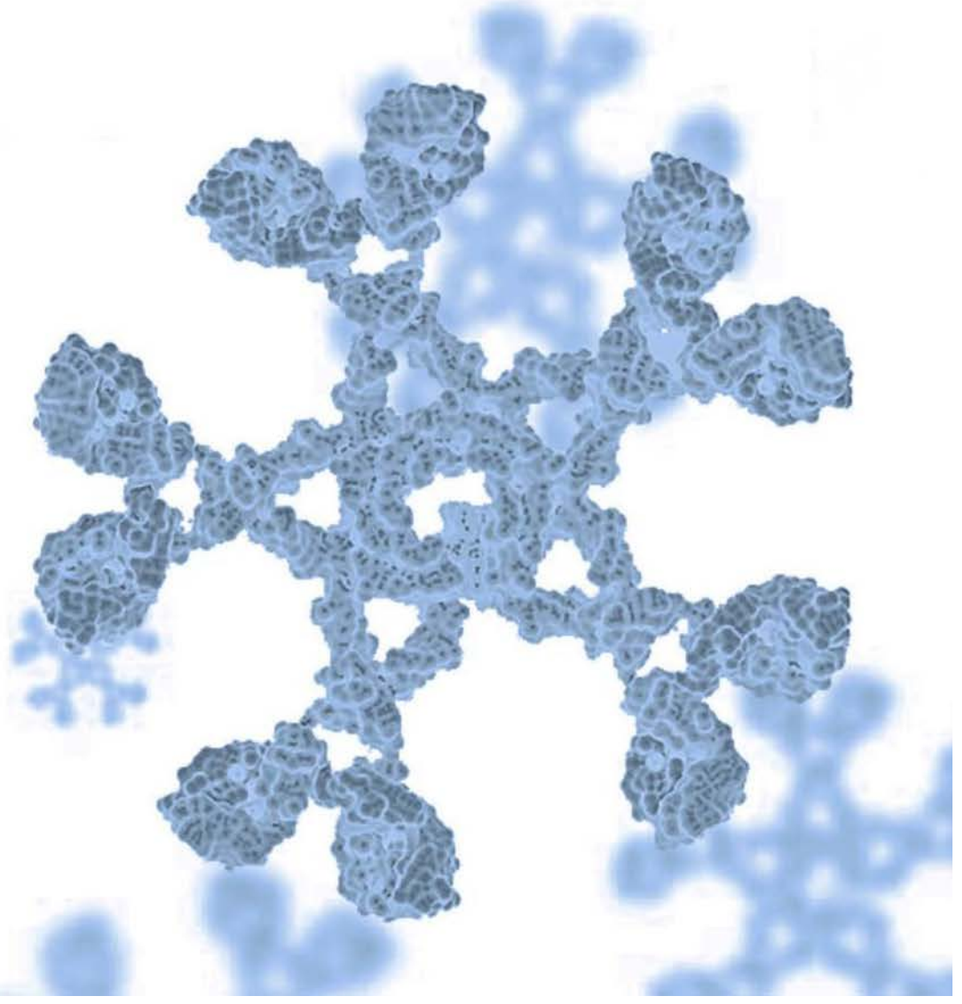
Pioneering the Development of Engineered IgM Antibodies

Corporate Presentation

January 2021



Forward-Looking Statements

This presentation contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995 that reflect the current views of IGM Biosciences, Inc. (the “Company,” “we” or “our”) with respect to the Company’s future financial condition, results of operations, business strategy, expectations, milestones and plans. All statements other than statements of historical fact could be deemed forward-looking, including but not limited to statements with words such as “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potentially” “predict,” “should,” “target,” “will” or the negative of these terms or other similar expressions. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including, among other things: the timing of the initiation, progress and results of our preclinical studies, clinical trials and our discovery programs; potential delays and disruption resulting from the COVID-19 pandemic and governmental responses to the pandemic, including any future impacts to our operations, the manufacture and supply of our product candidates, the progression of our clinical trials, enrollment and maintenance of patients in our current and future clinical trials and on our collaborations and related efforts; our early stages of clinical drug development; our ability to achieve clinical goals; risks related to the use of engineered IgM antibodies, which is a novel and unproven therapeutic approach; our ability to utilize our lgM antibody platform to generate and advance additional product candidates; our ability to advance product candidates into, and successfully complete, clinical trials; our ability to adequately demonstrate sufficient safety and efficacy of our product candidates, either alone or in combination with other compounds; the potential for the results of clinical trials to differ from preclinical, preliminary or expected results; the risk of significant adverse events, toxicities or other undesirable side effects; the timing or likelihood of regulatory filings and approvals; our estimates of the number of patients who suffer from the diseases we are targeting and the number of patients that may enroll in our clinical trials; the ability to commercialize our product candidates, if approved; our ability and the potential to successfully manufacture and supply our product candidates for clinical trials and for commercial use, if approved; our ability to accurately forecast future financial results and timelines; strategic arrangements, licenses and/or collaborations and the potential benefits of such arrangements; the risk of the occurrence of any event, change or other circumstance that could give rise to the termination of our arrangements, licenses and/or collaborations; our anticipated use of our existing resources, our estimates regarding expenses, future revenue, capital requirements and needs for additional financing and our ability to obtain additional capital; the sufficiency of our existing cash and investments to fund our future operating expenses and capital expenditure requirements; our ability to retain the continued service of our key personnel and to identify, hire and retain additional qualified professionals; the implementation of our business model and strategic plans for our business and product candidates; the scope of protection we are able to establish and maintain for intellectual property rights, including our lgM platform, product candidates and discovery programs; our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately; the pricing, coverage and reimbursement of our product candidates, if approved; developments relating to our competitors and our industry, including competing product candidates and therapies; general economic and market conditions; and other risks and uncertainties, including those more fully described in the public filings that we have made and will make with the Securities and Exchange Commission (“SEC”). New risk factors emerge from time to time and it is not possible for our management to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in, or implied by, any forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this presentation.

IGM Overview

Global leaders in the development of engineered IgM antibodies for therapeutic use

Lead Programs

CD20 x CD3	Non-Hodgkin's Lymphoma	Phase 1 in R/R B cell NHL underway
DR5	Solid and Heme Malignancies	Phase 1 in solid tumors & NHL underway
IL-15 x PD-L1	Solid and Heme Malignancies	IND filing: 2021 (anticipated)

Proprietary IgM antibody technology: 28 patent families

Strategy: extend our global leadership in the development of engineered IgM antibodies

Advance product candidates and increase research and development efforts
Build and control manufacturing capabilities
Participate in commercialization if approved
Expand intellectual property portfolio

$366 Million Cash and Investments Balance, December 31, 2020 (Unaudited)

IGM's Wholly-Owned Oncology Pipeline

Lead Programs

Mode	Target	Indications	Phase of Development					Worldwide Commercial Rights	Anticipated Milestones
			Discovery	Preclinical	Phase 1	Phase 2	Phase 3		
T cell Engager	IGM-2323 (CD20 x CD3)	NHL, CLL							RP2D: 2021
Receptor Cross-linking Agonist	IGM-8444 (DR5)	Solid and Hematologic Malignancies							Initial Phase 1 data in solid tumors: 2021
Targeted Cytokines	IGM-7354 (IL-15 x PD-L1)	Solid and Hematologic Malignancies							IND filing: 2021 (anticipated)

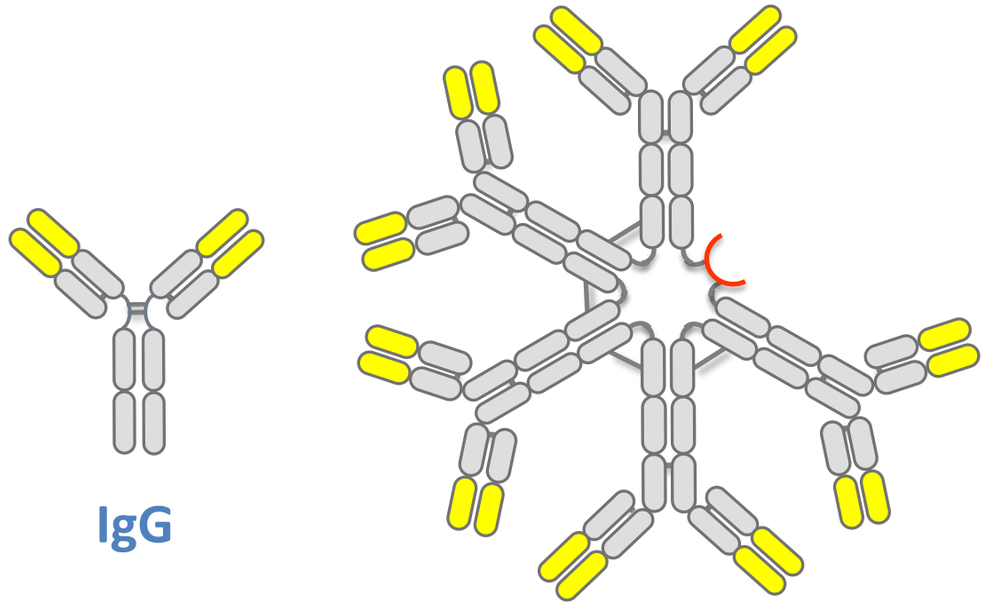
Research and Discovery Programs

Mode	Target	Indications	Worldwide Commercial Rights
T cell Engagers	CD123 x CD3	Acute Myeloid Leukemia	
	CD38 x CD3	Multiple Myeloma	
	Multiple Targets x CD3	Multiple Solid Tumors	
Receptor Cross-linking Agonists	OX40	Solid and Hematologic Malignancies	
	GITR		

Why IgM?

Structural comparison of IgG and IgM antibodies

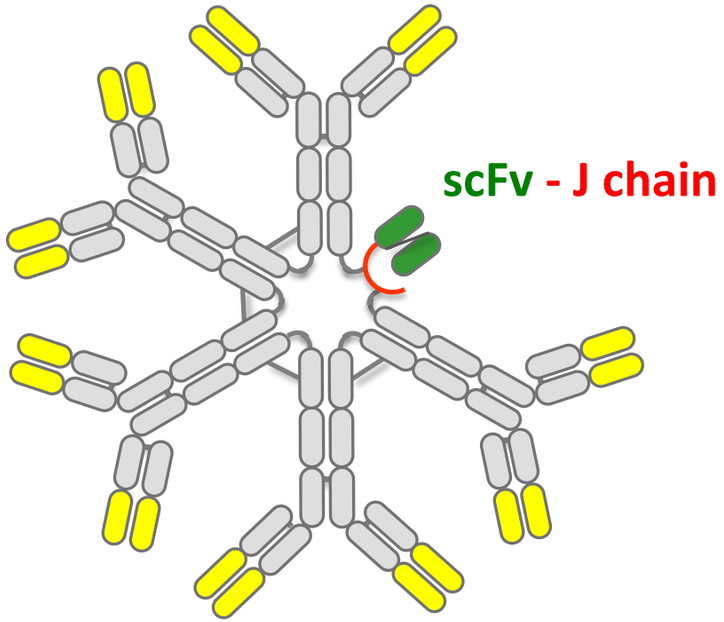
Greatly superior total binding power (Avidity)



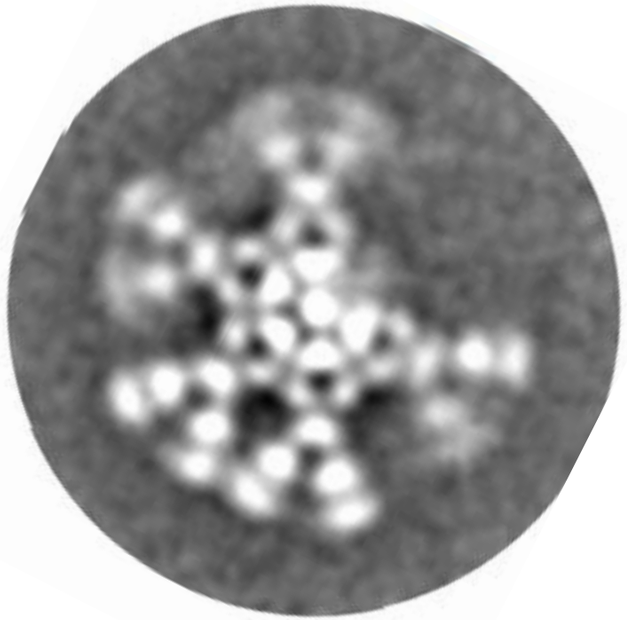
LEGEND	Target binding domains	Constant domains	Joining chain (J chain)

IgM Asymmetric Bispecific Technology

High avidity, potent T cell dependent cytotoxicity

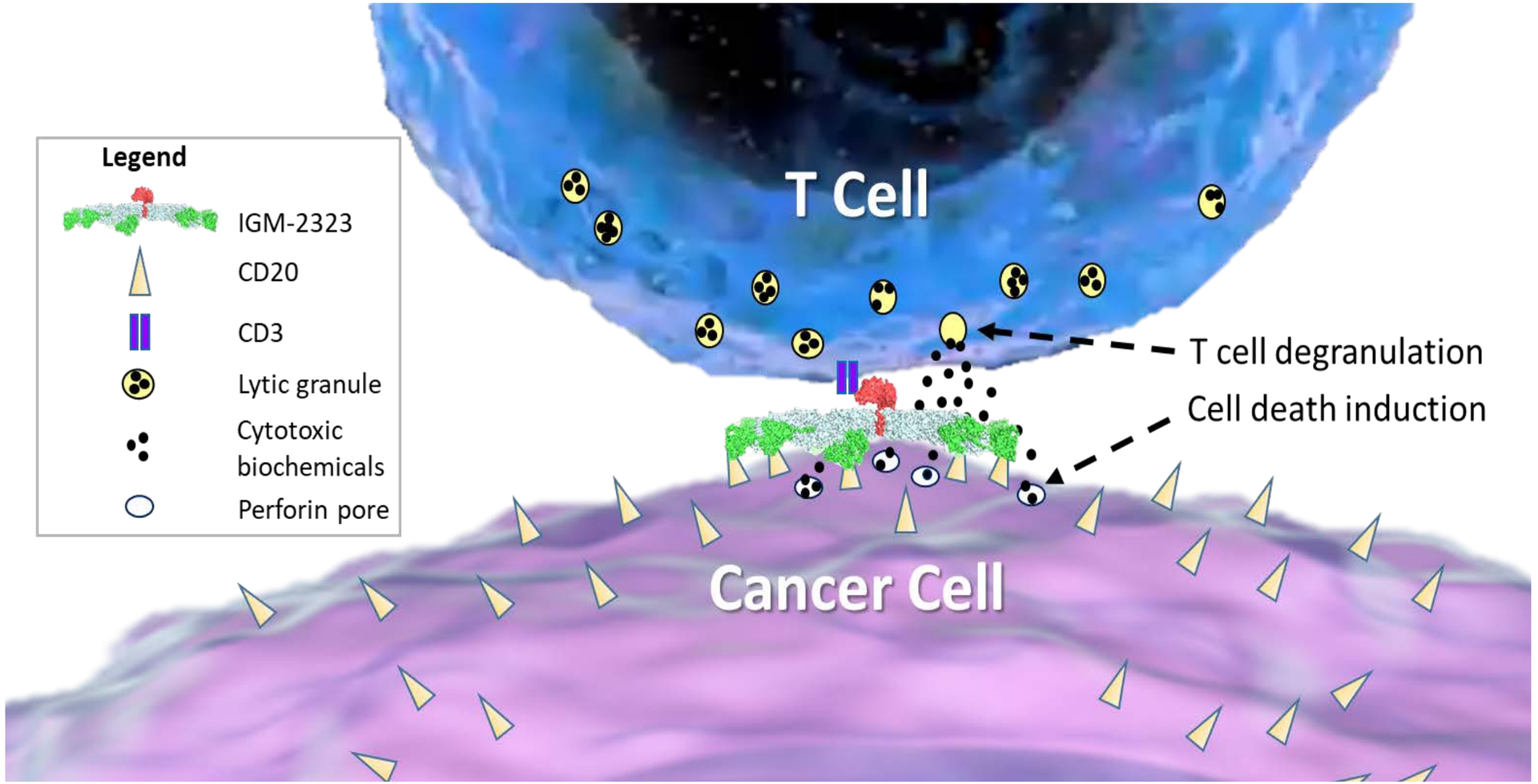


CD20 IgM plus
CD3 on J-chain



IGM-2323 Bispecific T Cell Engagement

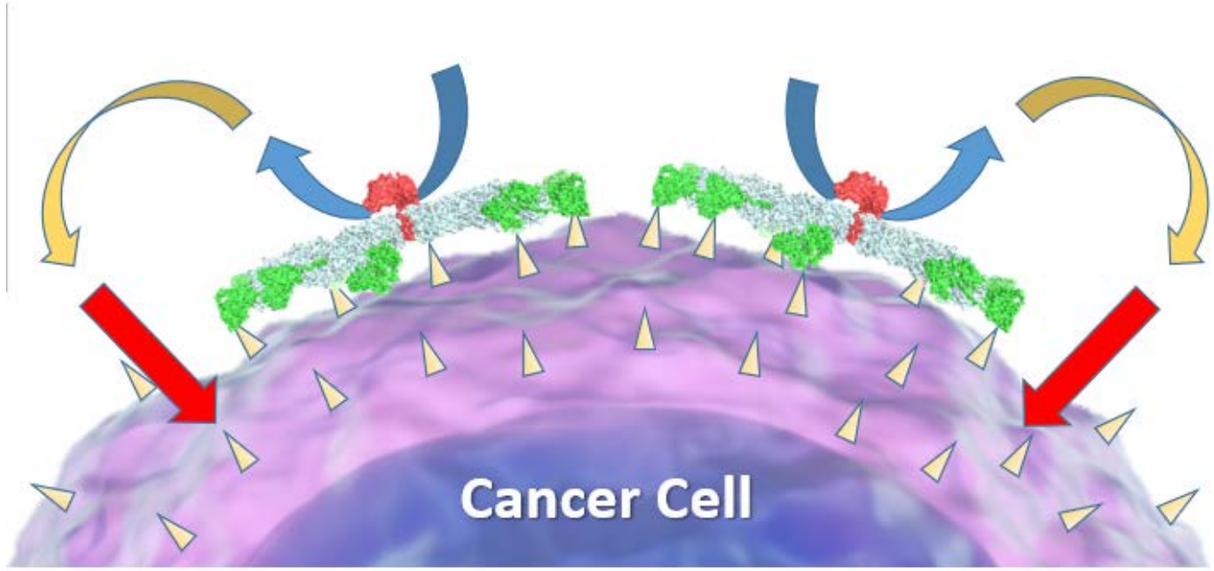
T cell directed cellular cytotoxicity (TDCC)



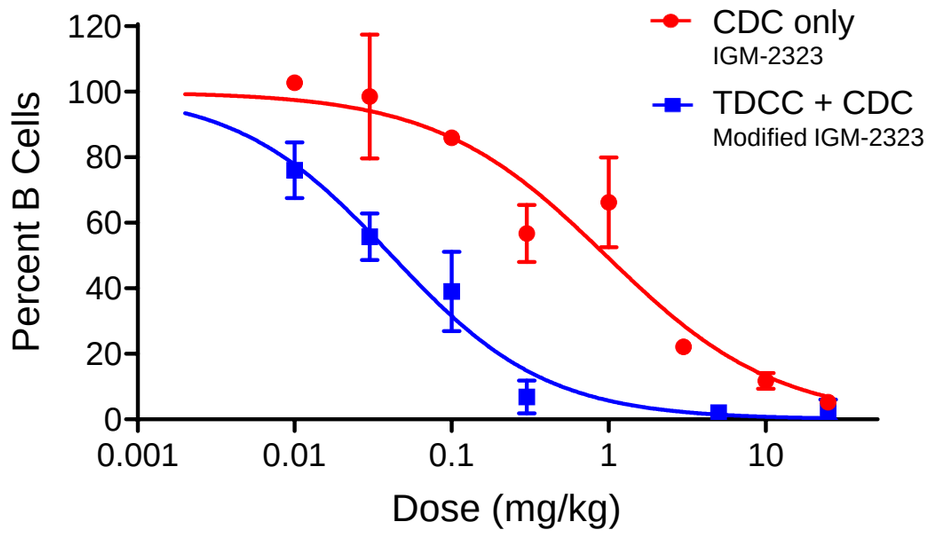
IGM-2323 Dual Mechanism of Action

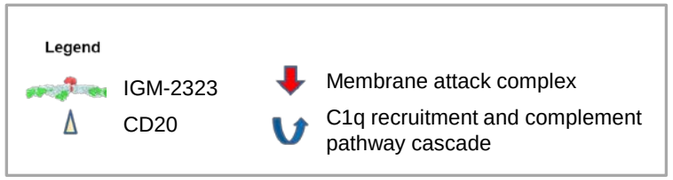
Complement dependent cytotoxicity (CDC)

Complement cascade



B cell depletion (CD19+) in non-human primate studies
CDC only versus TDCC + CDC





IGM-2323 Phase 1: Relapsed/Refractory B cell NHL

Dose escalation schedule

Phase 1

Single patient cohorts followed by standard 3+3 design

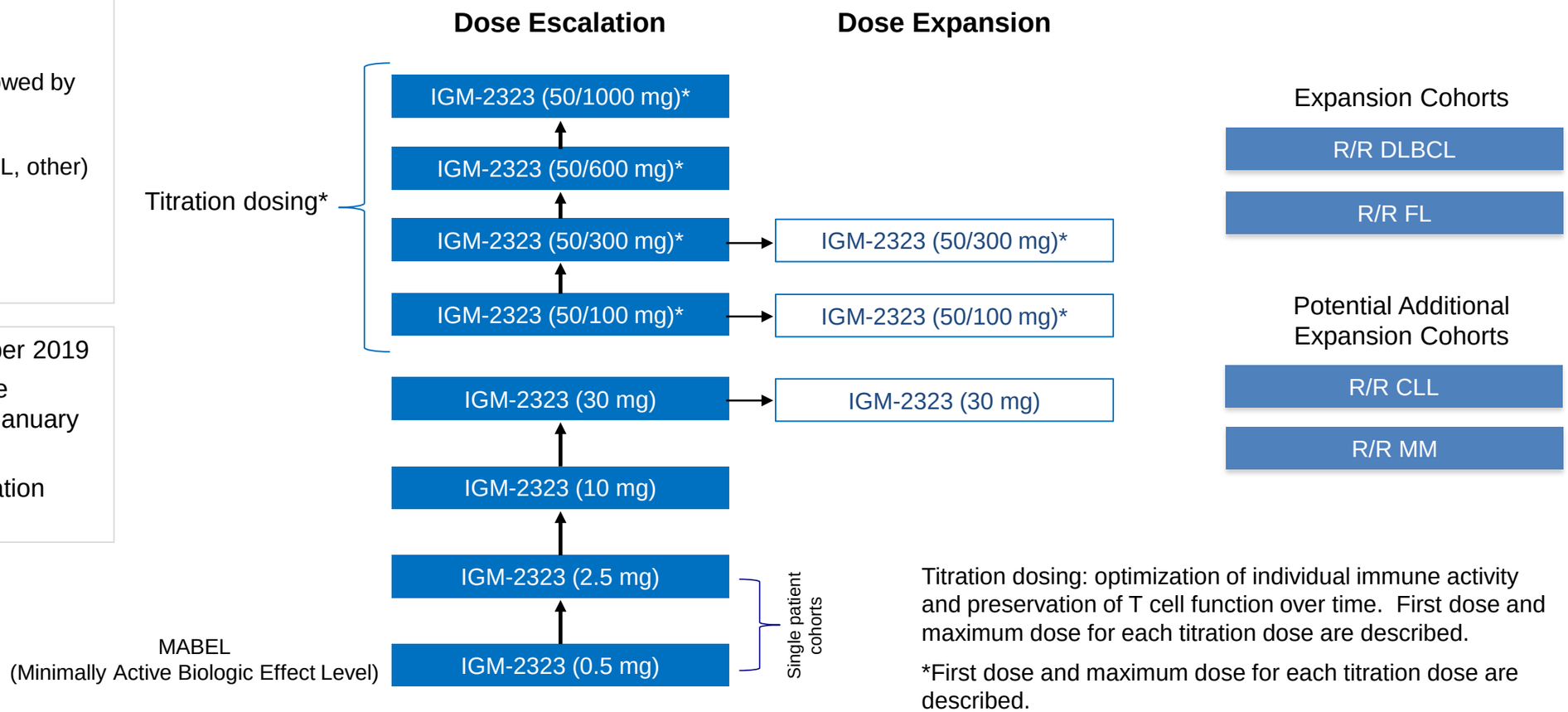
R/R B cell NHL (DLBCL, FL, other)
1 cycle: 21 days
Qwk x 3

DLT window C1 d1-21

First patient in: September 2019

Enrolling 50/600mg dose escalation cohort as of January 2021

Intra patient dose escalation allowed



Titration dosing: optimization of individual immune activity and preservation of T cell function over time. First dose and maximum dose for each titration dose are described.

*First dose and maximum dose for each titration dose are described.

Patients not shown here or on subsequent slides include one patient who received only two 50 mg doses and one patient with pre-existing severe hypertension on four anti-hypertensive medications treated at 100 mg Cycle 1 Day 1 dose.

IGM-2323: Preliminary Clinical Observations

Initial Dose Cohorts: 0.5 mg, 2.5 mg, 10 mg, 30 mg, 50/100 mg

14 Patients as Presented on December 5, 2020 (ASH)

Efficacy

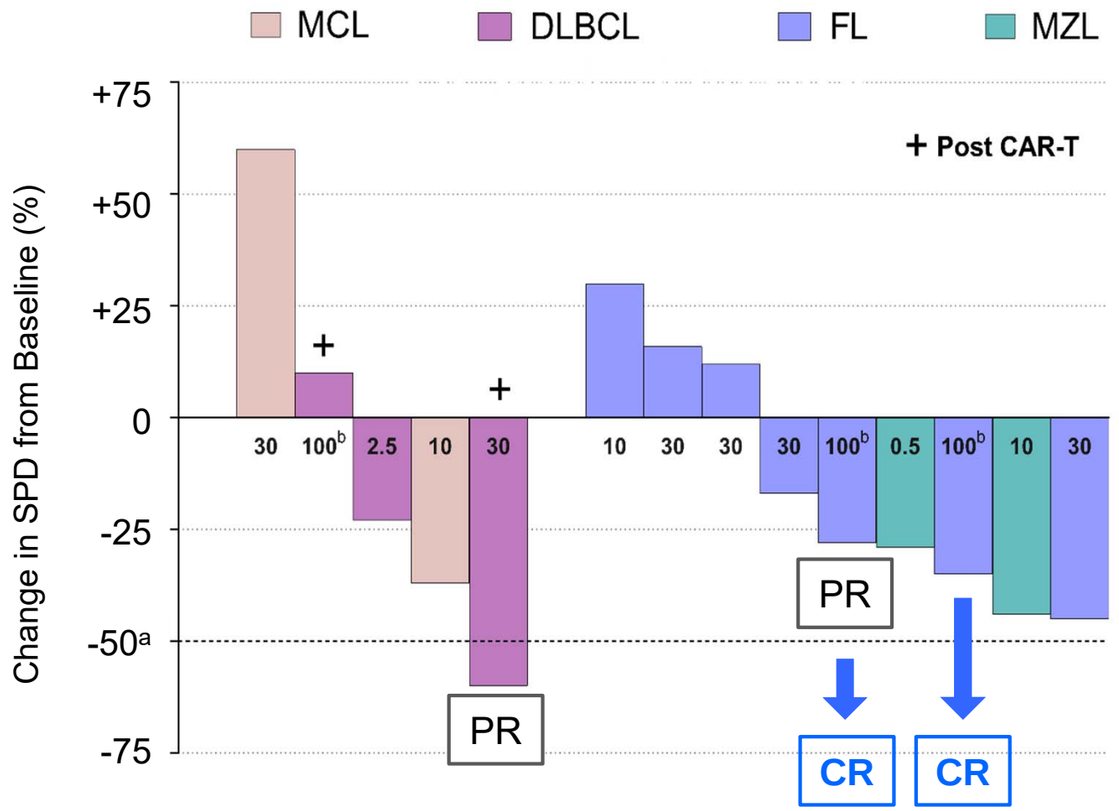
- 9 of 14 patients showed reduction in tumor size
  - Evidence of activity across all initial dose cohorts, starting at 0.5 mg
  - Intra-patient dose escalation allowed after higher dose cohort cleared
- 50/100 dose cohort:
  - 2 follicular lymphoma patients: two complete responses
- 30 mg dose cohort
  - One response in post-CAR-T DLBCL, post stem cell transplant

Safety

- No Dose Limiting Toxicities
  - 3 of 14 patients had CRS (21%)
    - All Grade 1, transient, chills/fever
- No CRS in 50/100 in dose cohort (3 patients)
- No neurotoxicity observed
- No anti-drug antibodies observed

Best Tumor Responses as of December 5, 2020

14 Patients: 0.5 mg, 2.5 mg, 30 mg and 50/100 mg dose cohorts



Intrapatient Dose Escalation Allowed

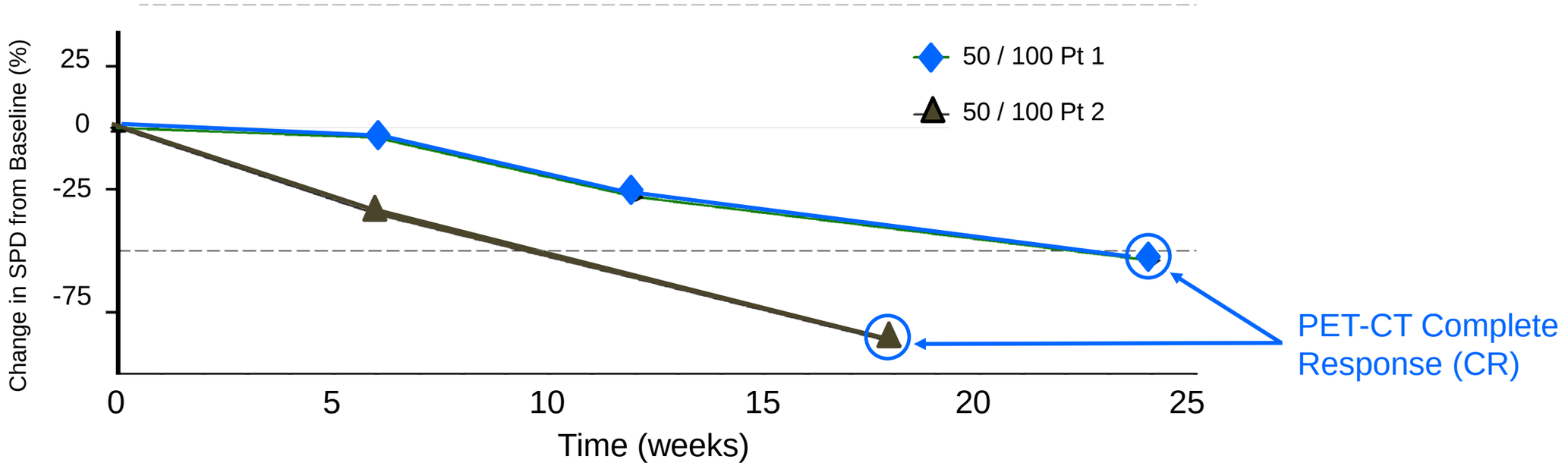
[a] PR cut-off, Lugano 2014 criteria, local reads
[b] 100 mg indicates 50/100 mg dose level.

MCL: mantel cell lymphoma; DLBCL: diffuse large B-cell lymphoma;
FL: follicular lymphoma; MZL: marginal zone lymphoma
SPD: sum of the products of diameters

Data cut off: December 5, 2020

Follicular Lymphoma in 50/100 Dose Cohort
2/2 Complete Responses

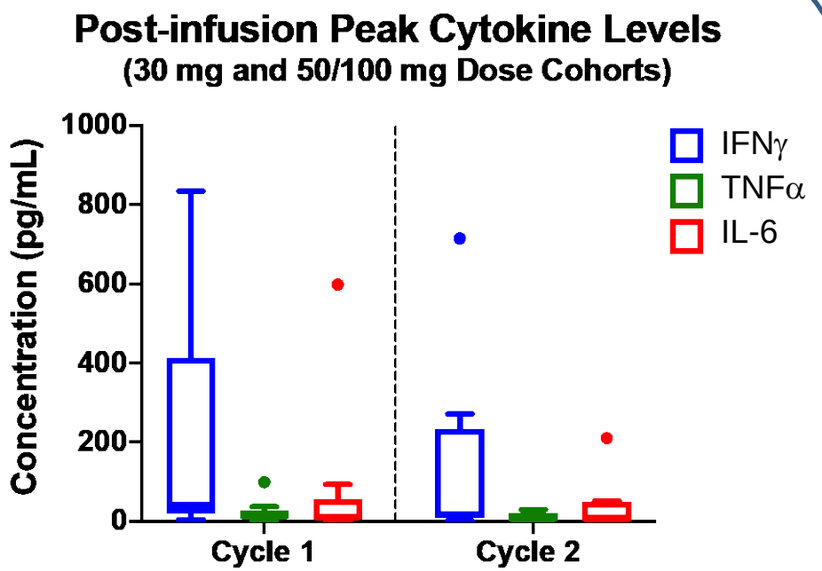
- FL Pt 1: PET-CT Complete Response at 24 week scan
  - 69 yo/Female; 4 prior treatments, including R-CHOP, and Stem Cell Transplant
  - No CRS; No neurotoxicity
- FL Pt 2: PET-CT Complete Response at 18 week scan
  - 63 yo/Male; 2 prior treatments, including R-CHOP/methotrexate and R-avelumab/utolimumab
  - No CRS; No neurotoxicity



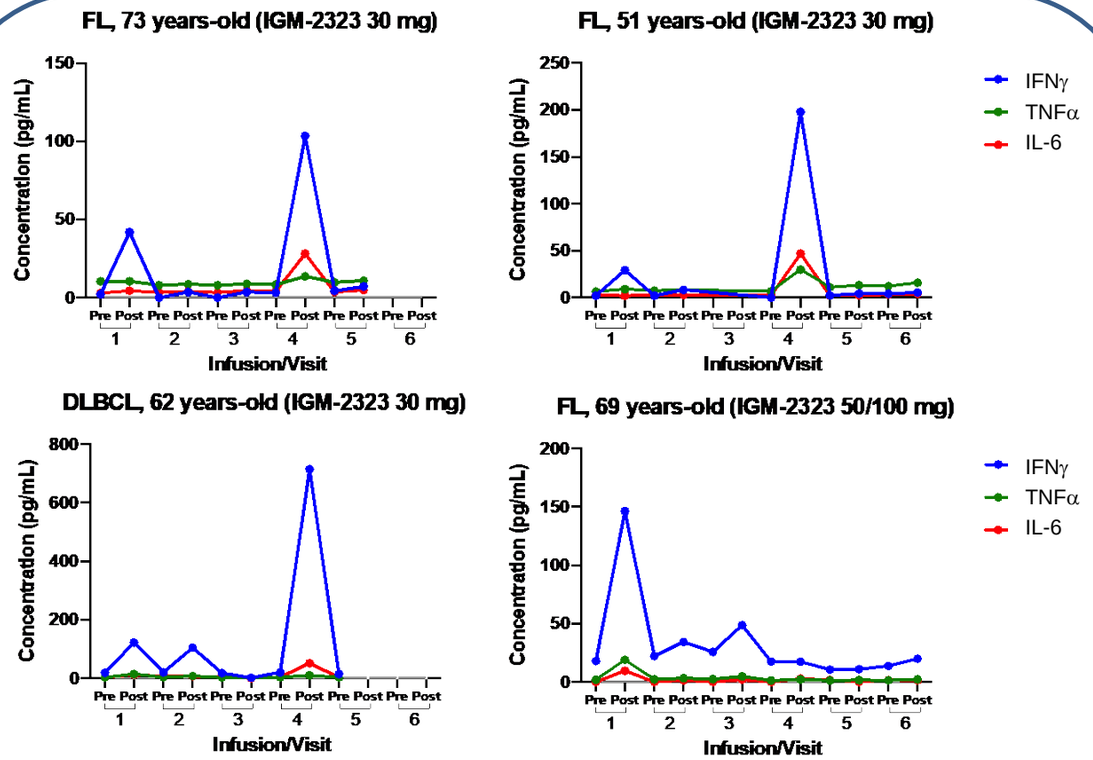
PET-CT: positron emission tomography-computed tomography; R-CHOP: chemotherapy drug combination of rituximab, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate & prednisone; SPD: sum of the products of diameters

Data cut off: December 5, 2020

IGM-2323 Leads to IFNγ Secretion with minimal IL-6



Results are from n=9 patients in the the 30 mg and 50/100 mg dose cohorts. The highest concentrations obtained during the during the sampling period (2, 6, 12, 24, and 72 hours for Infusions 1 and 4) are shown.



Maximum levels of cytokines observed 6-12 hours post-infusion.
Peak values at Infusions 2,3,5,6 likely missed due to sparse sampling.

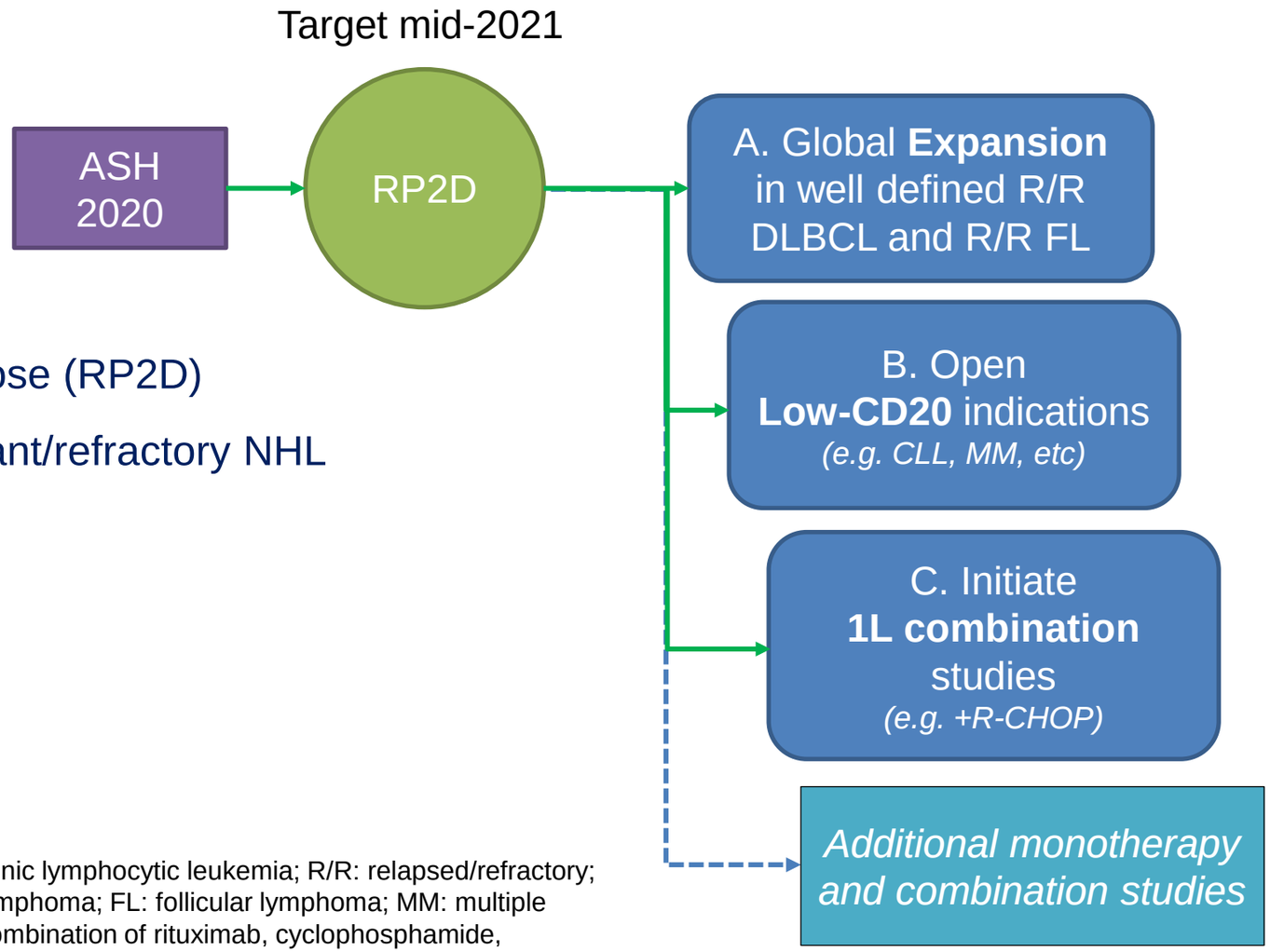
- IFNγ-dominant cytokine secretion with little measurable circulating IL-6 or TNFα in most patients differs from other T cell engagers
- Data suggest preservation/strengthening of T cell activation in patients treated w/ IGM-2323 vs. step-dosing effect seen with other T cell engagers, which may be associated with global reduction in T cell function

IFNγ: interferon-gamma; IL-6: interleukin-6; TNFα: tumor necrosis factor alpha; DLBCL: diffuse large B-cell lymphoma; FL: follicular lymphoma

Data cut off: October 30, 2020

2021 Clinical Goals for IGM-2323

- Establish Recommended Phase 2 Dose (RP2D)
- Commence expansion trials in resistant/refractory NHL
- Begin dosing CLL patients
- Commence clinical trial in 1L NHL
  - Combination with R-CHOP

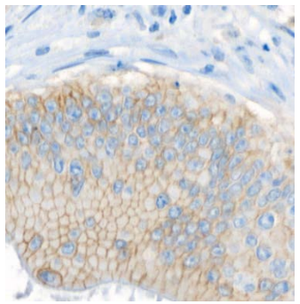


NHL: non-Hodgkin's lymphoma; CLL: chronic lymphocytic leukemia; R/R: relapsed/refractory; 1L: first line; DLBCL: diffuse large B-cell lymphoma; FL: follicular lymphoma; MM: multiple myeloma; R-CHOP: chemotherapy drug combination of rituximab, cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate & prednisone

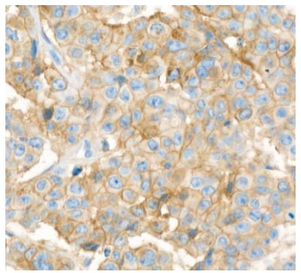
TNFr Superfamily: Trimerizing Agonists

Examples of TNFr agonism: inducing Death Receptor 5 based cell killing

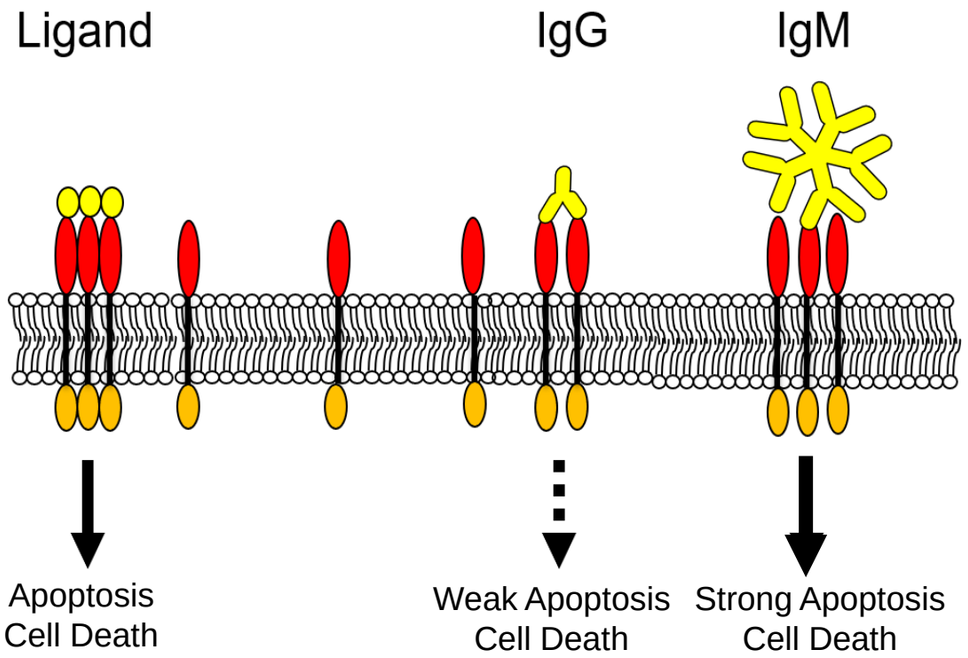
DR5 Expression



Colon Adenocarcinoma



Gastric Adenocarcinoma

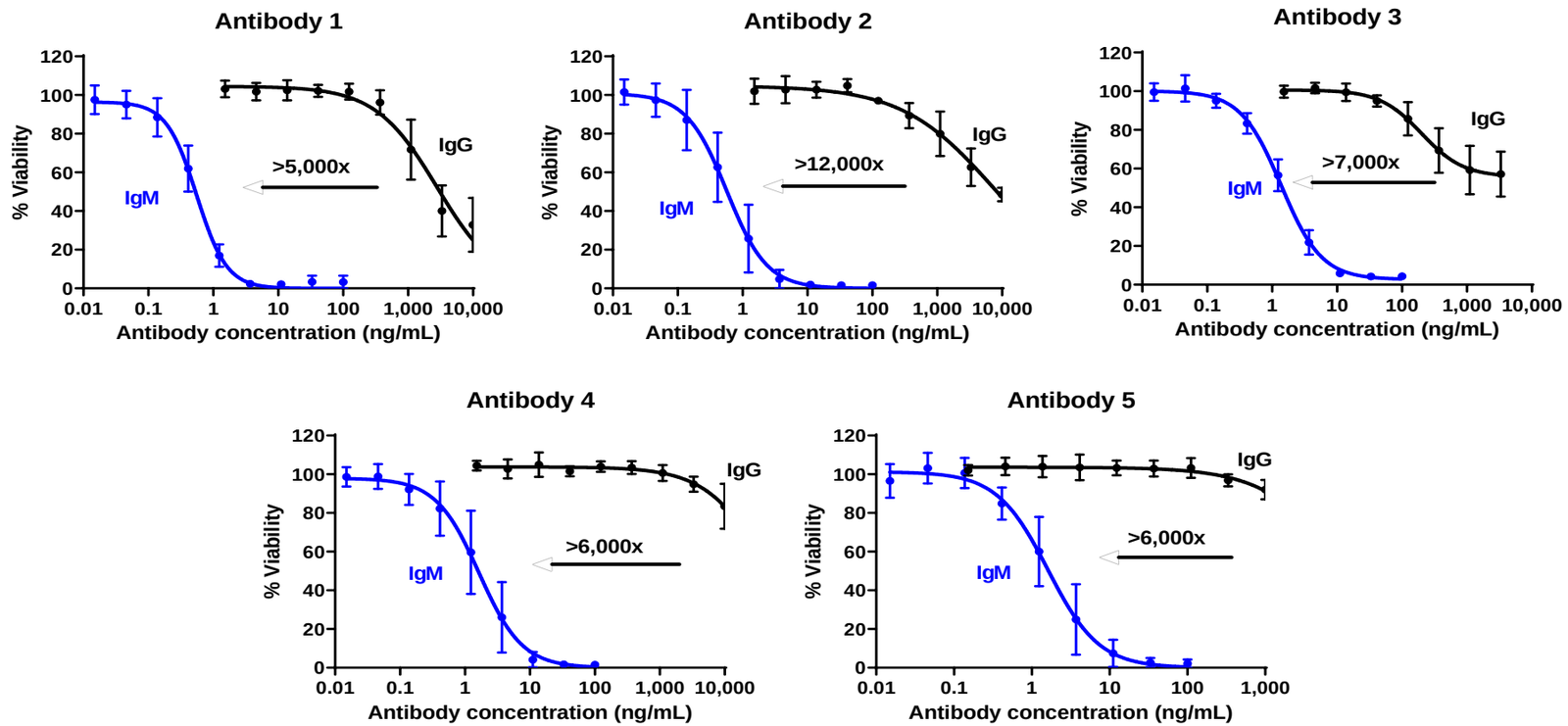


Also: pancreatic, lung, breast and prostate tumors, leukemia and lymphoma

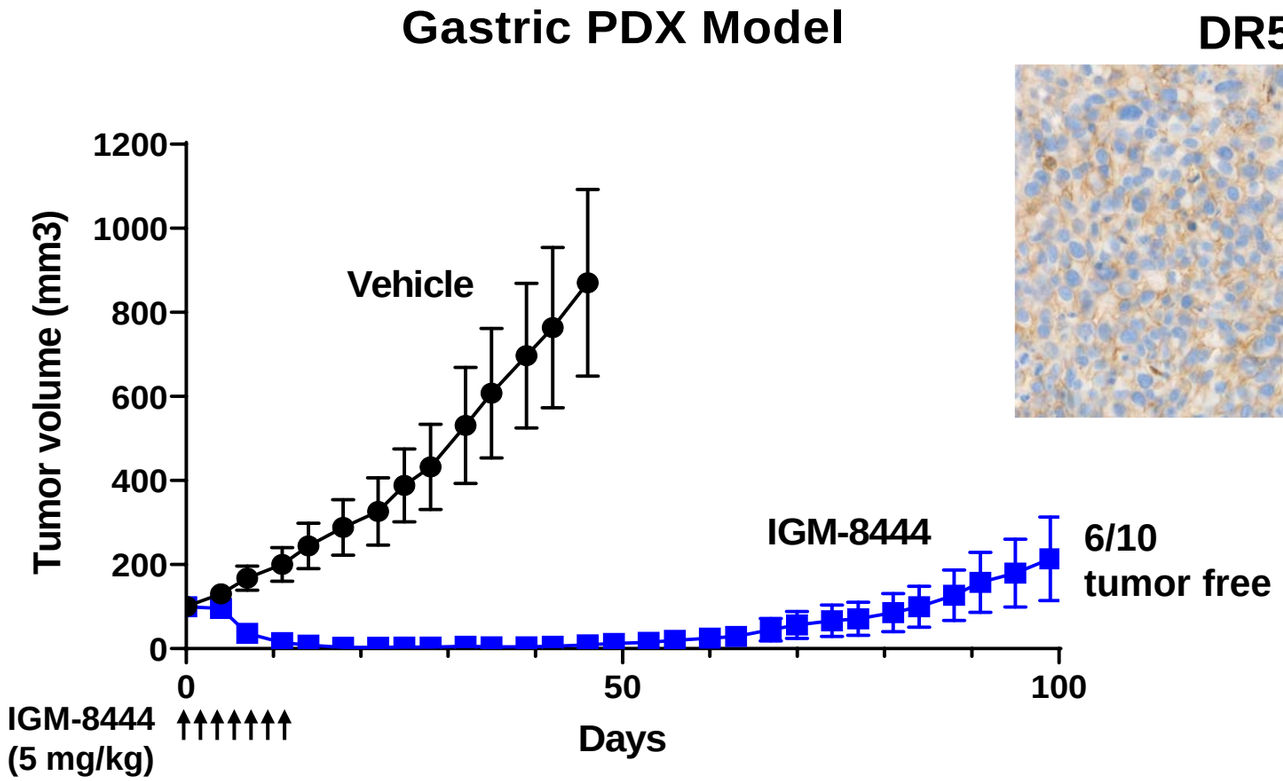
TNFr: tumor necrosis factor receptor

DR5: IgM Superior *In Vitro* to IgG

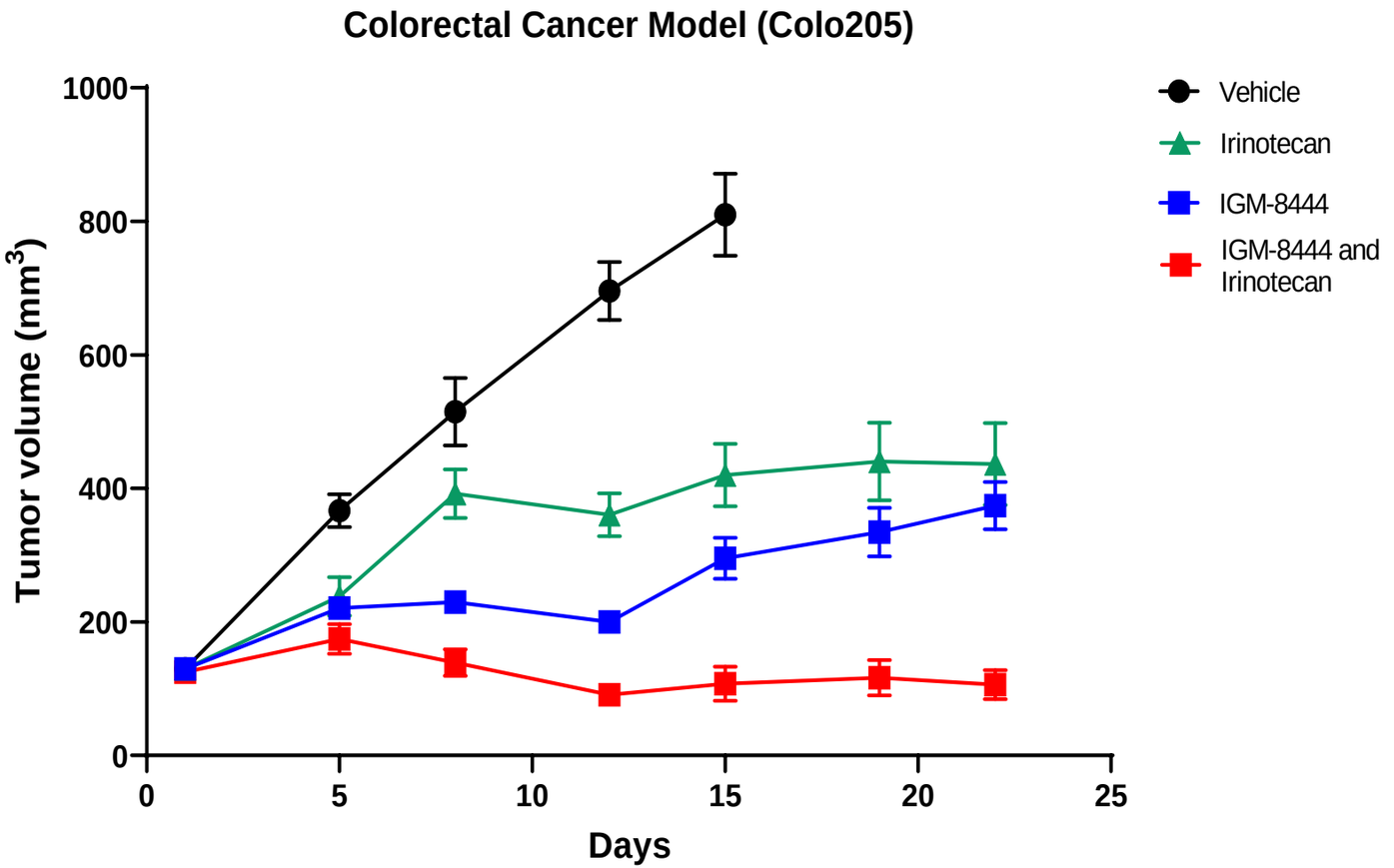
Cell line killing comparison *in vitro* of IgG and IgM DR5 antibodies with five different binding domains



DR5: IGM-8444 *In Vivo* Mouse Xenograft Study

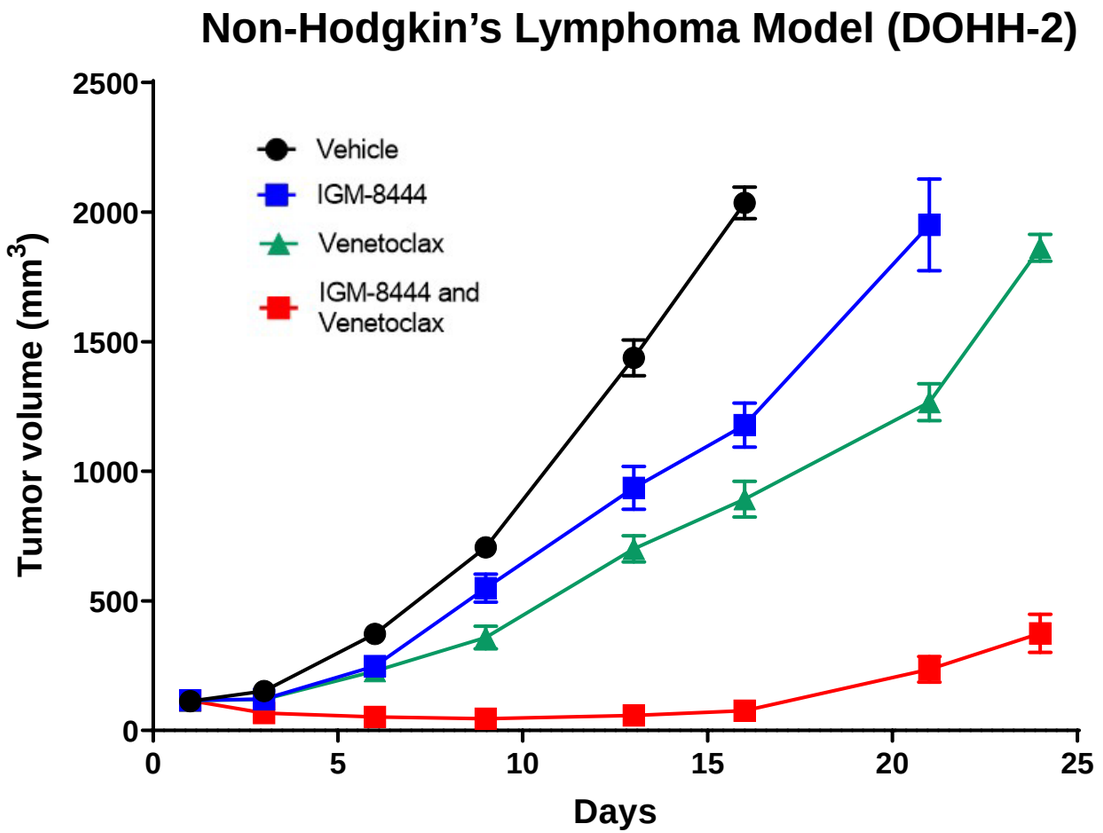


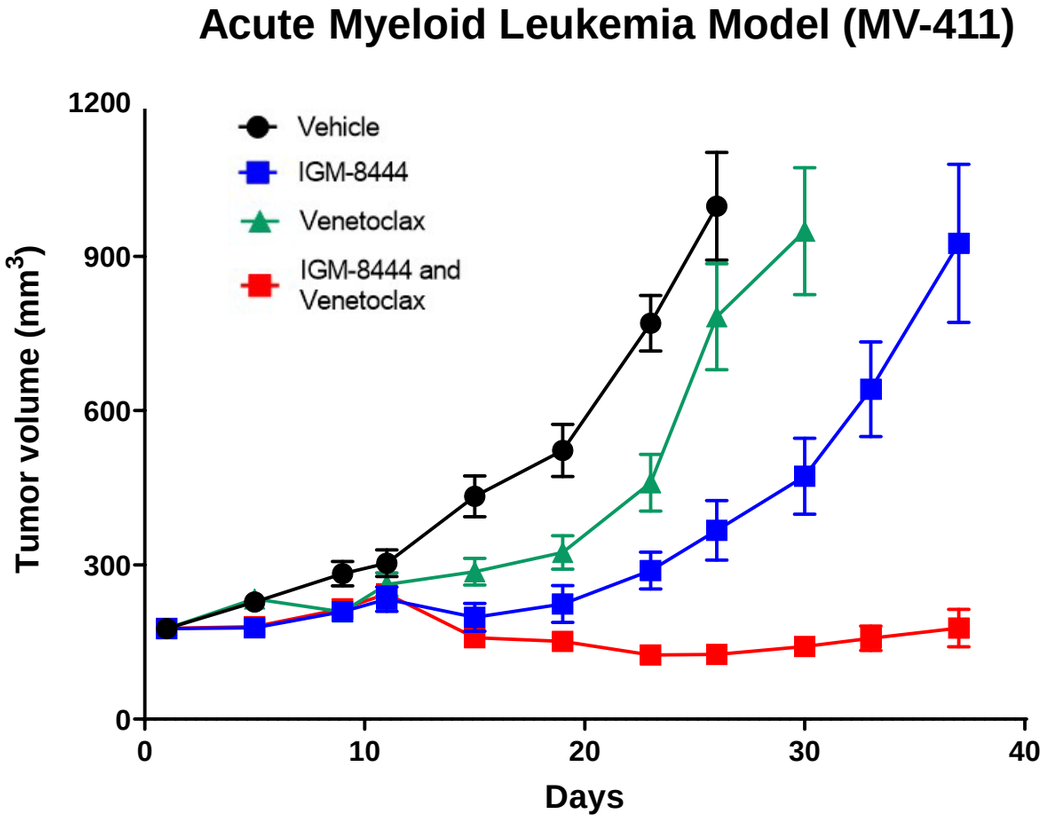
DR5: IGM-8444 *In Vivo* Combination with Irinotecan



IGM-8444 (5 mg/kg Q2D x 7); Irinotecan (100 mg/kg QW x 3)

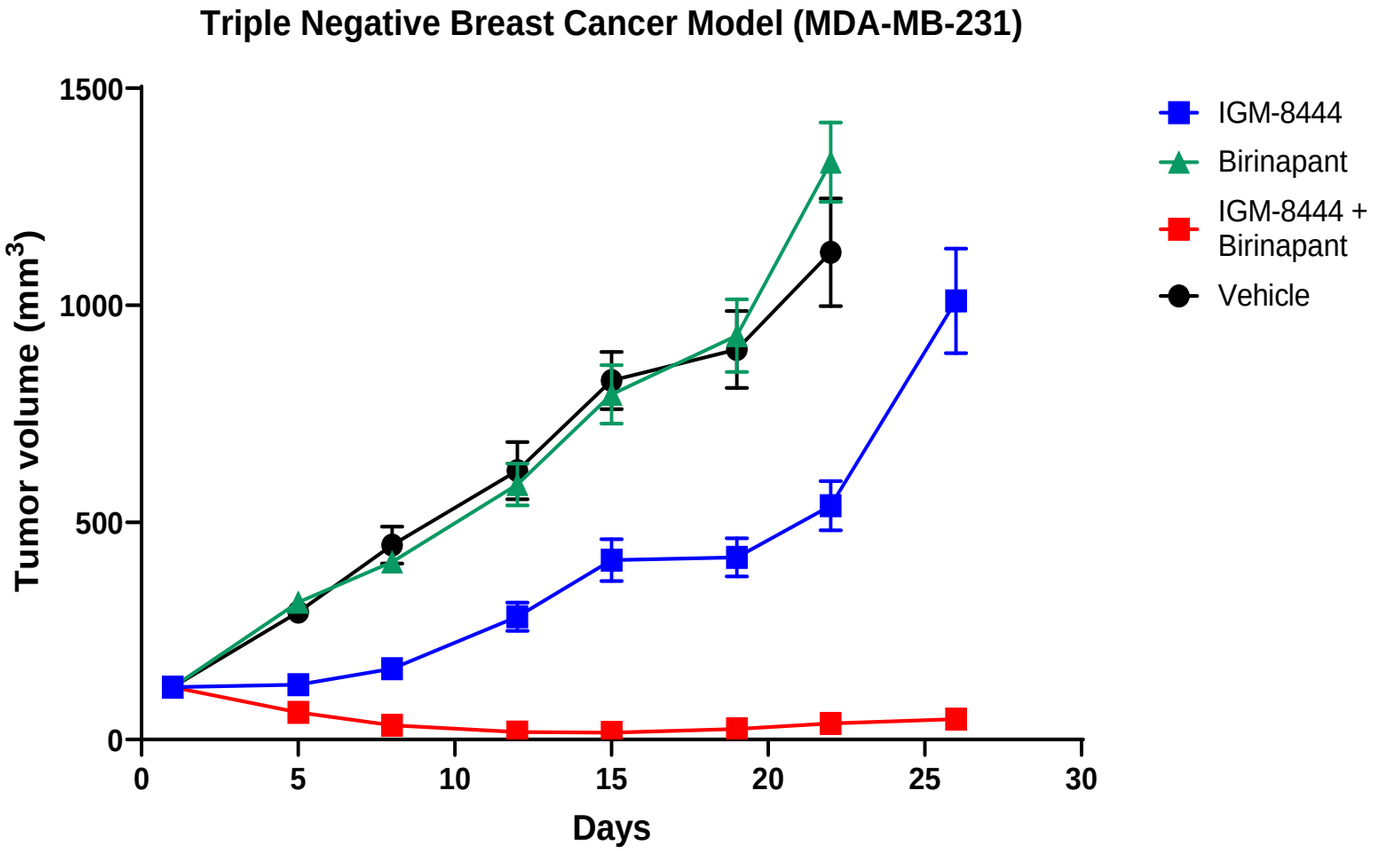
DR5: IGM-8444 *In Vivo* Combination with Venetoclax





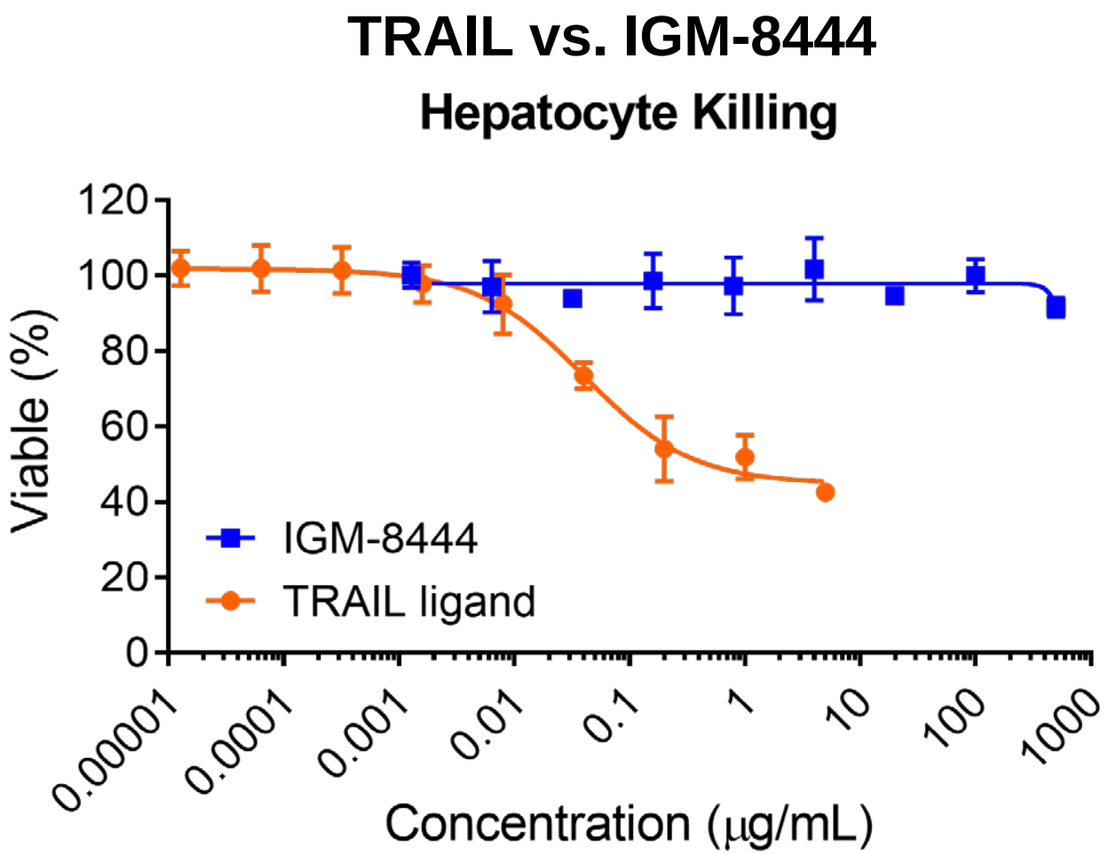
IGM-8444 (5 mg/kg Q2D x 11); Venetoclax (100 mg/kg QD x 21)

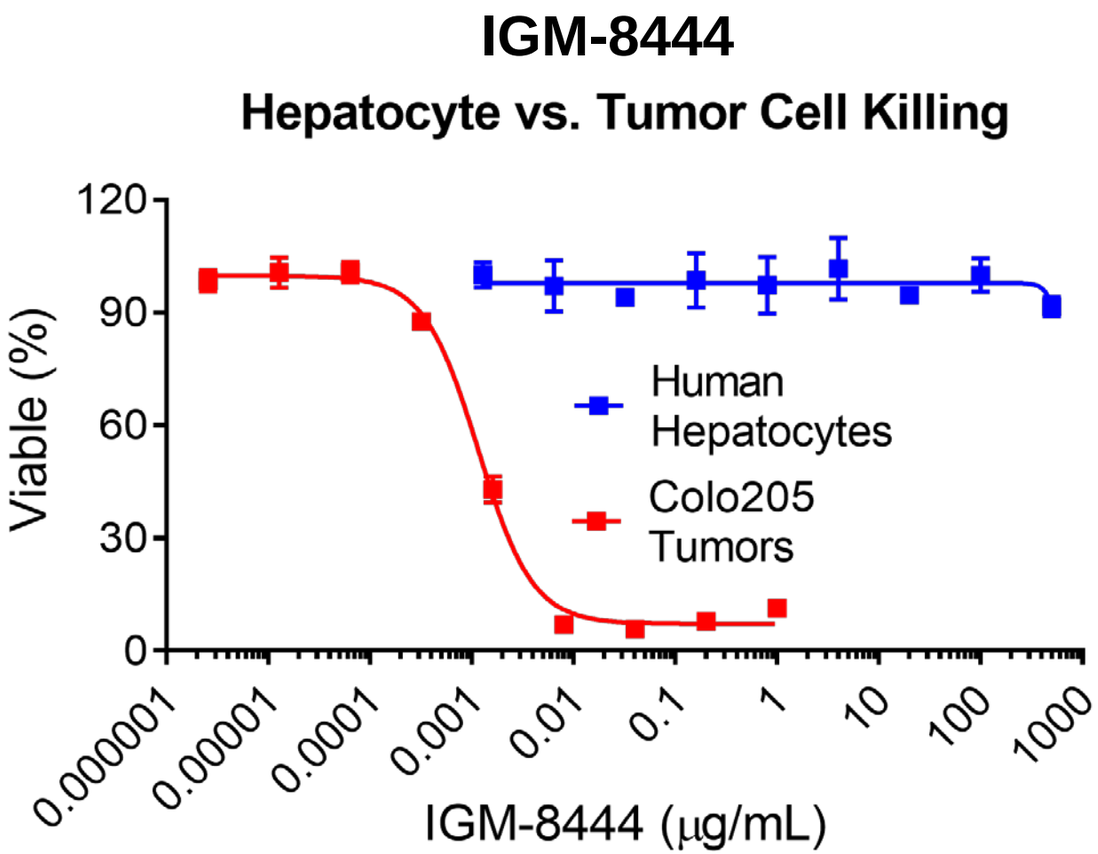
DR5: IGM-8444 *In Vivo* Combination with Birinapant



IGM-8444 (5 mg/kg Q2D x 11); Birinapant (2.5 mg/kg Q3D x 7)

IGM-8444 Designed to Optimize Cancer Cell Killing With Minimal Hepatocyte Toxicity





Affinity, avidity, clustering, DR5 epitope, multimerizing kinetics and exposure all contribute to optimization

IGM-8444 Phase 1: All-comers Solid Tumors and Heme

Dose escalation schedule

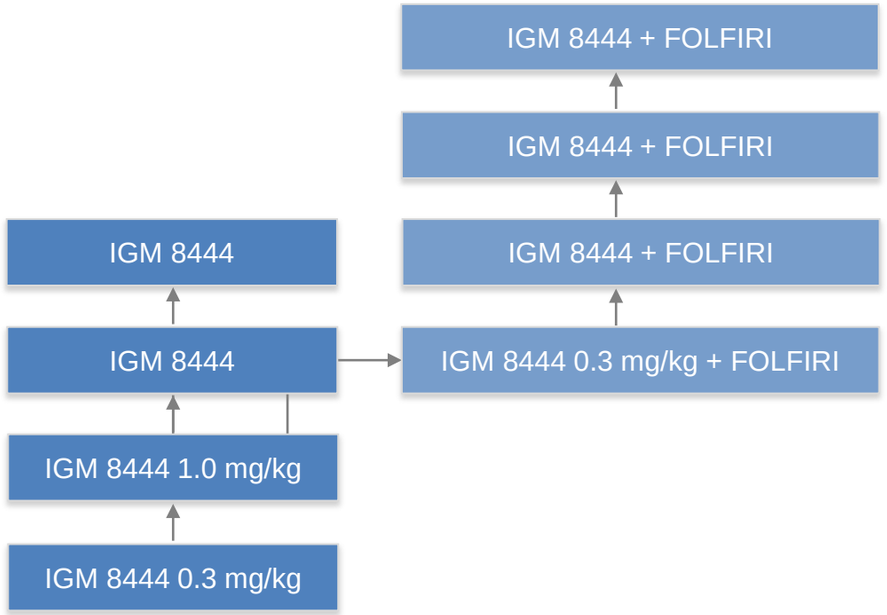
Phase 1

Standard 3+3 design

All-comers solid tumor escalation as monotherapy and in combination with chemotherapy

Dosing q2week (with flexibility to test additional schedules)

DLT window d1-28 (Cycle 1)



Single Agent Expansion Cohorts

Solid Tumor

including Colorectal, Lung, Gastric Cancer, Other

Hematologic Malignancies

including NHL

Combination Expansion Cohorts

1L/2L CRC

IGM-8444 + FOLFIRI

1L/2L CRC

IGM-8444 + FOLFIRI + Avastin

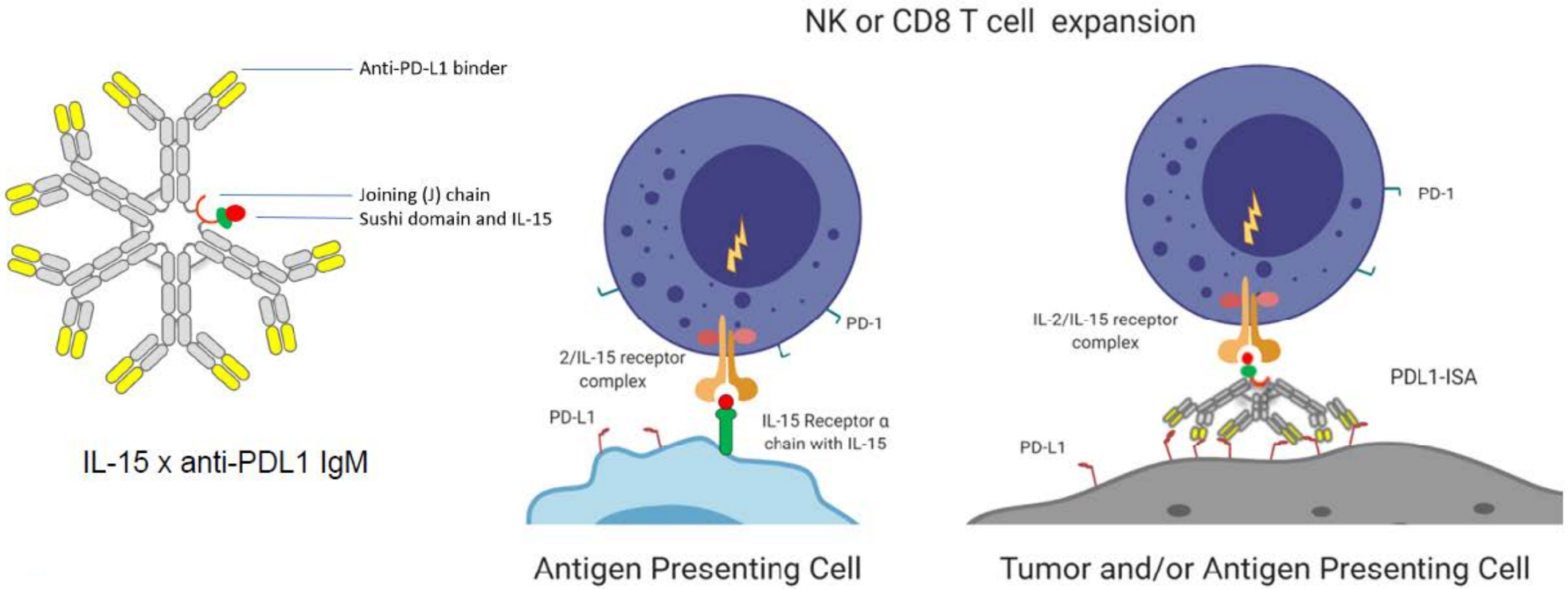
Potential Additional Expansion Cohorts

IGM-8444 + Birinapant

IGM-8444 + Targeted therapies

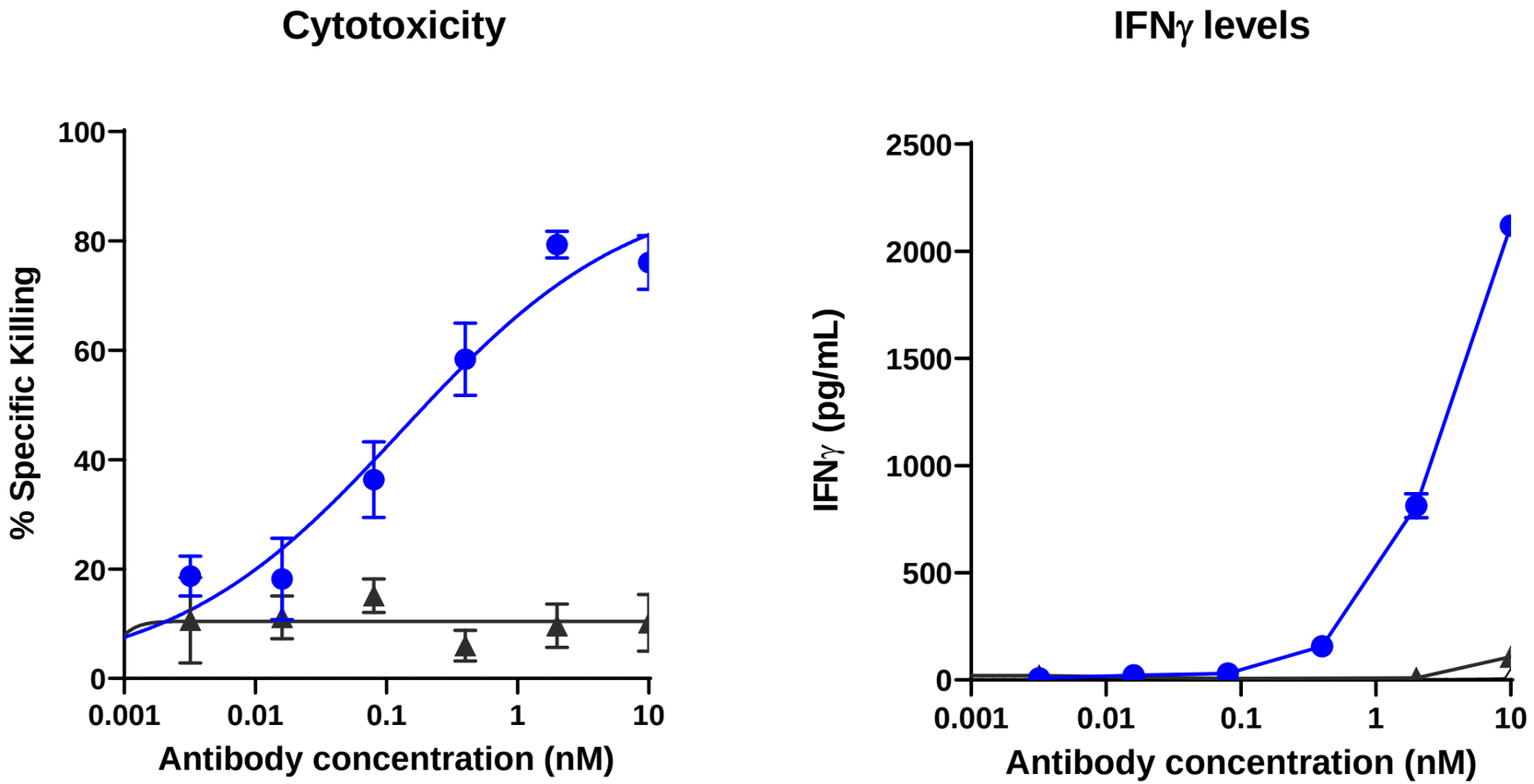
Targeting IL-15 Delivery to PD-L1 Expressing Tumors with an IgM

Targets and blocks PD-L1 on tumor cells and APCs, inhibits PD-1 signaling (avoids immune suppression) and delivers active IL-15 to tumor infiltrating lymphocytes



APC: antigen presenting cell

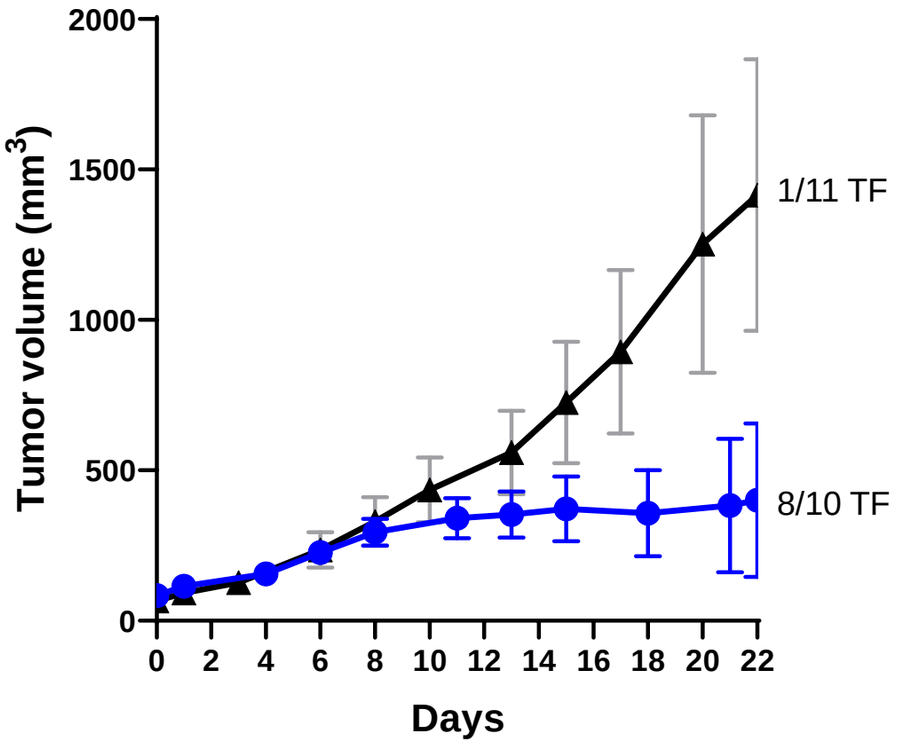
IL-15 x PD-L1: *In Vitro* CD8 T cell Induced Tumor Cytotoxicity



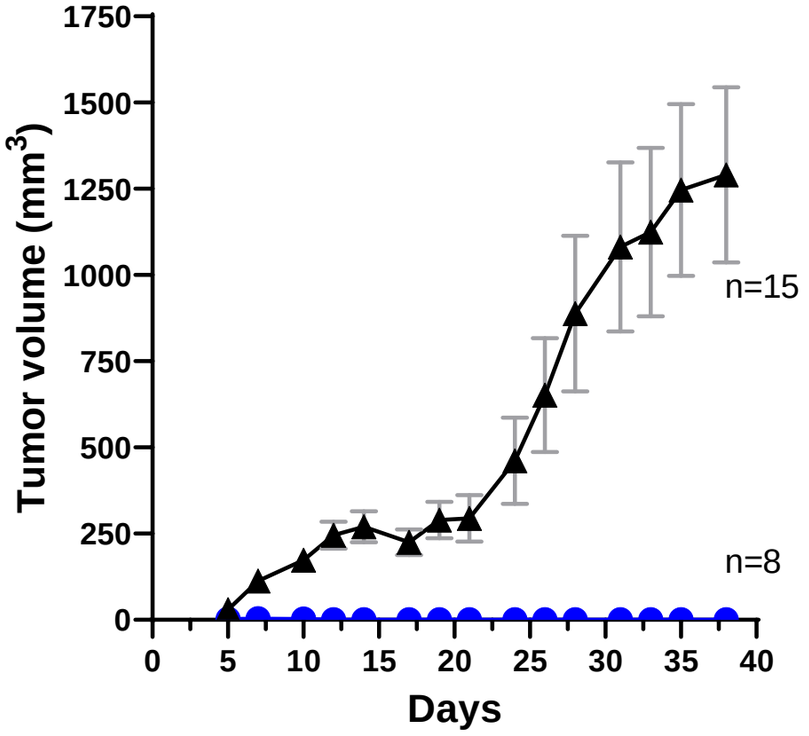
IL-15 x PD-L1 IgM; PD-L1 IgM

IL-15 x PD-L1: *In Vivo* Efficacy and Immune Memory

Initial treatment of CT26 tumor

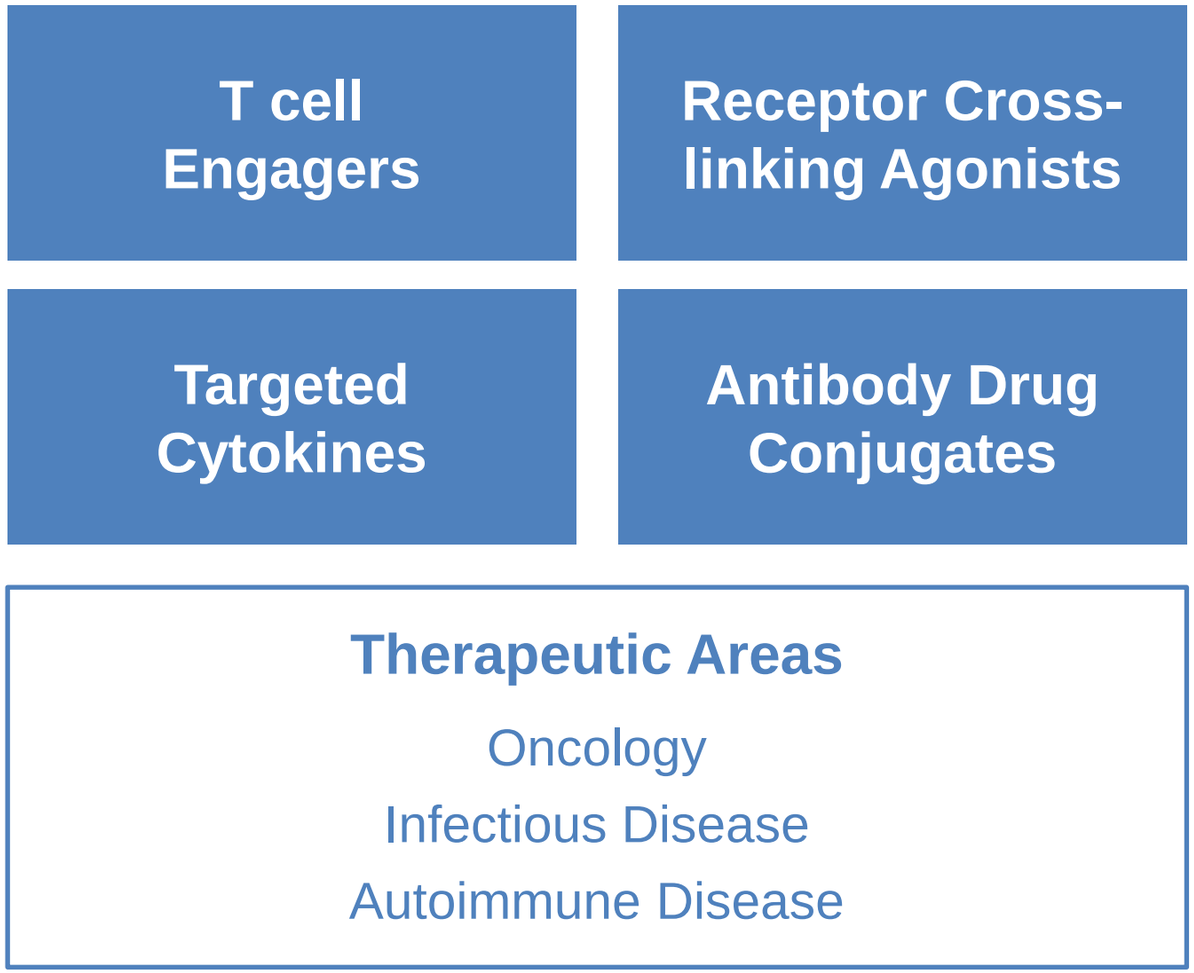


CT26 tumor rechallenge



Vehicle; IL-15 x PD-L1 IgM dosed Q2Dx3 at 5 mg/kg

Potential Applications of IgM Antibody Technology Platform



Multiple Catalysts Anticipated Through Year-End 2021

	Anticipated
IGM-2323	❑ Completion of enrollment in Phase 1 dose escalation study ❑ Establishment of recommended Phase 2 dose
IGM-8444	❑ Release of initial clinical data from Phase 1 study
IGM-7354	❑ Filing of IND
Manufacturing Capabilities	❑ Operations at newly-constructed GMP manufacturing facility