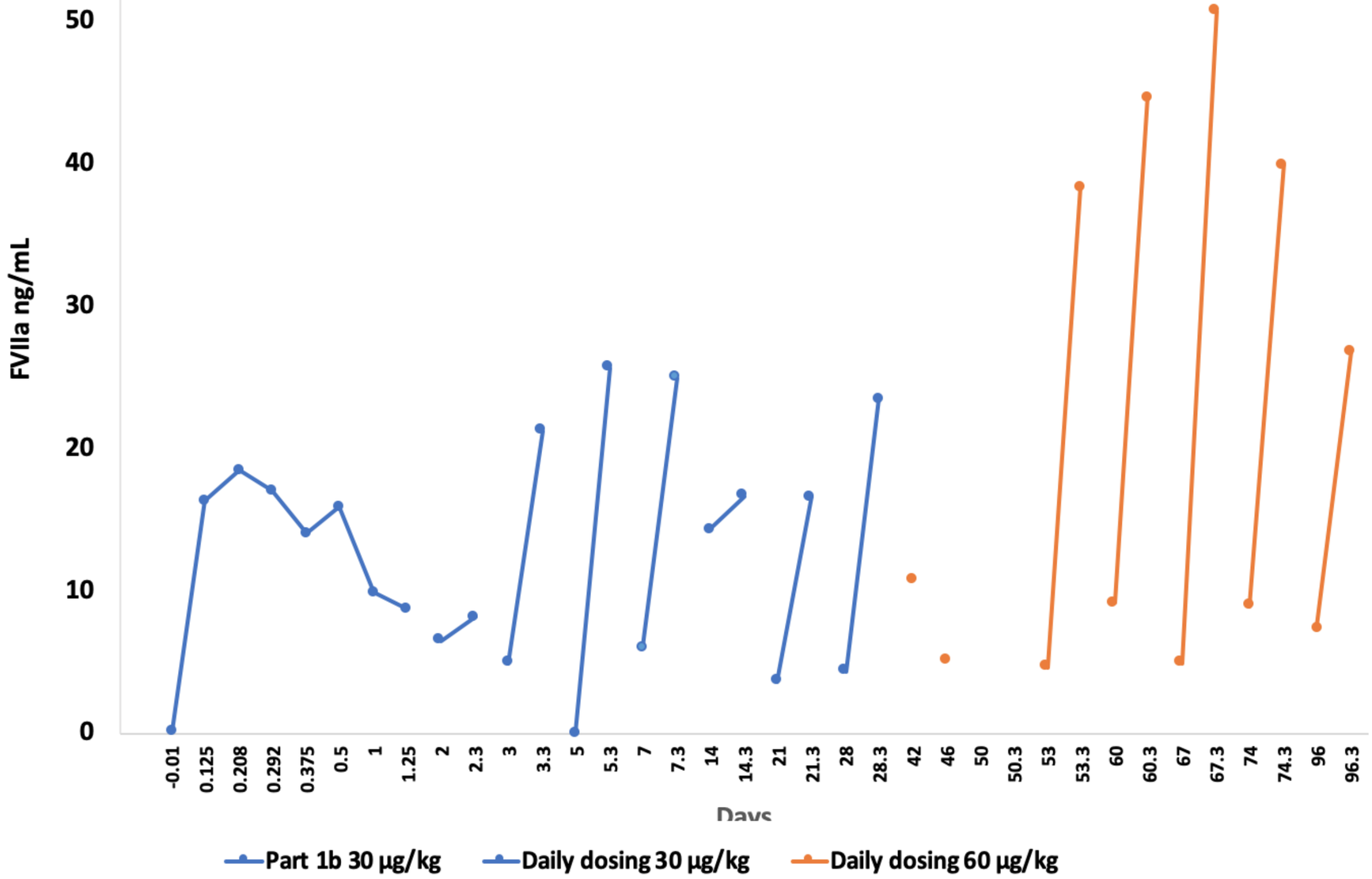
Subject	2680301	2680302	6430201	6430202	0510101	6430203	6430204	0510104
Pre-treatment								
On-treatment		Unrelated SAE						

Red denotes the proportion of days with bleeding during observation period

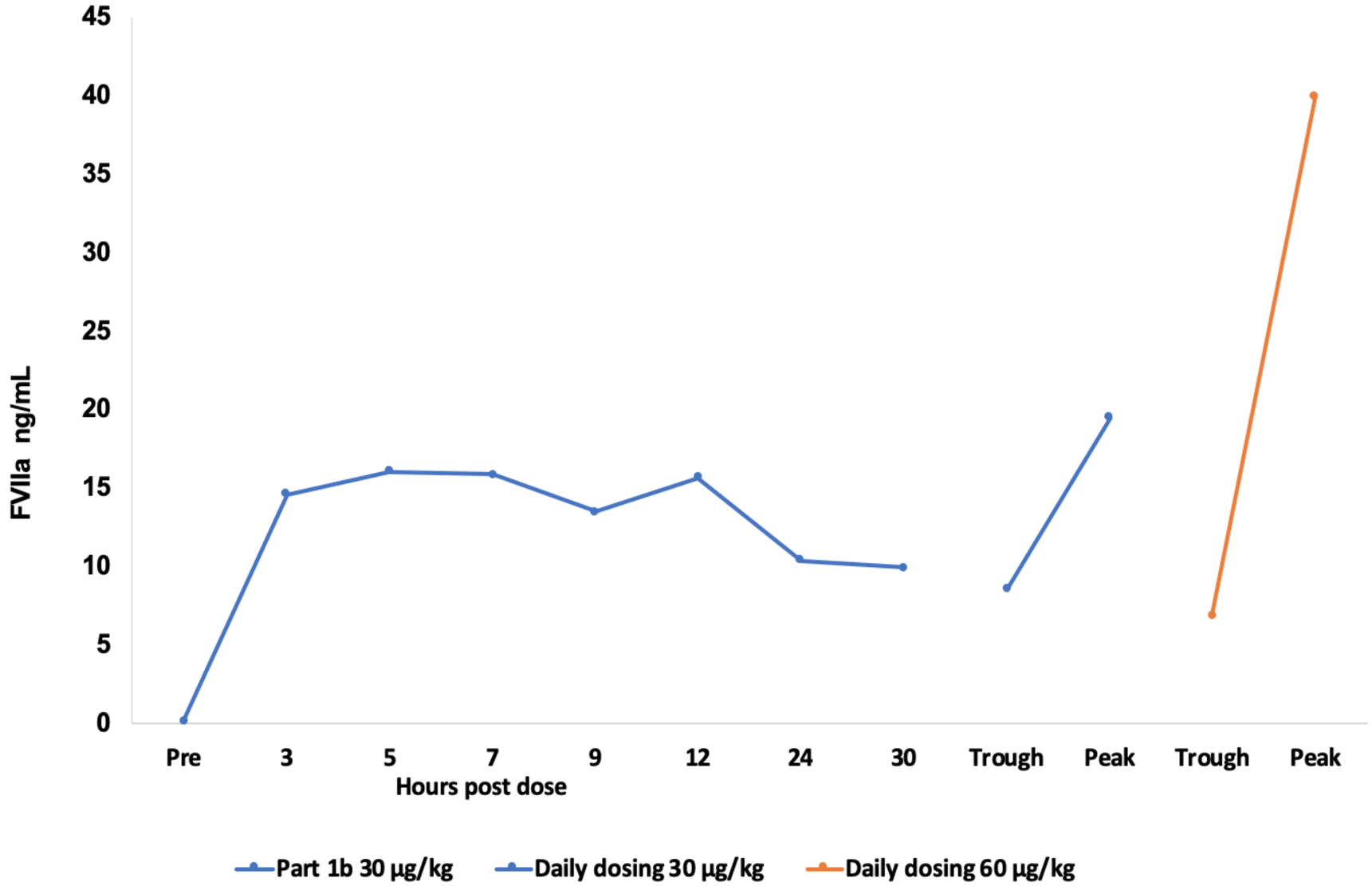
- The average percentage of days of bleeding in the pre-treatment period was 13.2% (standard deviation 6.3%) [median 11.9%]
- In the treatment period, these percentages were reduced to 1.9% (standard deviation 3.2%) [median 0.5%]
- The analysis of these pairwise differences by a randomization paired t-test yields p=0.03 (and p=0.036 by Wilcoxon signed-rank test)

Mean First SQ dose PK and trough & 7h post-dose FVIIa

Nasdaq: CBIO



Mean First SQ dose PK and trough & 7h post-dose FVIIa level by dose



MarzAA regulatory

Next Steps to Phase 3 & Agency Approvals

MarzAA Phase 3 trial design based on EMA and MHRA feedback

+ An end of Phase 2 meeting with FDA to be scheduled after completing clinical study report

Global Phase 3 clinical study:

+ 20-40 adult patients with Hemophilia
+ 6 Hemophilia B patients
+ 6 months lead in and 6 months treatment
+ The primary end point - significant reduction in ABR and population of patients with zero bleeds

Non-clinical strategy developed with four experts ex CBER reviewers

A PK/PD clinical study will start in 2019 – based on MHRA feedback

Conclusions on the marzeptacog alfa (activated) program

Moving forward in clinical development after clinical proof of concept

Clinical efficacy and tolerability demonstrated

Additional clinical data at EAHAD 2019 and ISTH 2019

Trial guidance obtained from EMA & MHRA, will confirm at FDA end-of-phase 2 in late 2019

CATALYST BIOSCIENCES

December 18th 2018

Financial Information

CATALYST BIOSCIENCES

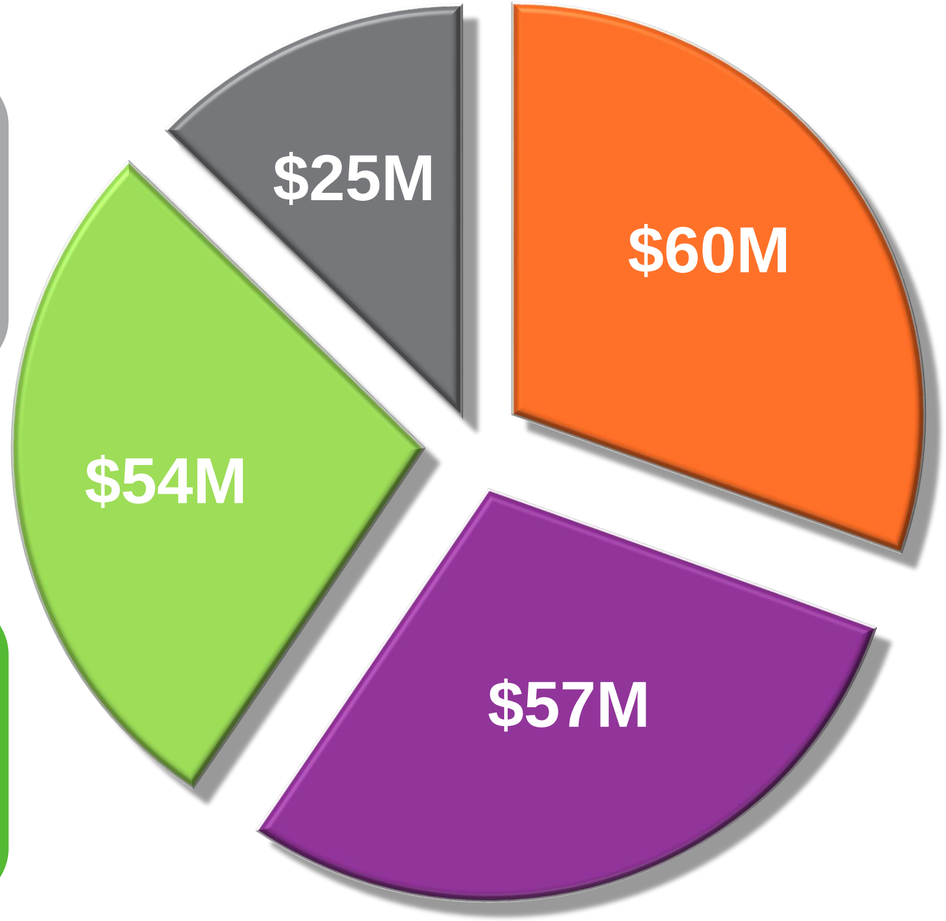
MarzAA US Revenue Forecast $196M (~$400M Worldwide)

Nasdaq: CBIO

Target Product Profile Strongly Resonates Across Multiple Indications

Factor VII Deficiency
>50% “very willing” to use MarzAA

Acquired Hemophilia A
>75% “very willing” to use MarzAA



Hemophilia B Inhibitors
>70% “very willing” to use MarzAA

Hemophilia A Inhibitors
~50% “willing” or “very willing” to use MarzAA

ADIVO ASSOCIATES

Financial information

Nasdaq: CBIO

Selected data

Operating Results	Q3 2018	Q3 YTD
Operating Expense ……	$8.3 M	$22.1 M
Net Loss ……	($7.7 M)	($19.2 M)
Net Loss per share ……	($0.64)	($1.75)

2018 Forecast	2019 Est.
OpEx >$30M	OpEx ~$56M
Cash ~$120M	Cash Burn ~ $50M

Share Data

Common Stock Outstanding……11,942,729

Fully Diluted Shares…….....14,623,688

Average Volume……..... 166,084

Market Capitalization as of 17 December 2018..…… ..$111 M

Financial Strength

Cash & Cash Equivalents Q3/2018…..……$129.2 M

Catalyst / ISU DalcA Collaboration

ISU gains Korean commercial rights, CBIO to pay ISU a fixed low-single-digit royalty

Prior Agreement

+ ISU had a option for first right of refusal on Korean commercial rights and a profit share
+ Catalyst responsible for worldwide development, regulatory and commercialization

Restructured Agreement

+ Catalyst maintains global development, regulatory and ex-Korea commercialization rights
+ ISU granted:
  - Korean commercial rights
  - Up to $19.5M in development, regulatory and sales based milestones
  - Single digit net-sales royalty
  - Option for profit share removed

Milestones

Nasdaq: CBIO

	2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MarzAA (FVIIa)	**P2 Initiated** ✓		**ISTH** Interim P2 data ✓	**ASH** P2 data ✓	**EAHAD** P2 data		**ISTH** P2 Data	**EoP2** A/B Inhibitors
DalcA (FIX)	**EAHAD** Top-line multidose clinical data (oral) ✓	**WFH** Final Cohort 5 data Initiate Cohort 6 ✓	**ISTH** **Phase 1/2** Cohort 6 data ✓		**Initiate P2b** **EAHAD**		**P2b data** **ISTH** nAb Analysis	
Anti-C3 (dAMD)					**PK/PD**	**ARVO** PK/PD		

Summary

Disruptive approach to a $3.5 billion market

Subcutaneous prophylactic dosing designed to be less painful and much more convenient, especially for children

+ Clinical proof of efficacy demonstrated for both Marzeptacog alfa (activated) & Dalcinonacog alfa

FVIIa: Marzeptacog alfa (activated)

~$2.2 Billion market

Phase 2 of a Phase 2/3 program enrolling

90% reduction in ABR on treatment

No ADAs or nAbs observed to date

+ Phase 2 data at EAHAD & ISTH 2019
+ EoP2 in 2019

FIX: Dalcinonacog alfa
~$1.2 billion market

>30% activity levels achieved with daily SQ dosing

Potential to maintain long-term FIX activity in the mild hemophilia range to be explored in P2b

+ Initiate Phase 2b in Q1 2019

Anti-C3 for Dry AMD:

multi-billion market opportunity

C3 is a clinically validated target, potential to generate a best-in-class molecule

+ Pre-clinical proof-of-concept in 2018

Strong financial position, ~2.5 years cash

THANK YOU

Nasdaq: CBIO

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