ANTIBODY BIOLOGIC CONJUGATES

Investor Presentation

AbBC Therapies is developing a next generation targeted therapeutic platform of ADC products *combining the tumor targeting properties of antibodies with the granzyme killing mechanism of immune cells* into a single hybrid molecule.

Executive Summary

- Granzyme B/Antibody Conjugates are next generation ADC: First in Man, First in Class
- Granzyme B conjugated to any humanized targeting molecule:
  - Delivers irreversible cytotoxicity
  - Is fully human
  - Does not require cleavage for activity
  - Is not toxic when circulating in unconjugated form
  - Does not require post-production conjugation
- Power of the Platform
  - Pipeline of seven (7) products in development targeting ophthalmology and broad oncology indications
  - Redesign/replace industry ADCs
- Development Path for Value Creation
  - $35MM for Clinical POC in oncology and preclinical POC in ophthalmology
  - Clinical POC in Q1 2026
  - Preclinical POC in Q4 2024

Management and Advisory Team

Management Team

- **Claire Thuning-Roberson, PhD (CEO)**
  Entrepreneur in biologics: strategic planning, product development, and international regulatory affairs. Director, Goodwin Institute Cancer Research; Founder/CEO, Goodwin Biotechnology (CMO), VP Product Dev Sunol Molecular, Dir Pharma Dev Thallion Pharma
- **Chantal Miklósi, MBA (CFO part-time)**
  CFO for public companies in US and Canada: Managing Director JMP Securities, CFO DiagnoCure and Optina Dx
- **Rasheed Tijani, MS (Co-founder)**
  Bioprocess scientist with experience in biologics, antibodies and AAV gene therapy manufacturing.
  Have held multiple leadership position in companies like Lonza, Momenta, Sarepta, Aruvant sciences, and Pioneering Medicine.
- **Nasir Khan (Co-founder)**
  25 years managing biologics CMC development, GMP manufacture and global supply chain operations. Leadership/Management positions in DSM Biologics, Aveo Oncology, Momenta Pharmaceuticals, Janssen, and Sarepta Therapeutics

Advisory Board

- **Michael Rosenblum, PhD**
  Inventor of GrB platform technology
  Head Immunopharmacology & Targeted Therapy Lab, MD Anderson Cancer Center
- **Stephen B. Howell, MD, DSc**
  Distinguished Professor of Medicine,
  Division of Hematology/Oncology,
  Moores UCSD Comprehensive Cancer Center
  Director, Laboratory of Pharmacology
  Program Director, Cancer Therapeutics Training
  Co-founder of DepoTech, Beacon Laboratories, and Targa Pharmaceuticals
- **Vlad Bogin, MD**
  CEO and Founder, Cromos Pharma
  CEO, Nobilis Therapeutics
- **Stephanie Finnegan, MBA**
  COO, Cromos Pharma
  KOL in accelerated clinical development

Management team has developed ~50 biologics for various phases of clinical trials and commercialization

Path Forward

Budget and Milestones

$35MM:

- Clinical IT4 POC in oncology
- Preclinical VEGF POC for wet AMD & choroidal neovascularization

Milestones:

- GrB-Fc-IT4 = early clinical safety/tolerability and efficacy demonstration in patients with tumors expressing Fn14 antigen in Q2 2026
- GRB-Fc-VEGF = preclinical data from a predictive model by Q1 of 2025

Clinical Strategy IT4 – Phase 1 Escalation/Expansion

(Includes Adaptive Intrapatient Dose Escalation)

Phase 1a Escalation

- 6 dose cohorts – 100% escalation steps in absence of toxicity
- “All-comers” - multiple cancers, Fn14 expression
  - Generates data in multiple indications
  - Reduces risk of relying on single indication for POC
  - Guides clinical development plan
  - Enables parallel development of multiple indications
- Dose escalation in same patient based on safety
  - Patient opportunity to receive higher, potentially more effective doses
  - More quickly identifies effective dose level(s)
- First POC (tumor regression) possible as early as 7M to 9M

Clinical Strategy IT4 – Phase 1 Escalation/Expansion *(cont.)*

Phase 1b Expansion

- "Backfill" dose cohorts - Assign additional patients to doses deemed safe
- Rationale/benefit of larger patient dose cohorts
  - Ensures better sense of efficacy
  - Enhances ability to accurately describe clinically meaningful toxicity
  - Provides additional pharmacokinetics
  - Assists in determining Phase 2 dose
  - Expedites drug development

Pre-clinical POC $VEGF_{121}$

Goal – Assess intraocular GrB-Fc-$VEGF_{121}$ for Wet-AMD and Choroidal Neovascularization(CNV)

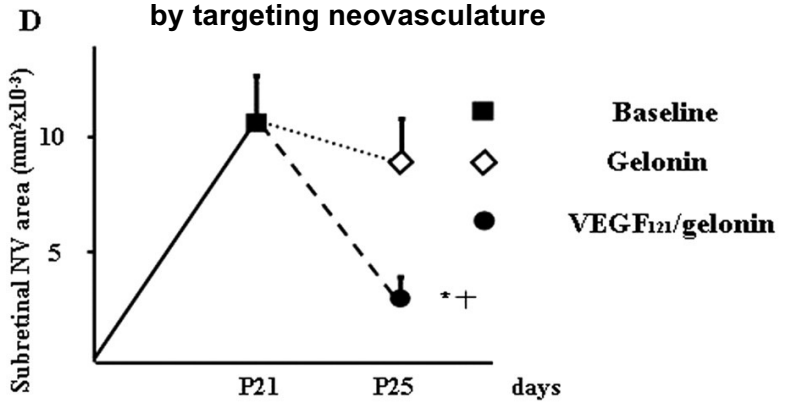
Expected outcome – *Demonstrate effectiveness & superiority of GrB-Fc-$VEGF_{121}$ compared to anti-VEGF aby*

- Suppress neo-vascularization and reduce of excessive leakage by GrB-Fc-$VEGF_{121}$ vs saline and anti-VEGF aby controls.
- *Regression/elimination/long-term suppression of CNV by GrB-Fc-$VEGF_{121}$* vs anti-VEGF and saline.
  The VEGF fusion kills neovascular cells which may lead to a longer-lasting therapeutic effect vs anti-VEGF aby.

Proposed study design

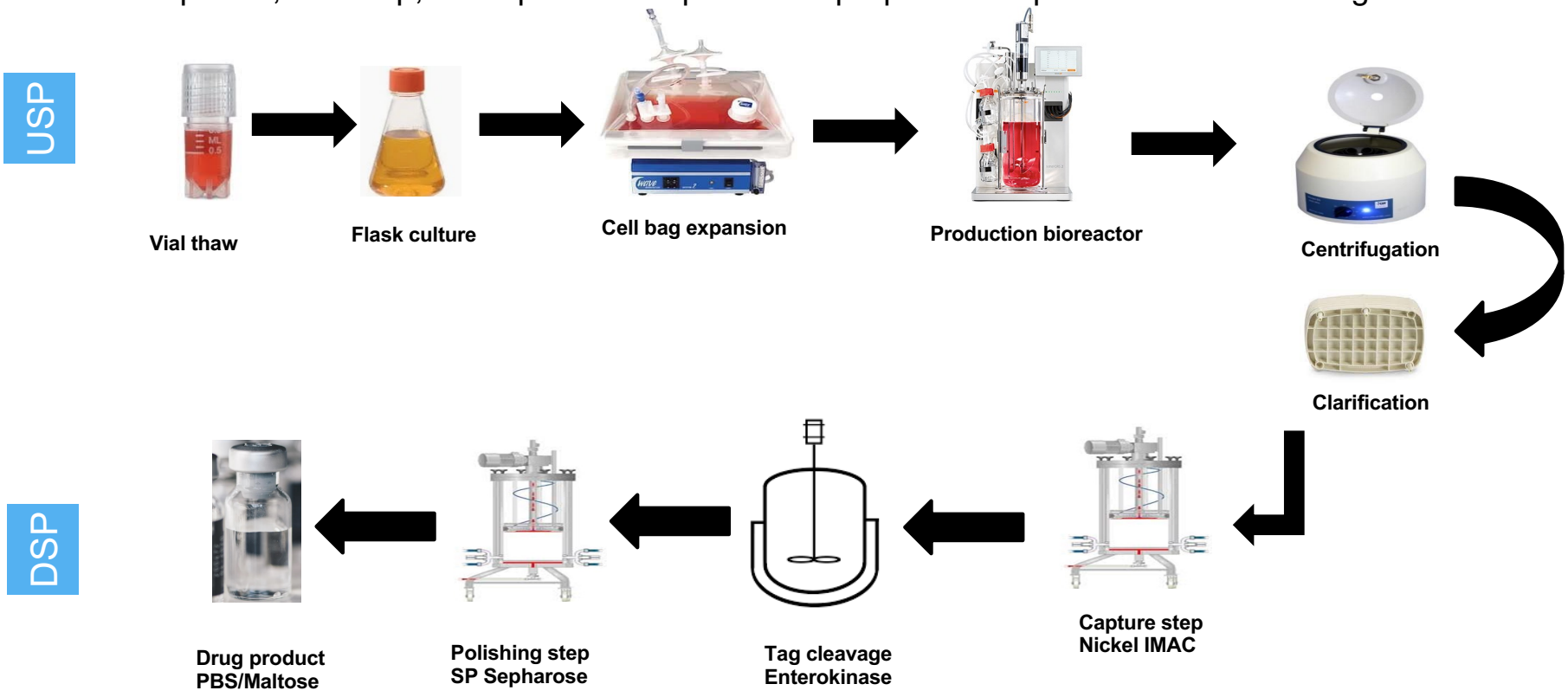
- Murine models - oxygen-induced ischemic retinopathy as it is a model of avascularity (*ROP diabetic retinopathy*) and laser-induced choroidal neovascularization(*AMD*).
- 3 treatment groups (5 animals/group):
  - Saline
  - Anti-VEGF aby
  - GrB-Fc-VEG_{121}

VEGF fusions reduce CNV by targeting neovasculature



Simple manufacturing process supports development of Granzyme B Platform

Detailed development, scale up, GMP production plans and proposals in place with WuXi Biologics

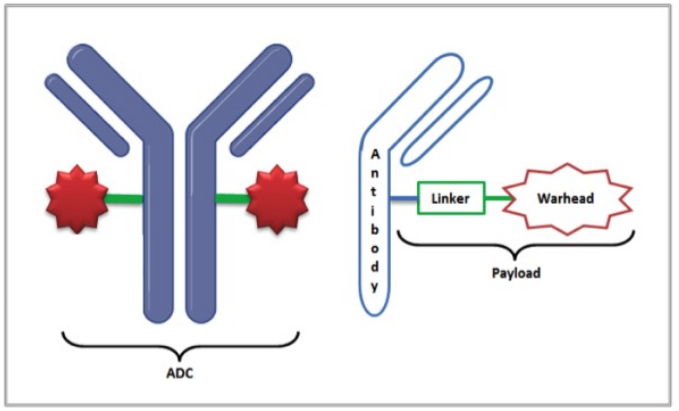


Targeted Granzyme B Immunotherapy (TGI Platform)

Current Therapeutic Classes:
Antibody Drug Conjugates/Immunotoxins

Antibody Drug Conjugates

- One of the most successful and promising anti-cancer therapeutic classes are **antibodies inducing tumor cell depletion**
- In the last few years, 75% of the antibodies approved or under review induce direct tumor cell death; **50% are Antibody-Drug Conjugates (ADC)**
- While effective, ADCs are expensive to produce and difficult to handle due to chemical modifications needed for manufacturing
- Chemical payloads are also toxic to normal cells
- Response to ADCs impacted by pre-existing resistance to chemotherapy



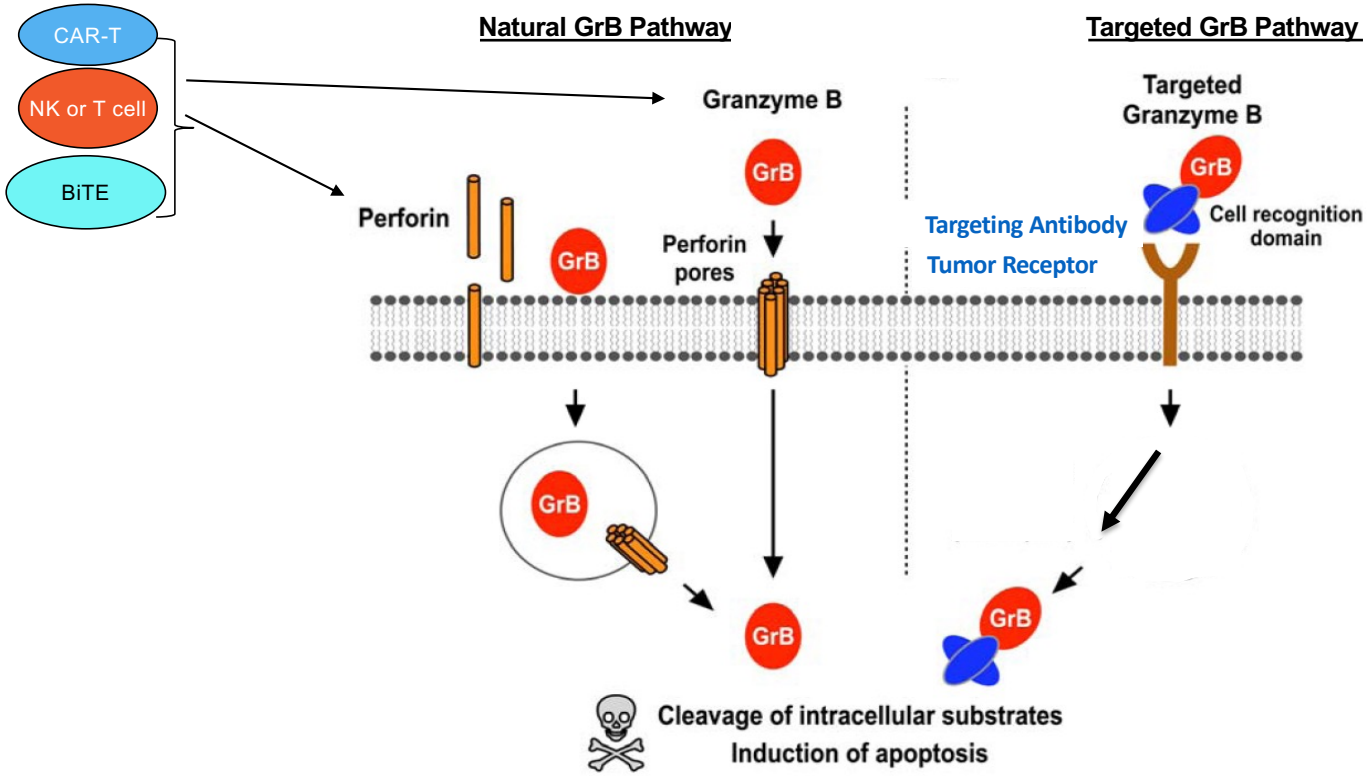
Characteristics of the "Perfect Payload"

- Relatively small human protein (ie non-antigenic)
- No normal cellular internalization route
- No possibility of developing cellular resistance
- Active within a fusion construct
- Essential to be a part of an unstoppable/irresistible and universal cytotoxic cascade present in all cells

Targeted Granzyme B Immunotherapy (TGI Platform)

- The TGI platform was designed to:
  - Improve upon the ADC and CAR-T pathways
  - Non-toxic or immunogenic to normal cells or tissues
  - Avoids cytokine storms
  - Easy to manufacture

Biological Conjugate Process Allows Granzyme B to be Delivered Directly to Targets

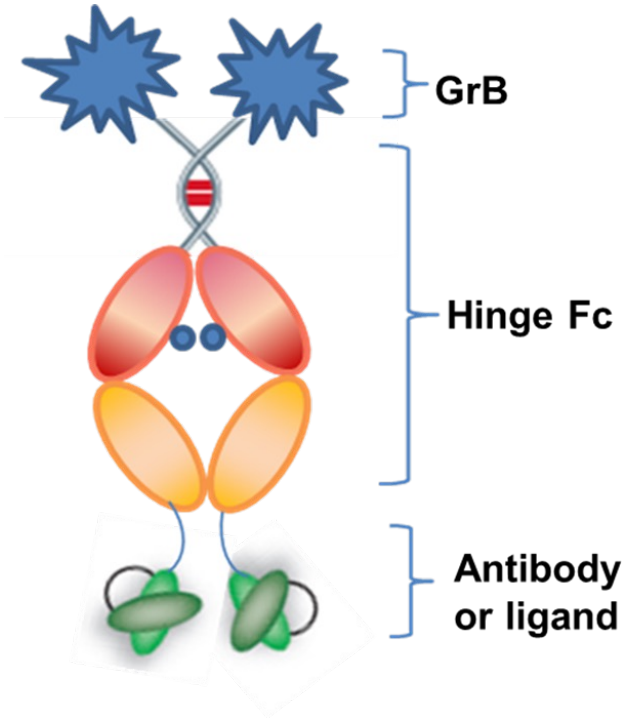


Major Differences

- **NK and T cells are not engaged**
- **Perforin is not needed for GrB entry**
- **GrB active without cleavage from antibody**
- **Unlike CAR-T, No cellular Cytokine Storm generated**

3 apoptotic pathways: Cleavage of caspases, Release of cytochrome C from mitochondria, Destroys nuclear material in cells (matrix DNA)

Specific Orientation of the Construct Allows Delivery of Active Granzyme B to the Cell

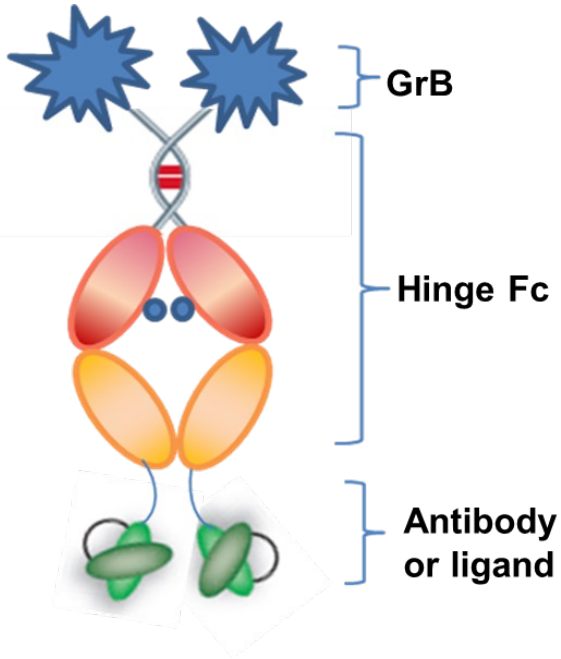


- Novel, patented synthetic antibody –GrB configuration
- Fully human GrB protein fused to human synthetic targeting antibody fragment.
- Circulating GrB conjugate stable and non-toxic.
- GrB has prolonged time in the blood allowing higher drug accumulation in tumors.
- GrB conjugate internalized through antigen mediated endocytosis and delivers payload into cancer cell cytosol
- Universal use of GrB with any targeting antibody or fragment

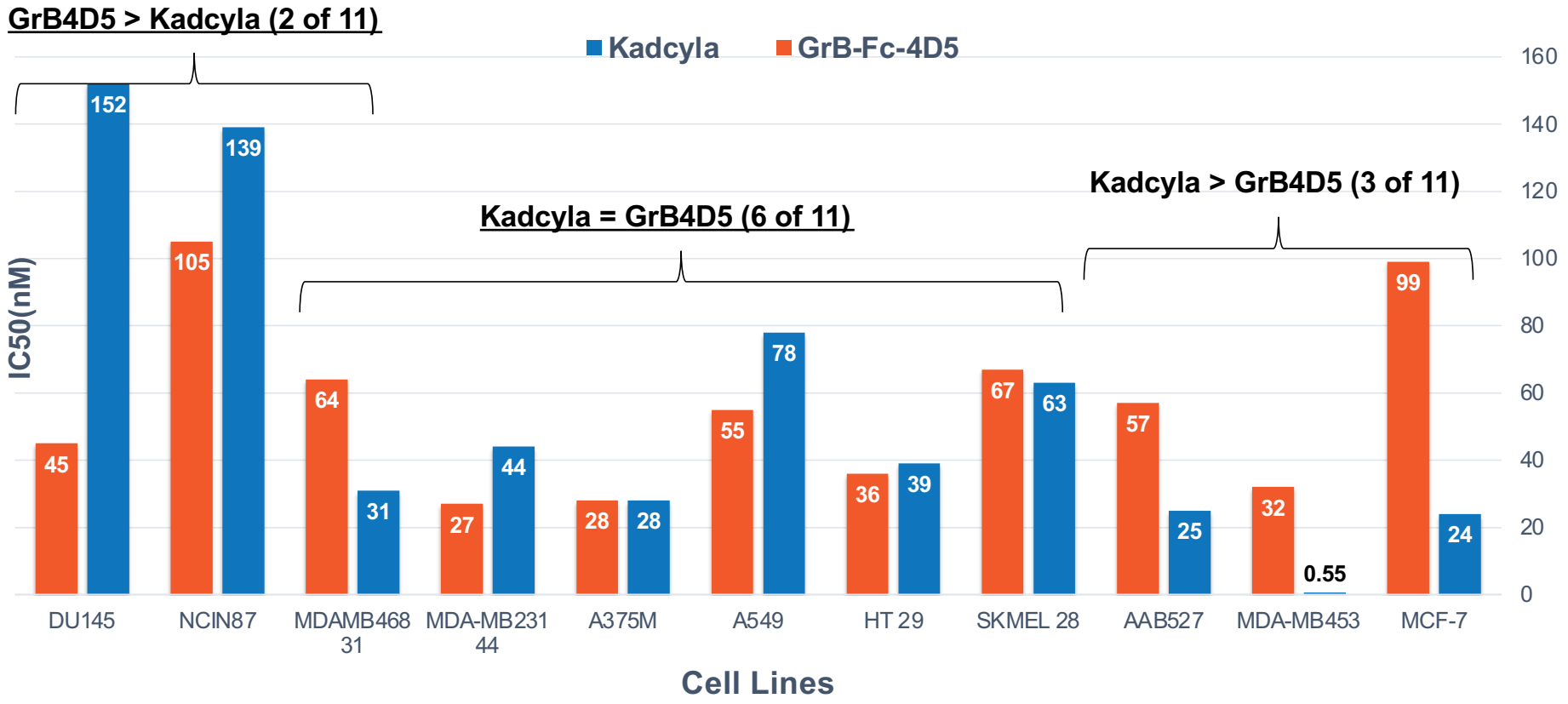
Key Points Differentiating the Targeted Granzyme B Platform: A Class Beyond Cytotoxic Agents

- **Granzyme B targeted biological conjugates** using existing antibodies and other ligands improves the therapeutic outcomes and circumvents manufacturing complexities.
- Conjugates are **completely human proteins**
- The MMOA is same as targeted T cell therapy (e.g. CAR-T) but circumvents immune checkpoints
- Dimerization by the IgG fragment increases size to 160 kDa to provide extended half-life(~35 hrs)
- Internalized GrB is **active in released and non-released forms**
- ***Unconjugated Granzyme B (GrB) is non-toxic to normal cells***.
- Granzyme B is biologically conjugated to the antibody or ligand using a **standard simple antibody manufacturing process.**
- Granzyme B conjugate is expected to be safe (IT4 MTD > 500mg/kg in mouse) with an excellent Therapeutic Index, efficacy doses 40-150 mg/kg

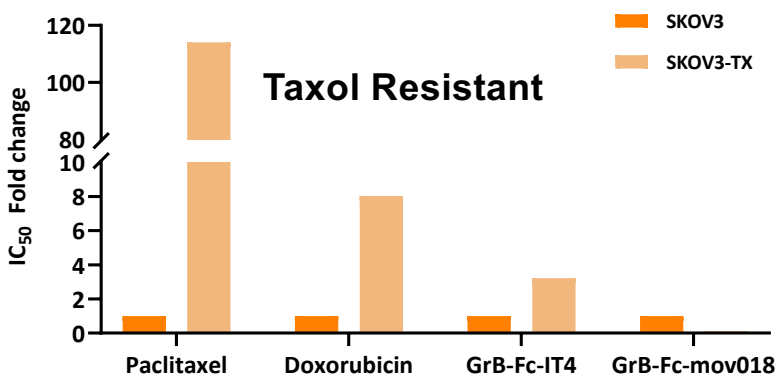
No proprietary linkers used

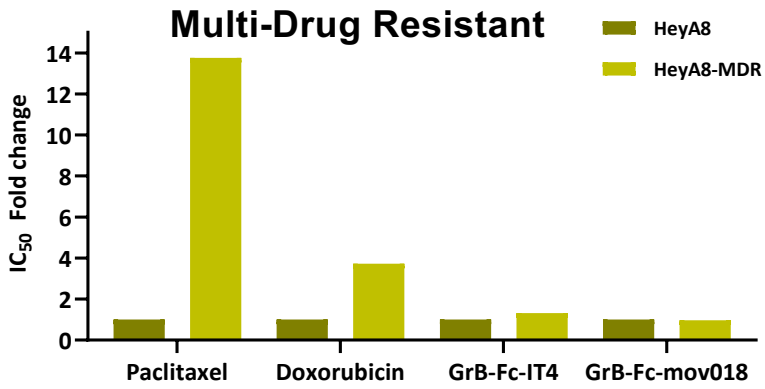


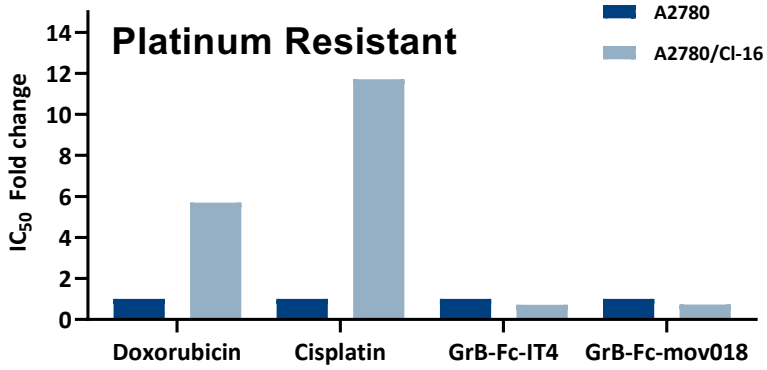
Kadcyla and GrB-Fc-4D5 show similar potency against various Tumor Cell Lines



Chemotherapy Resistant and MDR Expressing Cells are not Cross-Resistant to GrB-based Therapeutics







Granzyme B has been intentionally designed to address limitations of ADCs

GrB-Fc-IT4

- GrB has a multi-mode enzymatic mode of action
- MTD>500 mg/kg in mice
- Effective dose range 20-120 mg/kg in mice
- Stability $t_{1/2}$ in serum 80 hrs
- Released GrB payload non-toxic at uM level
- GrB payload not impacted by chemo-resistance
- Payload a normal human protein present in serum
- Simple, 3-step purification

ADC(Kadcyla, TDM-1)

- Payload has single mode of action
- MTD 60 mg/kg in mice
- Effective dose 45 mg/kg in mice
- Stability $t_{1/2}$ in serum 24 hrs
- Released payload highly toxic(pM) to normal cells
- Payload cross-resistant to chemotherapeutics
- Payload carcinogen, teratogen and fetotoxin
- Multistep antibody production and conjugation

Targeted Granzyme B Immunotherapy Platform Assets

Universal Use of Granzyme B: Selective Cell Destruction by Fusion with Any Targeting, Internalized Molecule

ANTIBODY BIOLOGIC CONJUGATES

Product Pipeline	Target	Indications
GrB-Fc-IT4	**Fn14** Receptor for TWEAK. Highly upregulated on tumor cells. Well-validated tumor target.	Oncology: Breast, Colorectal, Lung, Ovarian, Prostate, Pancreatic, Melanoma, Liver, Glioblastoma, Glioma
GrB-Fc-VEGF	**KDR/VEGFR2** Over-expressed in tumor neovasculature and on tumor cells	Oncology: Broad range of cancers including Breast, Colon, Sarcoma, and Ovarian Ophthalmology: Wet AMD & Choroidal Neovascularization
GrB-Fc-SD1	**Mesothelin** Well-validated target upregulated in tumors	Oncology: Mesothelioma, Ovarian, Endometrial Carcinomas, Pancreatic and Lung Adenocarcinomas, Advanced Colorectal
GrB-Fc-4D5	**Her2/Neu** Well-validated tumor target	Breast, Gallbladder, Bladder, Esophageal/gastric junction, Stomach
GrB-Fc-anti-FRa	**Folate receptor a** Solid tumors and leukemias	Oncology: Gastrointestinal, Gynecological, Breast, Lung, Head & Neck, Leukemias, Lymphomas
GrB-Fc-CEA	**Cell-surface CEA** Target on numerous carcinomas	Oncology: Colon/colorectal/esophageal/gastric, Breast, Prostate, Lung, Thyroid, Pancreatic, Ovarian
GrB-Fc-HMEL	**CSPG4** Validated target on numerous tumors.	Oncology: Melanoma, Lobular breast, TNBC, Breast stem cells, Gliomas, and Squamous cell carcinomas

Targeted Granzyme B Platform - Pipeline Status

Product	Target	Status
GrB-Fc-IT4	Fn14	*In vitro* cytotoxicity studies,MOA, animal POC, pk, Tox and MTD studies completed, stable CHO lines generated, CMO discussions ongoing, IND package under development
GrB-Fc-VEGF	KDR receptor aka Vascular Endothelial Growth Factor 2	*In vitro* cytotoxicity studies, MOA studies, animal POC, pk, and Tox studies ongoing
GrB-Fc-SD1	Mesothelin	*In vitro* cytotoxicity studies and animal POC completed
GrB-Fc-4D5	Her2/Neu	*In vitro* cytotoxicity studies and *in vitro* comparative studies to Kadcyla, animal POC studies in progress
GrB-Fc-anti-FRa	Folate receptor a	*In vitro* cytotoxicity studies and animal POC evaluated, MOA ongoing
GrB-Fc-CEA	Cell-surface CEA	*In vitro* cytotoxicity and animal POC studies completed
GrB-Fc-HMEL	CSPG4	*In vitro* cytotoxicity and animal POC studies completed

Preclinical Results:

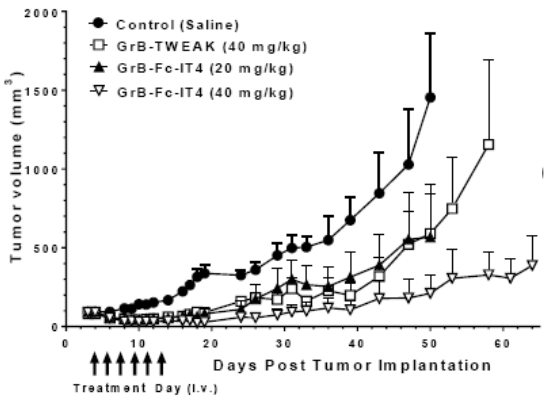
Consistent tumor inhibition by Granzyme B conjugates with different tumor xenograft models in mice

GrB-Fc-IT4

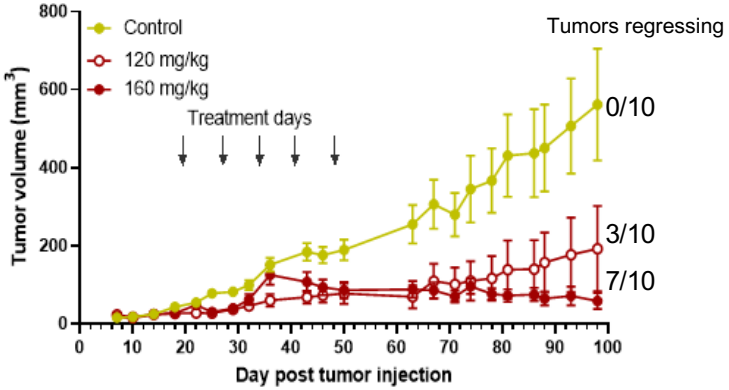
GrB-Fc-IT4 is cytotoxic to an extensive number and types of tumors, inhibits growth of breast and lung tumor xenografts, and is not toxic at 500 mg/kg, offering potential for a wide therapeutic window.

GrB-Fc-IT4 is highly cytotoxic to over 100 tumor cell lines

		IC_{50} (nmol/L)	
Cell line	Tumor type	GrB	GrB-Fc-IT4
A172	Brain	>700	43
MCF7	Breast	>700	15
MDA-MB-231	Breast	>1700	6
MDA-MB-468	Breast	>900	14
SKBr3	Breast	>700	65
HT29	Colon	>700	50
A549	Lung	601	20
Calu-6	Lung	986	10
H1573	Lung	1500	32
HCC95	Lung	1095	37
Hop62	Lung	315	49
A375M	Melanoma	584	181
WM35	Melanoma	>1923	68
WM35P2N1	Melanoma	1543	143
A2780	Ovarian	>700	120
Hey A8	Ovarian	>700	38
SKOV3	Ovarian	>700	13
AsPc-1	Pancreatic	1297	17
Capan-1	Pancreatic	2344	37
Capan-2	Pancreatic	>3200	20



Anti-tumor effect of GrB/TWEAK and GrB/Fc-IT4 on breast tumor xenograft in nude mice

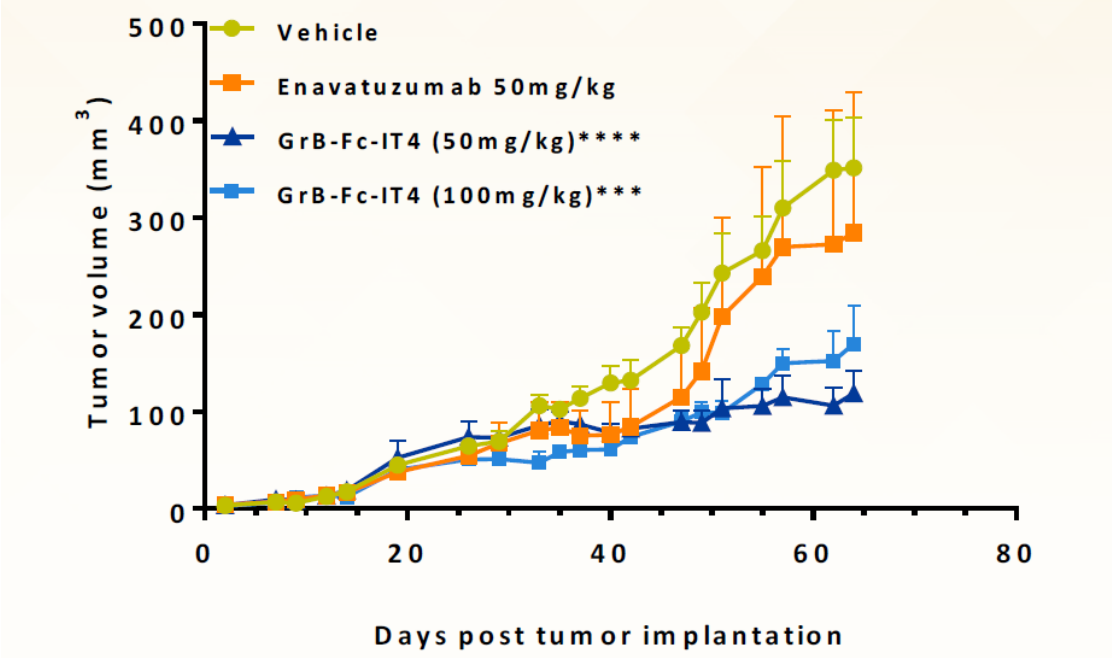


Anti-tumor effect of GrB-Fc-IT4 on subcutaneous lung tumor xenograft in nude mice

No toxicity in mice treated with doses up to 500 mg/kg

GrB-Fc-IT4 versus Antibody Alone

Efficacy of GrB-Fc-IT4 vs Anti-Fn14 (Enavatuzumab, PDL192)



Antibody to Fn14 did not exhibit a cytotoxic effect on growth of A549 human tumor xenografts in contrast with GrB-Fc-IT4, thus demonstrating that Granzyme B and not the Anti-Fn14 portion of the fusion protein is responsible for tumor cytotoxicity.

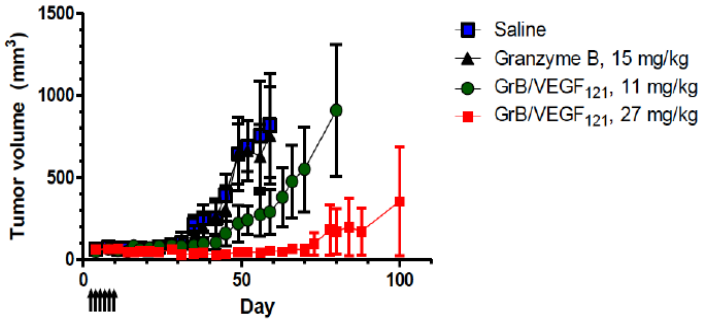
GrB-Fc-VEGF

Oncology: **GrB-Fc-VEGF is cytotoxic to a variety of tumors in the nM range and inhibits growth of prostate tumor xenograft**

Cytotoxicity of GrB-Fc-VEGF$_{121}$ on various cells lines

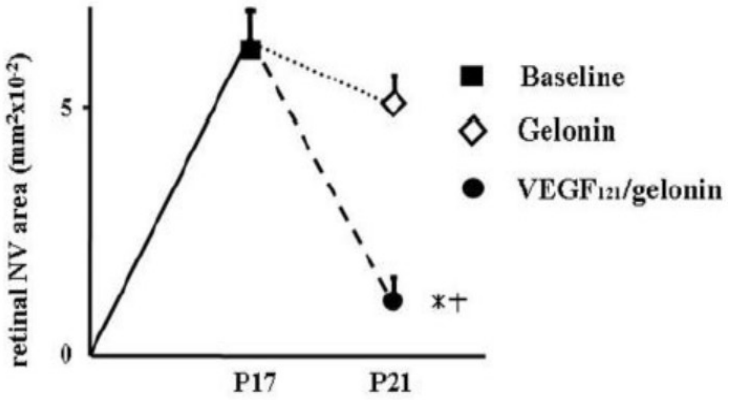
Category	Cell line	Cell type	VEGFR-2 receptor sites per cell	IC_{50} (nmol/L) GrB/VEGF$_{121}$	IC_{50} (nmol/L) GrB	Targeting index[a]
Endothelial	PAE/hVEGFR-2 (log-phase)	Endothelial	+++++	10	500	50
	PAE/hVEGFR-2 (confluent)	Endothelial	+	140	4,800	34
	PAE/hVEGFR-1	Endothelial	–	2,000	6,900	3.5
	PAE/hVEGFR-1 (confluent)	Endothelial	–	>2,000	>6,900	N/A
	b.End3	Endothelial	+++	156	3,076	20
	KS1767	Kaposi's sarcoma	+	660	>4,700	>7
Nonendothelial	RAW264.7	Monocyte	+	60	1,200	20
	SK-N-SH	Neuroblastoma	++	27	1,809	67
	TC-71	Ewing's sarcoma	+	190	1,300	6.8
	U-87 MG	Glioblastoma	+	204	2,900	14
	MDA-MB-231/luc	Breast adenocarcinoma	–	500	2,300	4.6

Abbreviation: N/A, not applicable.
[a]Targeting index defined as (IC_{50} GrB)/(IC_{50} GrB/VEGF$_{121}$).



Anti-tumor effect of GrB-Fc-VEGF$_{121}$ on prostate tumor xenograft in mice

Ophthalmology: **One 5 ng dose of VEGF/rGel caused significant regression of subretinal neovascularization in Wet AMD model. Use of GrB-Fc-VEGF offers an alternate and safer approach.**

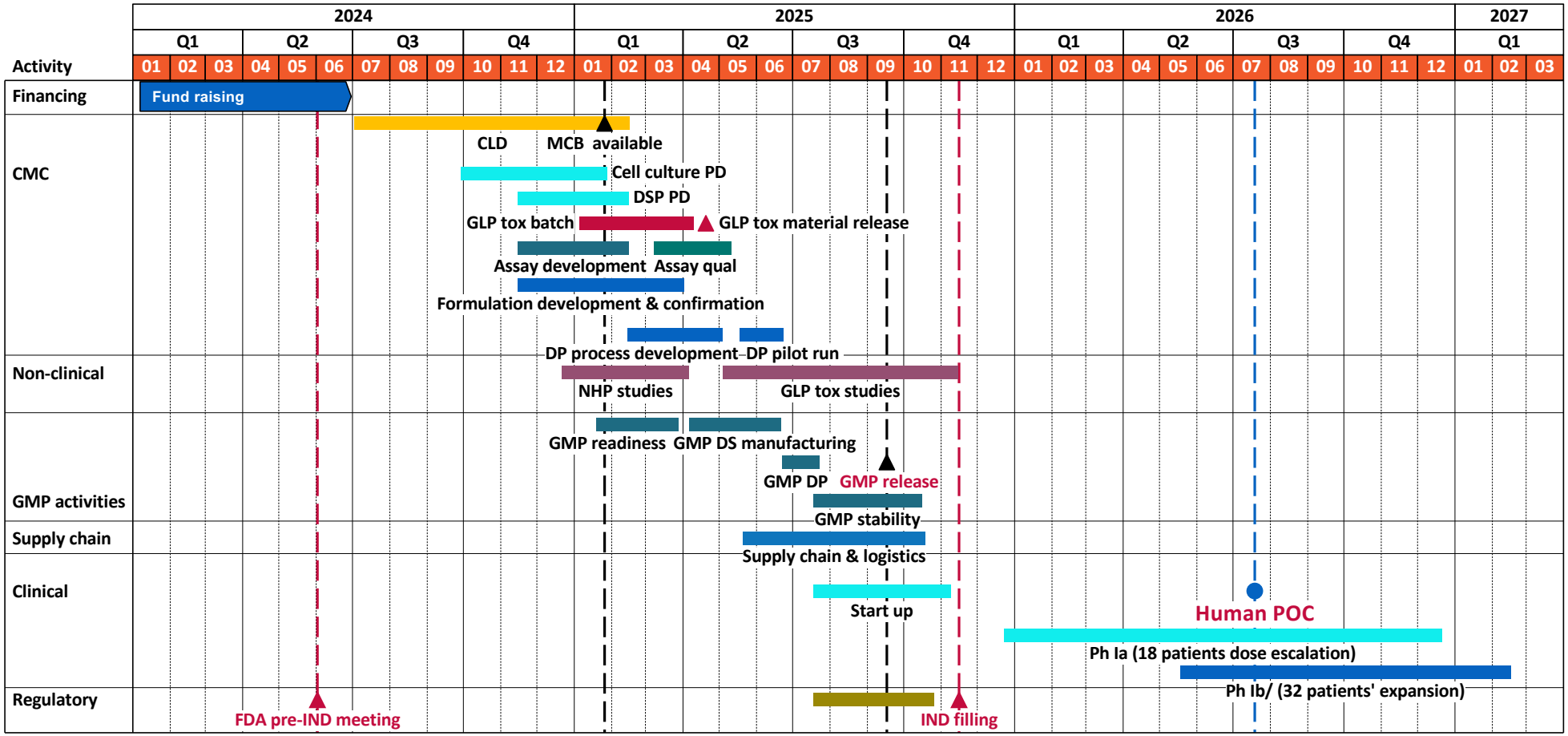


Intravitreous injection 5 ng single dose VEGF/rGel causes regression of subretinal neovascularization in rho/VEGF transgenic mice

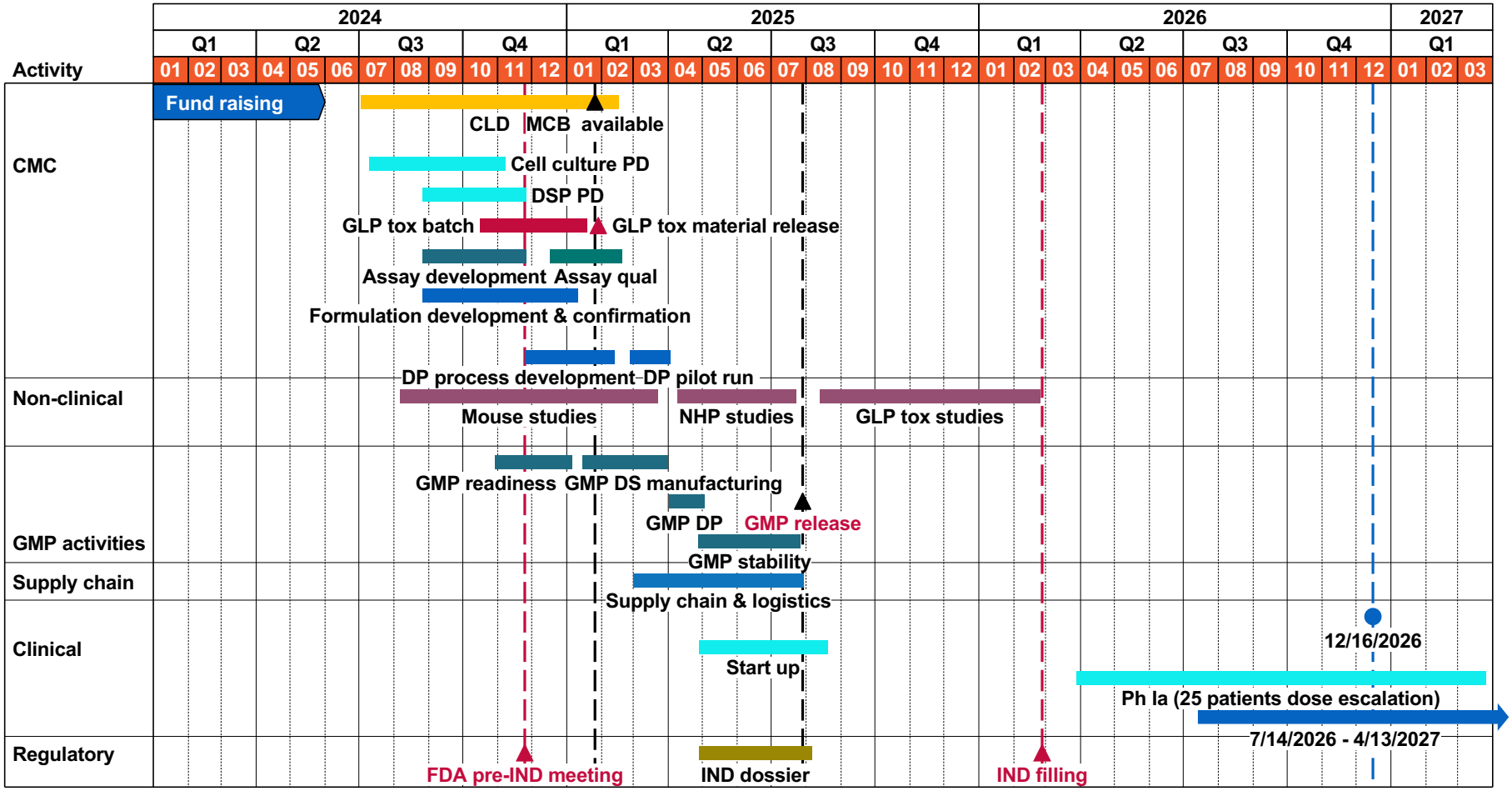
GrB-Fc-VEGF: Replacement of Gelonin with GrB payload eliminates the potential immunogenicity of Gelonin

Development Plan

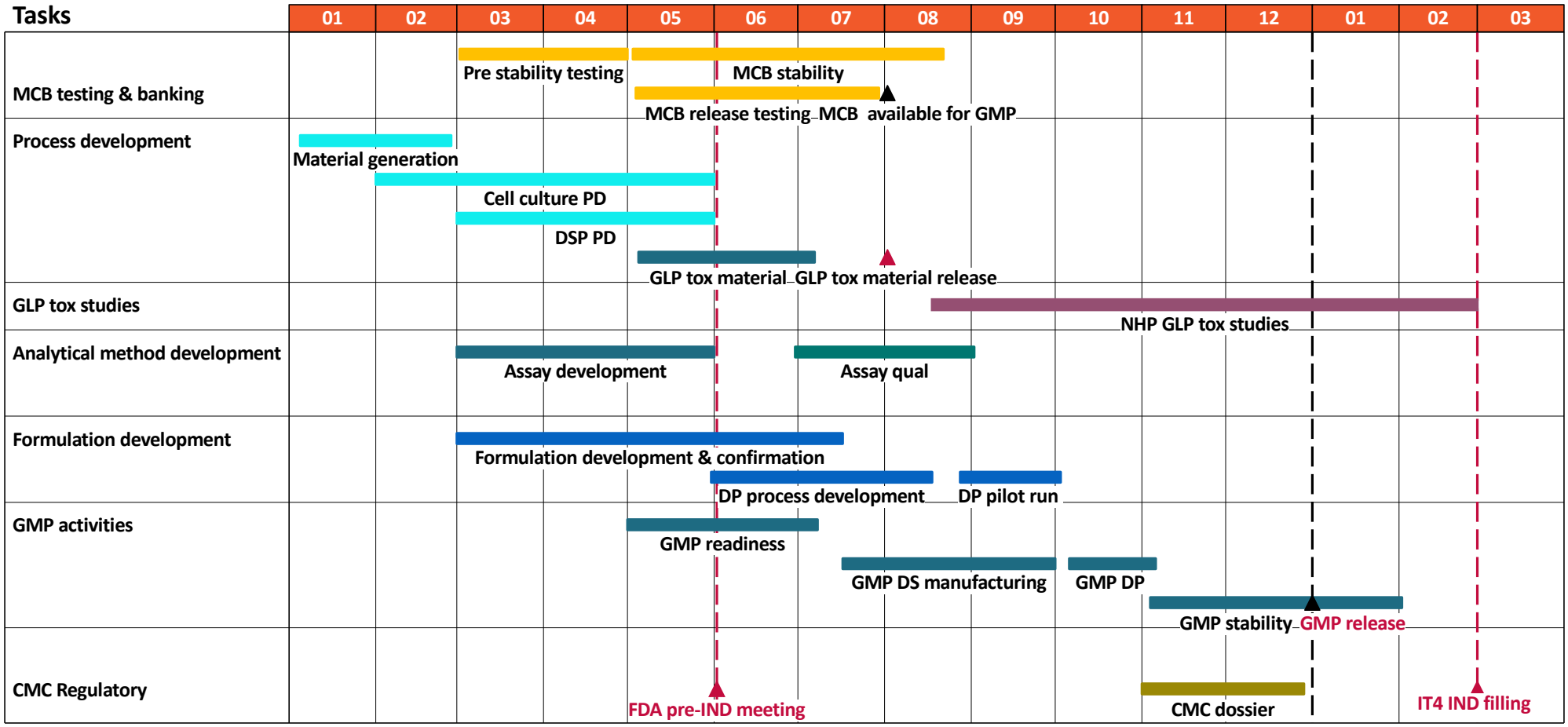
Development Strategy IT4: Integrated Timeline



Development Strategy $VEGF_{121}$: Integrated Timeline



Development Strategy: CMC (GrB-Fc-IT4 and GrB-Fc-VEGF)



Executive Summary

- Granzyme B/Antibody Conjugates are next generation ADC: First in Man, First in Class
- Granzyme B conjugated to any humanized targeting molecule:
  - Delivers irreversible cytotoxicity
  - Is fully human
  - Does not require cleavage for activity
  - Is not toxic when circulating in unconjugated form
  - Does not require post-production conjugation
- Power of the Platform
  - Pipeline of seven (7) products in development targeting ophthalmology and broad oncology indications
  - Redesign/replace industry ADCs
- Development Path for Value Creation
  - $35MM for Clinical POC in oncology and preclinical POC in ophthalmology
  - Clinical POC in Q1 2026
  - Pre-clinical POC in Q4 2024

BACK UP SLIDE

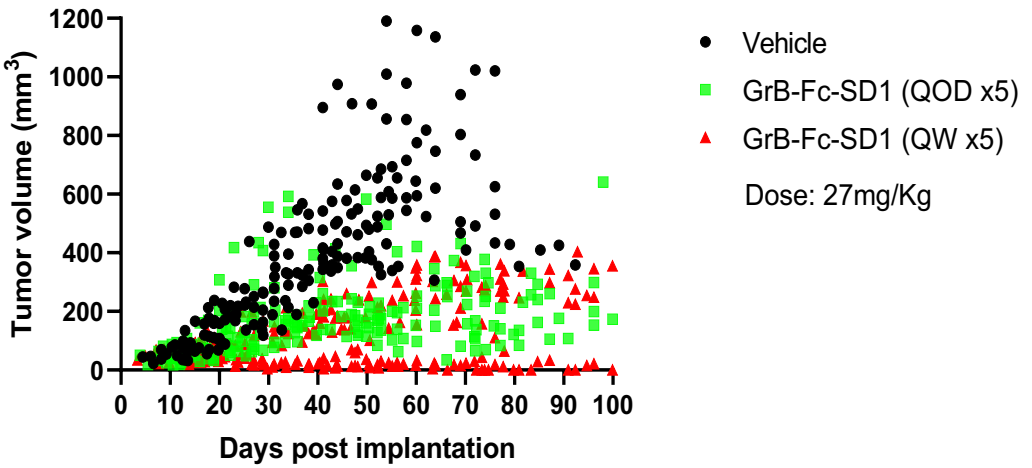
GrB-Fc-SD1

GrB-Fc-SD1 is cytotoxic to different types of tumor cell lines and induces tumor inhibition and regression of ovarian xenograft tumor using weekly dosing schedule

***In vitro* cytotoxicity of GrB-Fc-SD1 against lung, ovarian and pancreatic cancer cell lines**

Origin	Cell Line	IC_{50}nM
Pancreas	Capan-2	17 ± 7
Pancreas	HPAF-II	181
Lung	H460	64 ± 6
Lung	H1703	34 ± 4
Ovary	OVCAR-3	63 ± 10
Ovary	OVCAR-8	40
Skin	A431 (negative control)	>1000
Fibroblast, mouse	MEF3.5 (negative control)	>1000

Efficacy of GrB-Fc-SD1



Anti-tumor effect of GrB-Fc-SD1 on ovarian tumor xenograft in mice

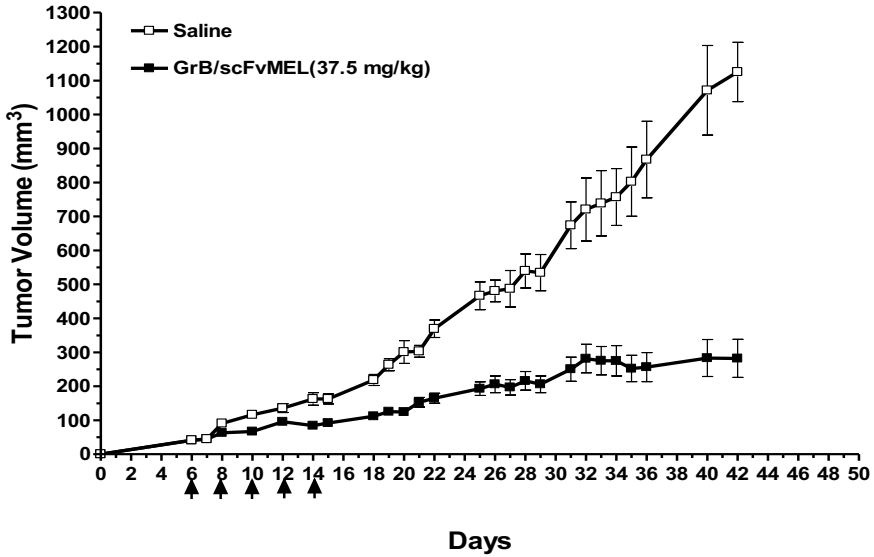
GrB-Fc-SD1 significantly induced tumor inhibition and regression with no rebound; more sustainable inhibition at QW schedule

GrB-Fc-HMEL

GrB-Fc-HMEL is cytotoxic to different melanoma tumor cell lines and inhibits growth of melanoma xenograft

***In vitro* cytotoxicity: CSPG4+ Melanoma cell lines**

Cell Line	GrB *(IC50nM)*	GrB-Fc-HMEL (IC*50nM*)
HS294T	651	8
A365-M	1152	28
AAB-527	492	7



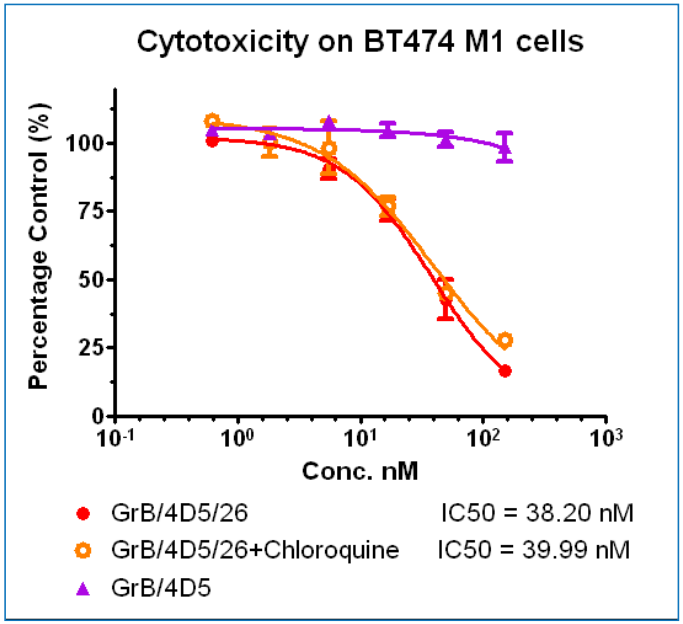
Anti-tumor effect of GrB-Fc-HMEL melanoma tumor xenograft in mice

GrB-Fc-4D5

GrB-Fc-4D5 is cytotoxic to a large number of different HER2 positive tumor cell lines including tumor cell lines that are resistant to Herceptin, the standard of care for HER2 positive breast cancer.

***In vitro* cytotoxicity: Large panel of HER2+ tumor cells and comparably active vs Kadcyla**

(CHO-S)	FACS	Densitometer		(wt)GrB	(wtC)GrB-Fc-4D5	Kadcyla
	Her2%	PI-9		(IC50)nM	(IC50)nM	(IC50)nM
Lung ++++	109	0.5	Calu-3	>1000	82	0.02
Breast +++	100	48	SKBr3	>1000	56	0.02
Gastric ++++	85	8	NCI-N87	>1000	105	139
Breast ++	13	0.4	MDA-MB-453	532	32	0.55
Ovarian ++++	11	100	SKOV3	>1000	211	38
Prostate +	3.6	3	DU-145	>1000	45	152
Breast +	3.4	38	MCF-7	>1000	99	24
Melonoma +	3.4	73	SKMEL28	>1000	67	63
Colon +	3.0	0.6	HT-29	>1000	36	39
Lung +	2.4	31	A-549	>1000	55	78
Breast +	1.5	79	MDA-MB-231	793	27	44
Melonoma +	1.5	27	A375-M	>1000	28	28
Melonoma +	1.3	39	AAB-527	>1000	57	25
Breast +	1.1	ND	MDA-MB-468	>1000	64	31



GrB-Fc-4D5 is cytotoxic to Herceptin-resistant cells

GrB-Fc-CEA

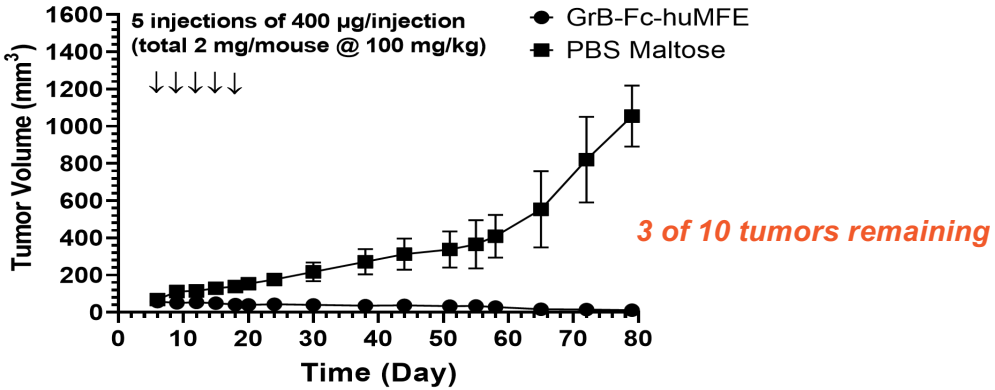
GrB-Fc-CEA is cytotoxic to different types of tumor cell lines, cytotoxicity is not affected by soluble CEA suggesting clinical effectiveness may not be affected by shed CEA, and inhibits growth of lung tumor xenograft.

Addition of soluble CEA has no effect on GrB-Fc-CEA cytotoxicity

CEA antigen	200 µg/ml (IC_{50} nM)		1000 µg/ml (IC_{50} nM)	
	+	-	+	-
MDA-MB231	73	70	47	45
A-549	89	69	73	56
SKOV3	483	423	578	584
MEF3.5 -/-	751	865	794	816

***In vitro* cytotoxicity of GrB-Fc-CEA on CEA + and CEA - cell lines**

Type	Cell line	IC_{50} (nM)
(+) Colon	HT-1080/CEA	110
(+) Pancreas	AsPC-1	92
(+/-) Lung	A-549	56
(++) Breast	MDA-MB231	45
(+) Skin	A431	95
(-) Fibroblast	MEF3.5-/-	>700



3 of 10 tumors remaining

Anti-tumor effect of GrB-Fc-CEA on subcutaneous lung tumor xenograft in nude mice

GrB-Fc-anti-FRa

GrB-Fc-anti-FRa is cytotoxic to different types of tumor cell lines expressing Fra and inhibits growth of ovarian tumor xenograft.

Anti-folRα GrB-Fc-constructs are highly cytotoxic to FolRα⁺ cell lines

Cell Line	GrB-HL3-Fc-Mov003	GrB-HL3-Fc-Mov018	FRα
OVCAR3	102	50	Positive
OVCAR8	60	16	Positive
IGROV1	12	5	Positive
A549	9	5	Positive
NIH-3T3	>250	>240	Negative
H1299	51	20	Positive
SKOV3	180	237	Positive
MDAMB231	27	9	Positive
MEF 3.5-/-	>450	>260	Negative

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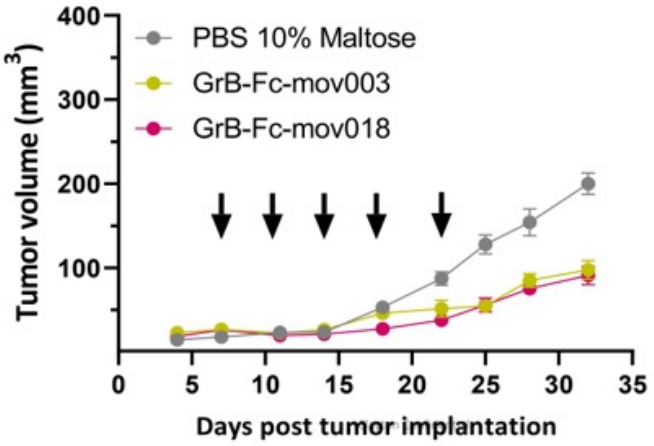

Administration(IP) of anti-FolateR fusion constructs demonstrate antitumor efficacy in an OVCAR-8 human tumor xenograft Model