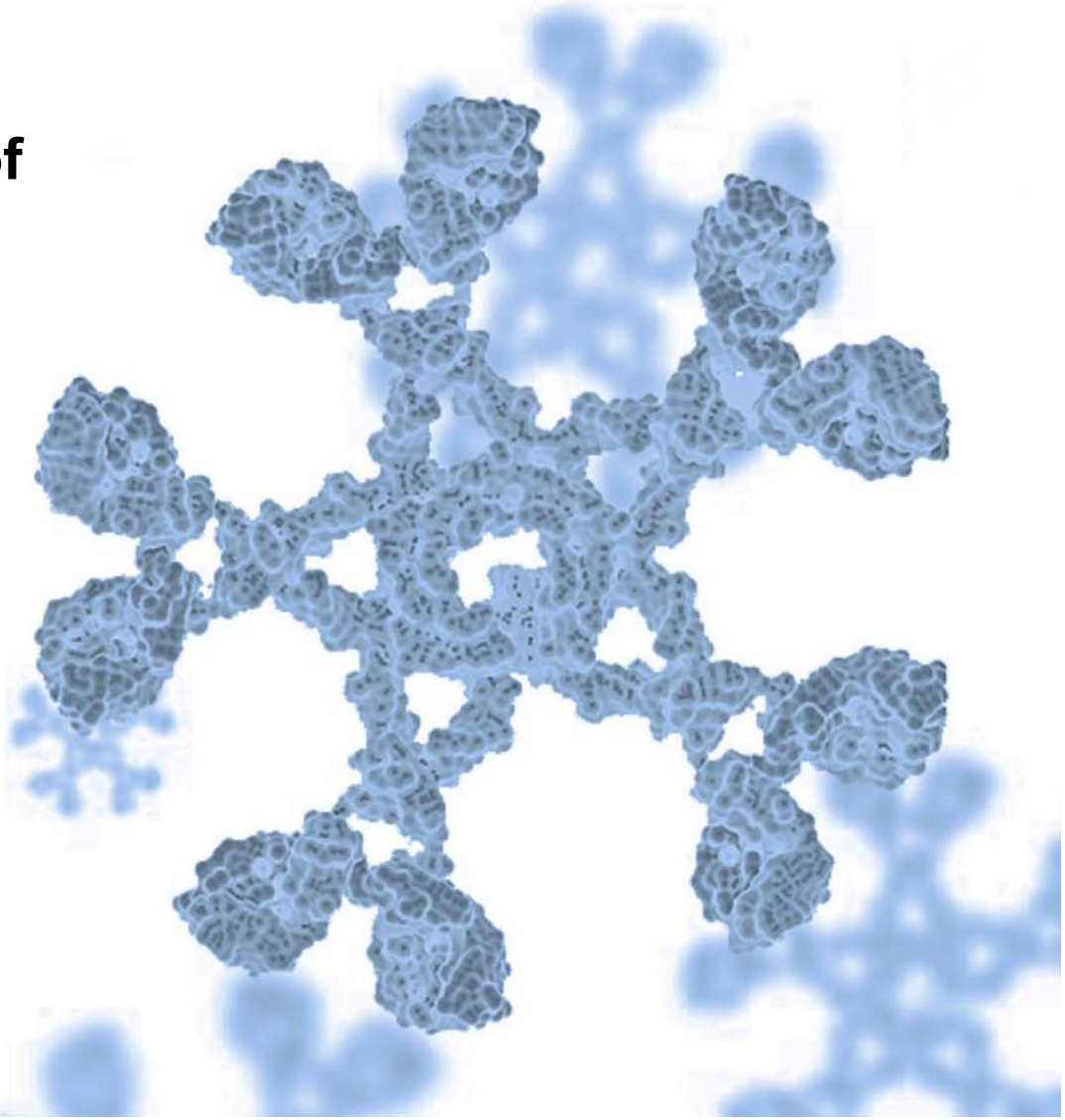
Pioneering the Development of Engineered IgM Antibodies

March 2020



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 its future financial condition, results of operations, business strategy and plans, and objectives of management for future operations. 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,” “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: market conditions, the timing of the initiation, progress and potential results of our preclinical studies, clinical trials and our discovery programs; our ability to utilize our IgM antibody platform to generate and advance additional product candidates; our ability to advance product candidates into, and successfully complete, clinical trials; 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 commercializing of 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; future strategic arrangements and/or collaborations and the potential benefits of such arrangements; 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 cash equivalents 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, 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 IgM 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; and other risks described in the “Risk Factors” section included in our 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.

We have filed and will file Current Reports on Form 8-K, Quarterly Reports on Form 10-Q and Annual Reports on Form 10-K, and other documents with the SEC. You should read these documents for more complete information about us. You may obtain these documents for free by visiting EDGAR on the SEC website at www.sec.gov.

This presentation concerns products that are under clinical investigation and which have not yet been approved for marketing by the U.S. Food and Drug Administration. It is currently limited by federal law to investigational use, and no representation is made as to its safety or efficacy for the purposes for which it is being investigated.

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 Hem. Malignancies	IND filing: 2020 (anticipated)
IL-15 x PD-L1	Solid and Hem. Malignancies	IND filing: 2021 (anticipated)

Proprietary IgM antibody technology: 22 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

$251.3M Cash and Investments Balance, September 30, 2019

IGM's Wholly-Owned Oncology Pipeline

Lead Programs

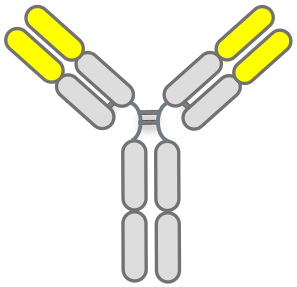
Mode	Target	Indications	Phase of Development					Worldwide Commercial Rights	Anticipated Milestones
			Discovery	Preclinical	Phase 1	Phase 2	Phase 3		
T cell Engager	IGM-2323 (CD20 x CD3)	NHL, CLL						igm biosciences	Initial Phase 1 data for R/R B cell NHL: 2020
Receptor Cross-linking Agonist	IGM-8444 (DR5)	Solid and Hematologic Malignancies						igm biosciences	IND filing: 2020 (anticipated)
Targeted Cytokines	IL-15 x PD-L1	Solid and Hematologic Malignancies						igm biosciences	IND filing: 2021 (anticipated)

Research and Discovery Programs

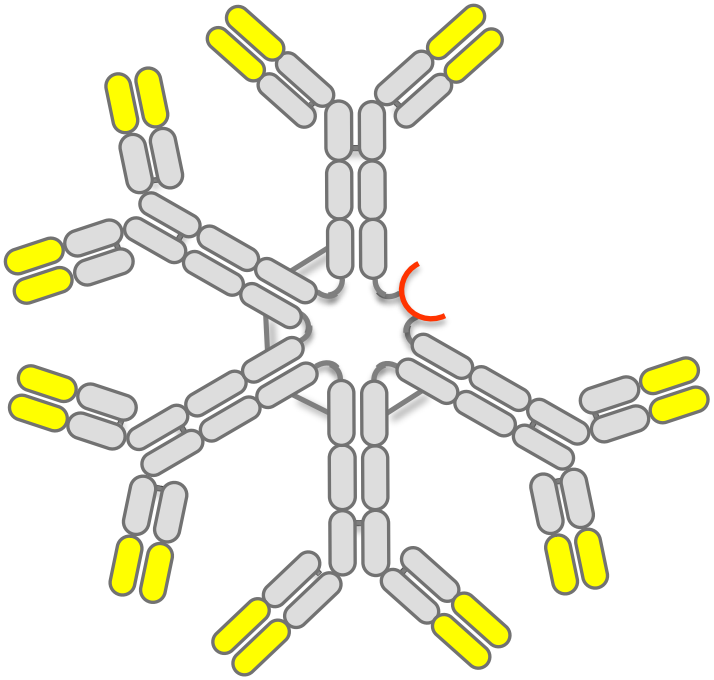
Mode	Target	Indications	Worldwide Commercial Rights
T cell Engagers	CD123 x CD3	Acute Myeloid Leukemia	igm biosciences
	CD38 x CD3	Multiple Myeloma	
	Multiple Targets x CD3	Multiple Solid Tumors	
Receptor Cross-linking Agonists	OX40	Solid and Hematologic Malignancies	igm biosciences
	GITR		
Targeted Cytokines	IL-15 x Multiple Targets	Solid and Hematologic Malignancies	igm biosciences

Why IgM?

Structural comparison of IgG and IgM antibodies



IgG

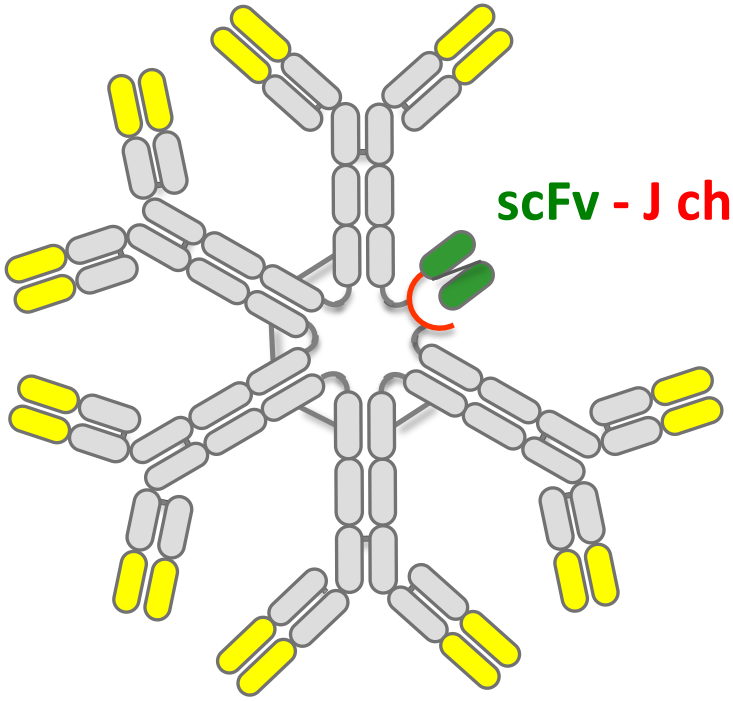


IgM

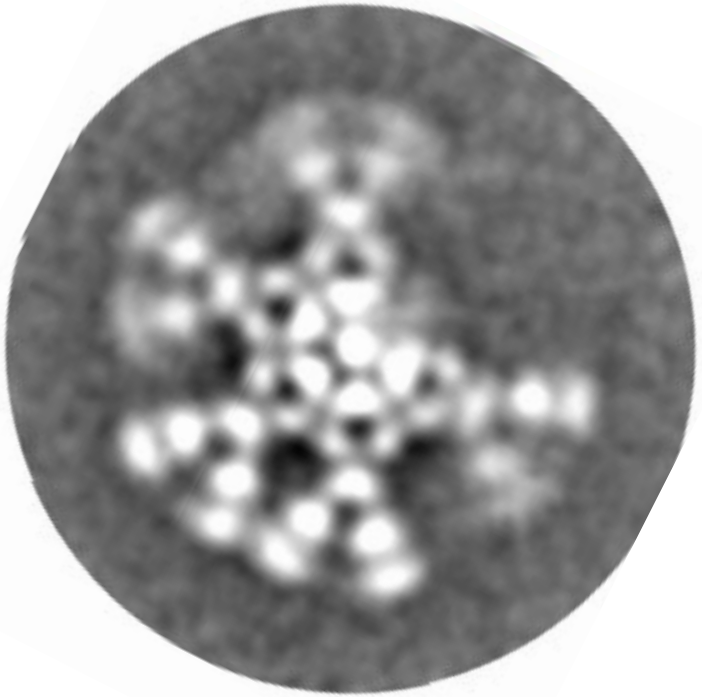
LEGEND	Target binding domains	Constant domains	Joining chain (J chain)

IgM Asymmetric Bispecific Technology

High avidity, potent T cell dependent cytotoxicity

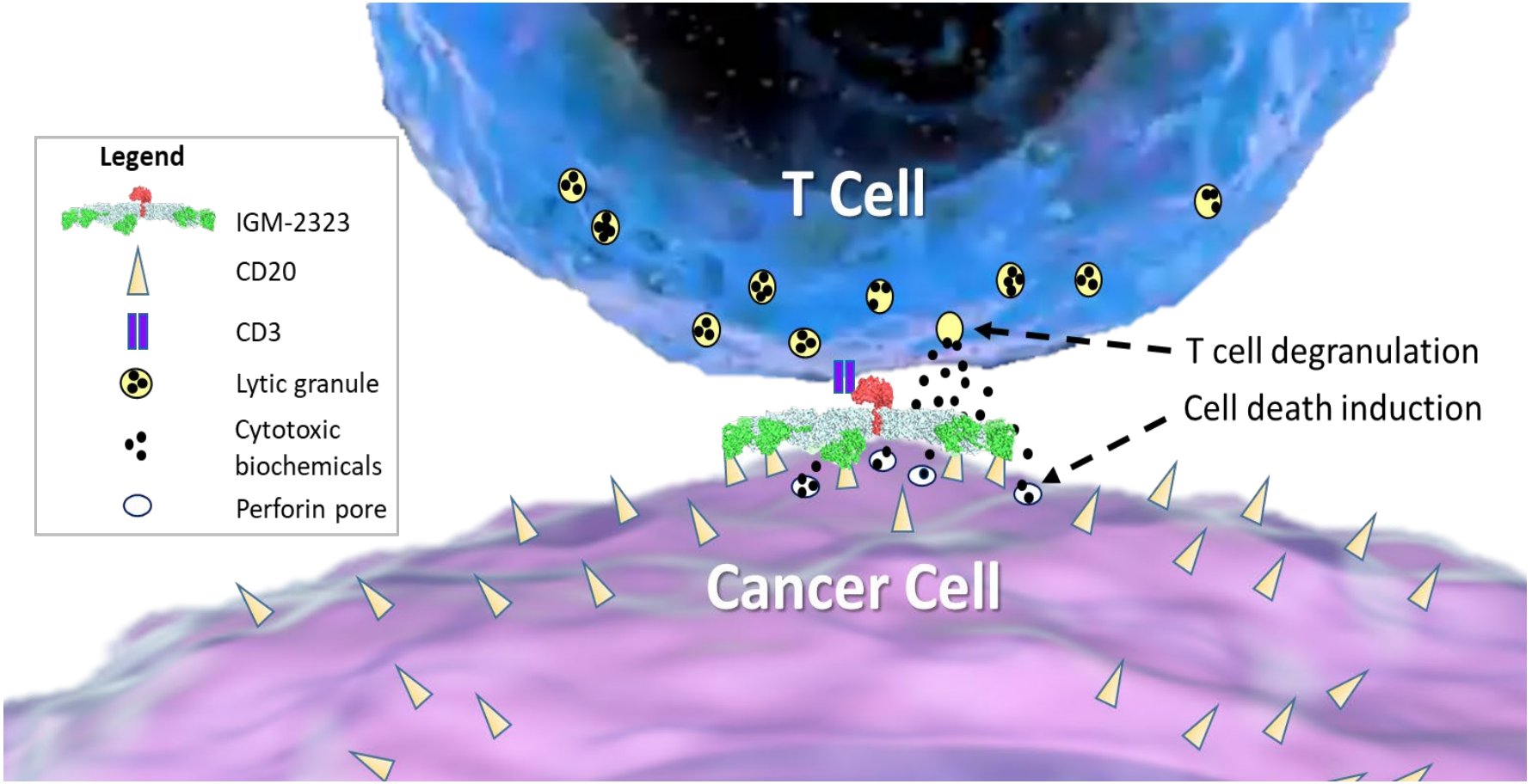


CD20 IgM plus
CD3 on J-chain



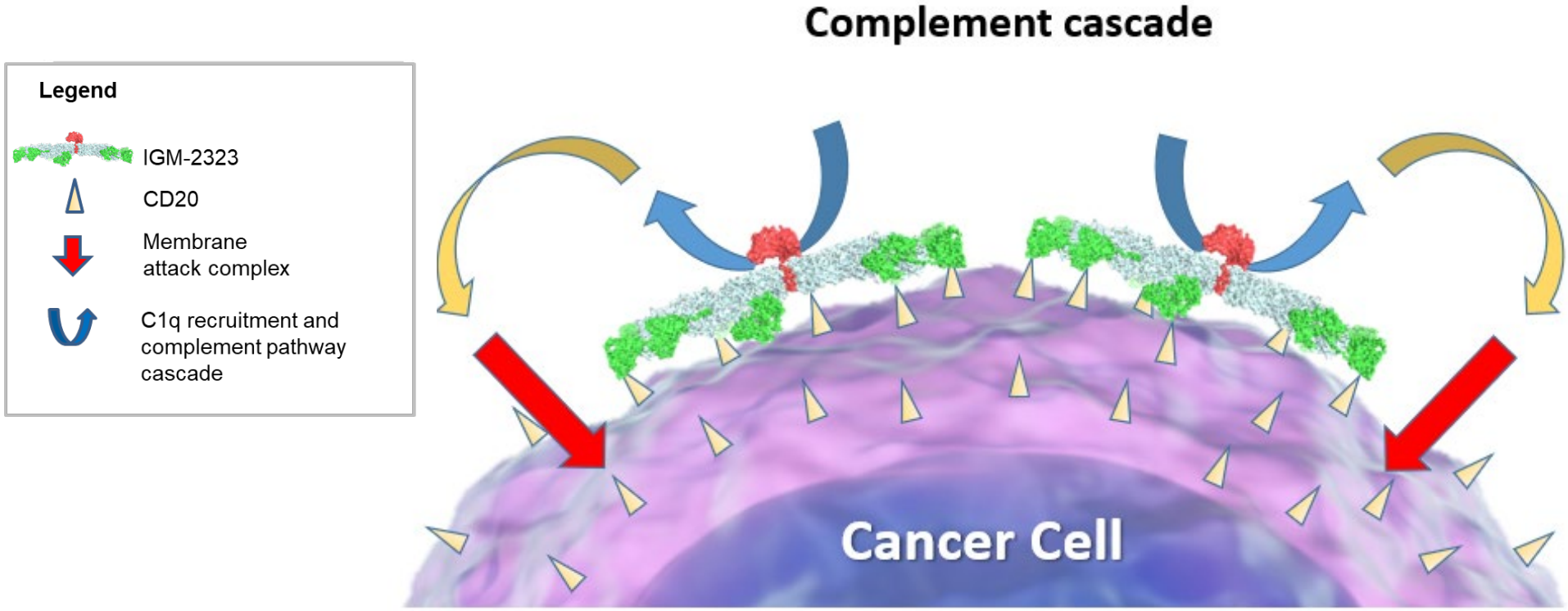
IGM-2323 Bispecific T Cell Engagement

T cell directed cellular cytotoxicity (TDCC)



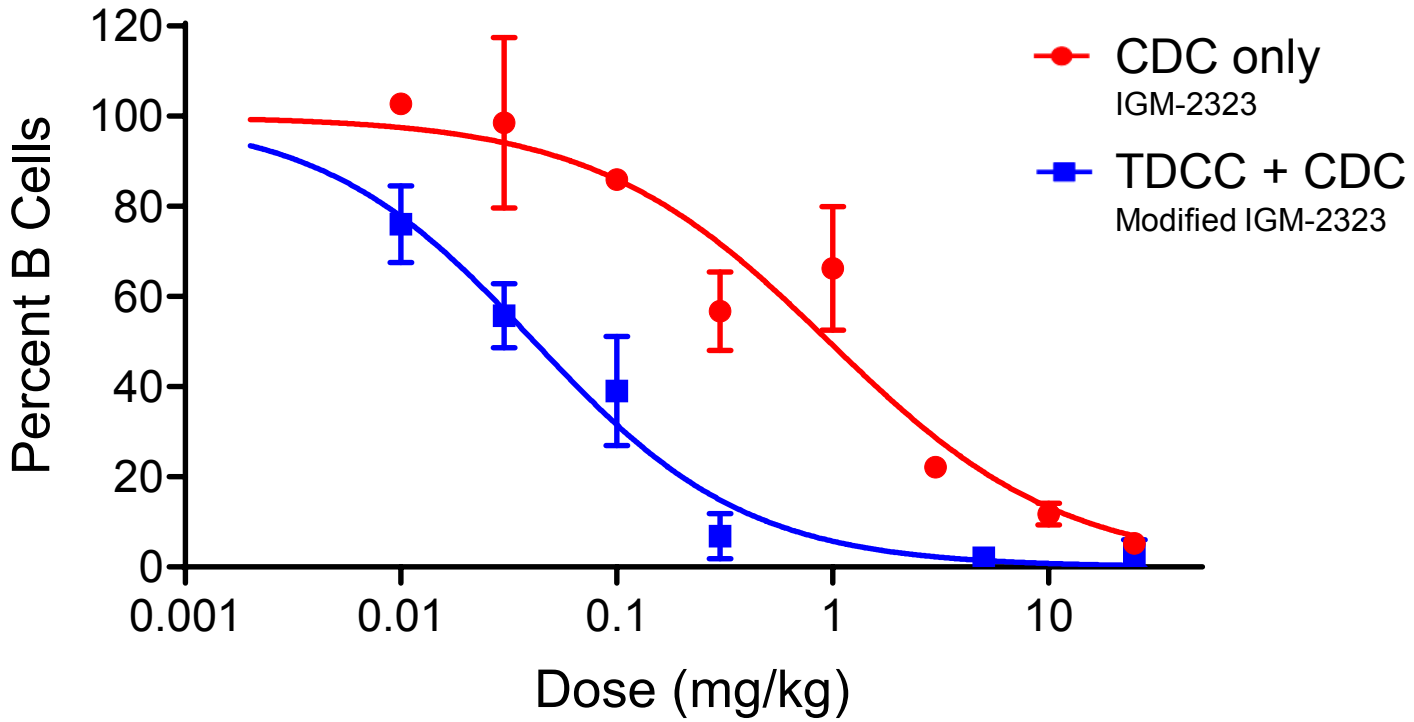
IGM-2323 Dual Mechanism of Action

Complement dependent cytotoxicity (CDC)



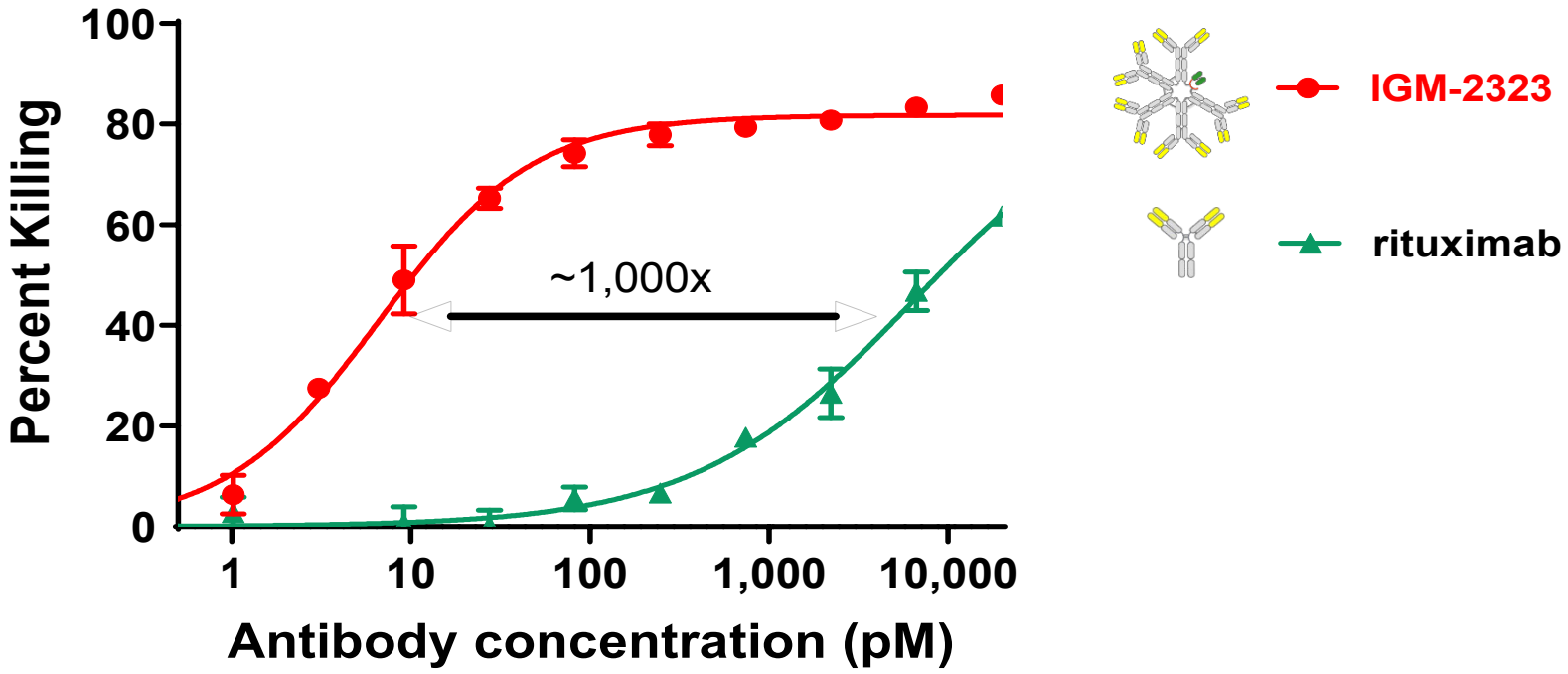
Dual Mechanisms of Action: TDCC plus CDC

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



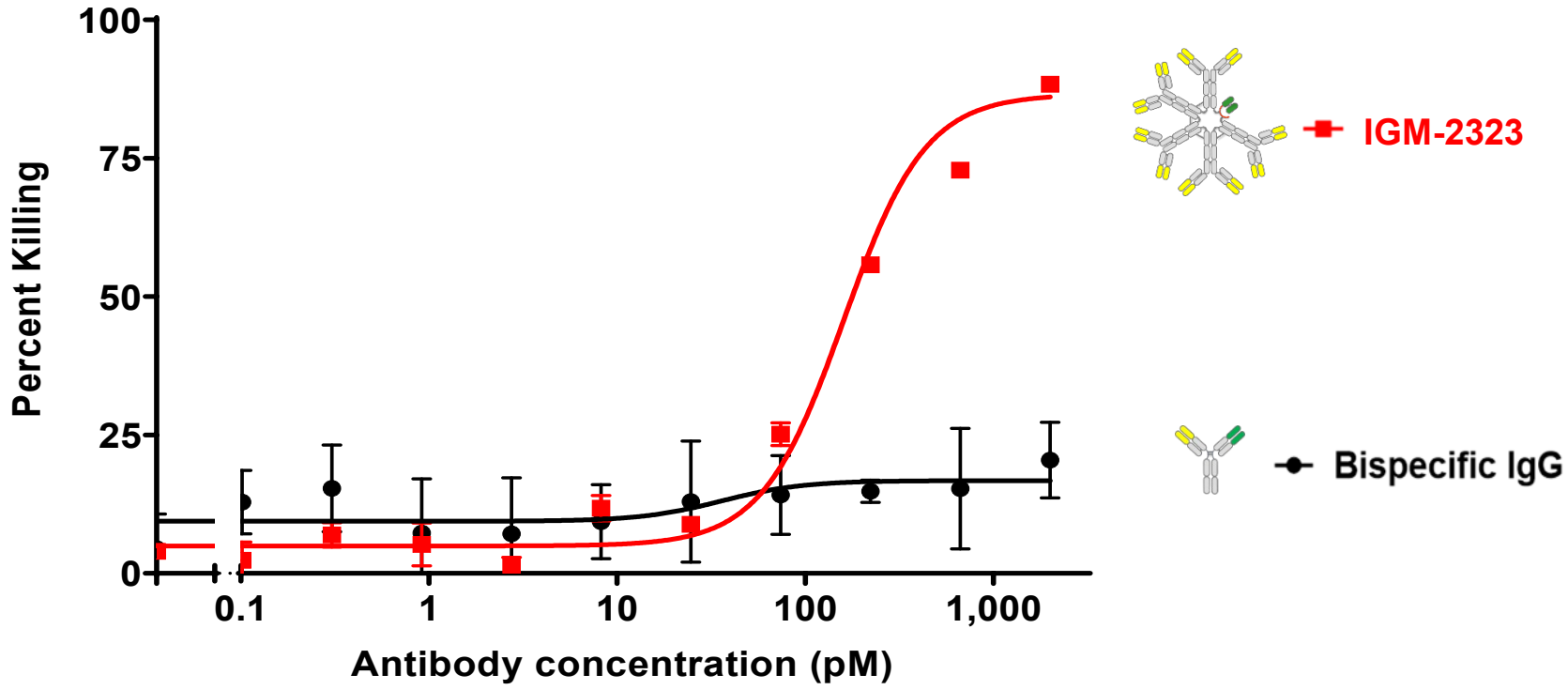
Superior Killing in Rituximab Resistant Cell Line

Relative killing activity *in vitro* of IGM-2323 and rituximab
using a rituximab resistant B cell cancer line



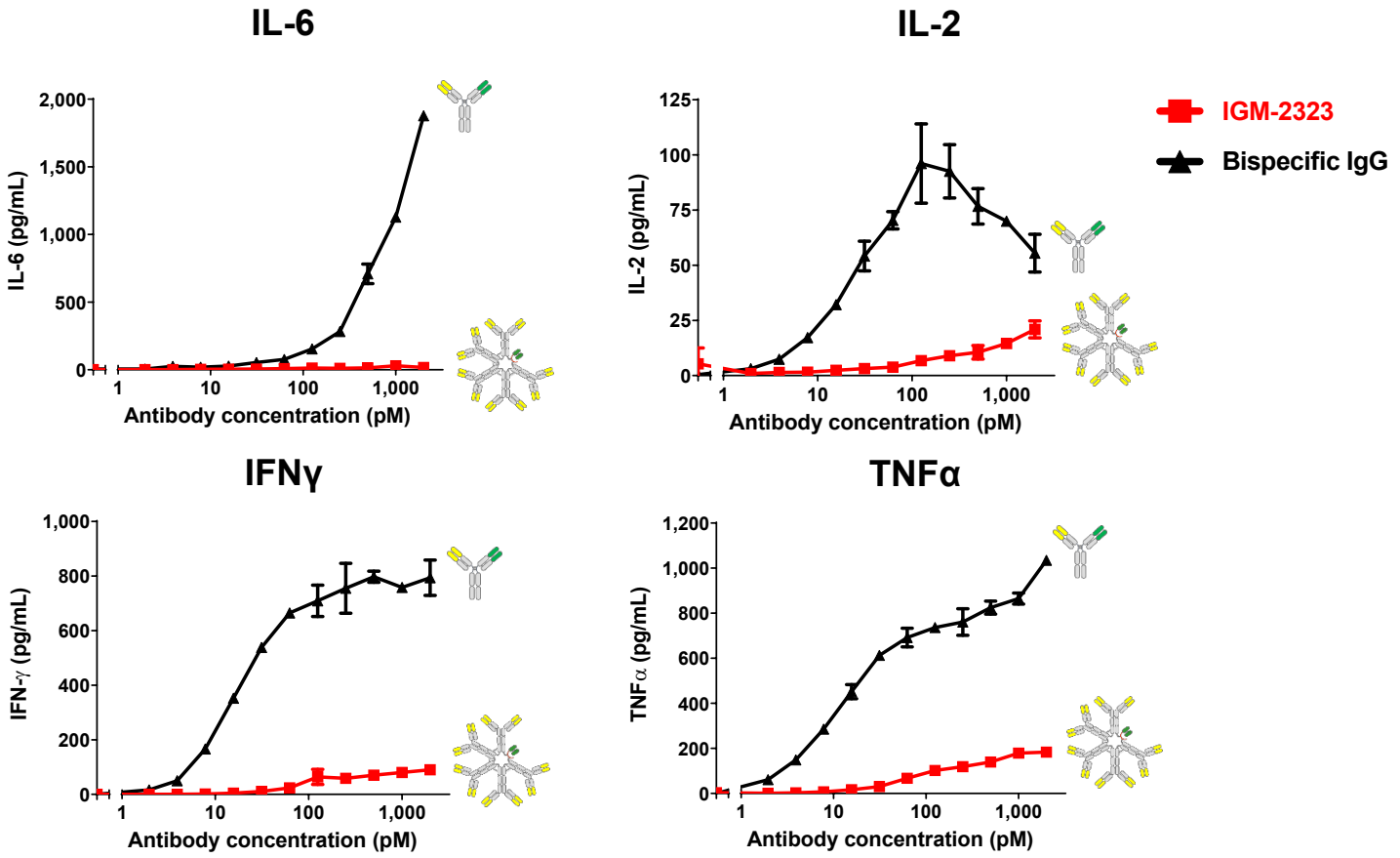
More Efficient Killing *In Vitro* When T Cells Are Limited in Number

T cell count can be low in certain tumor microenvironments
One T cell per five cancer cells



IgM: Potentially Safer T Cell Directed Bispecific Antibodies

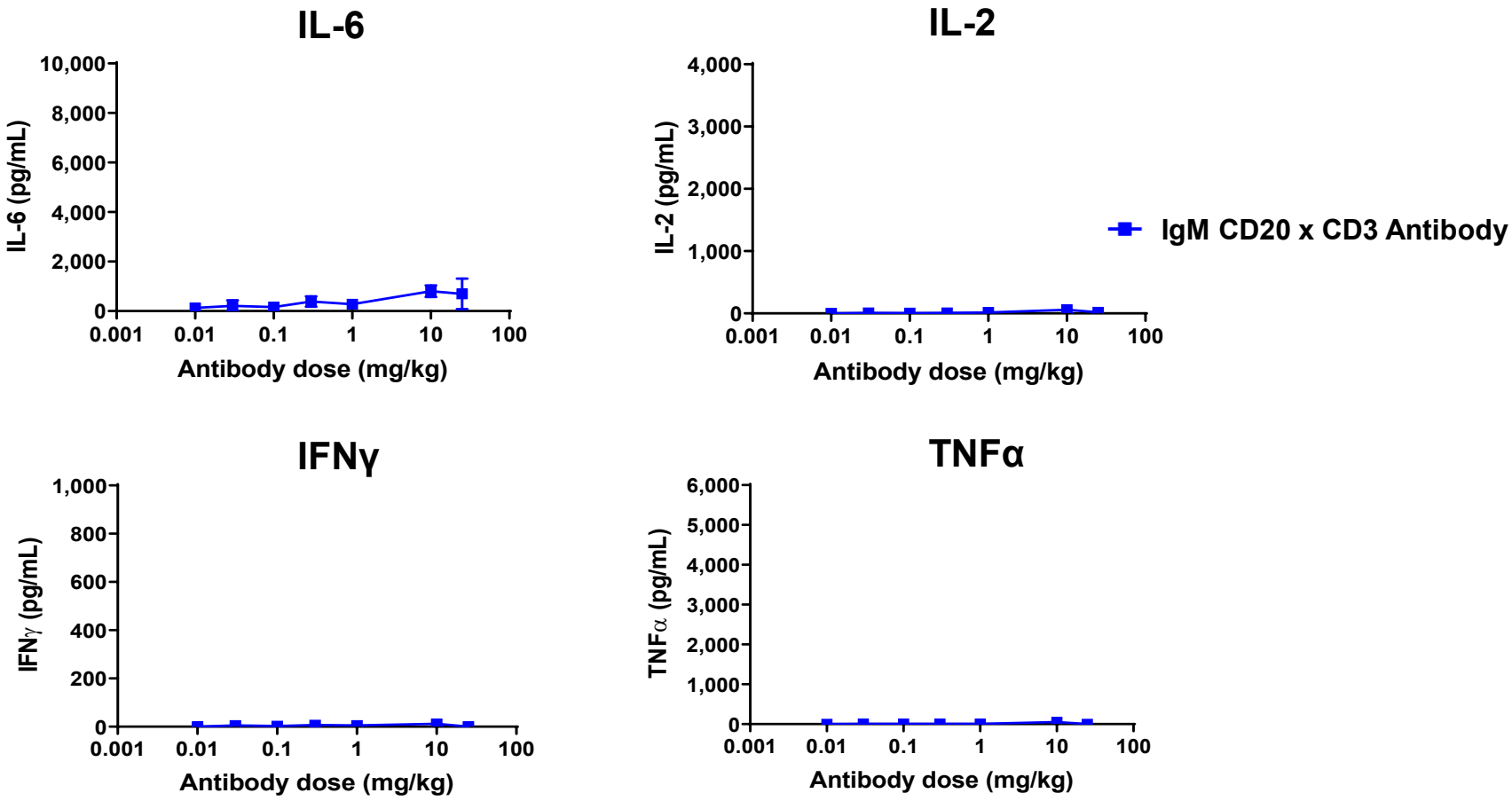
Lower cytokine release profile *in vitro* compared to
IgG CD20 x CD3 bispecific antibody



IGM CD20 x CD3 Bispecific Antibody

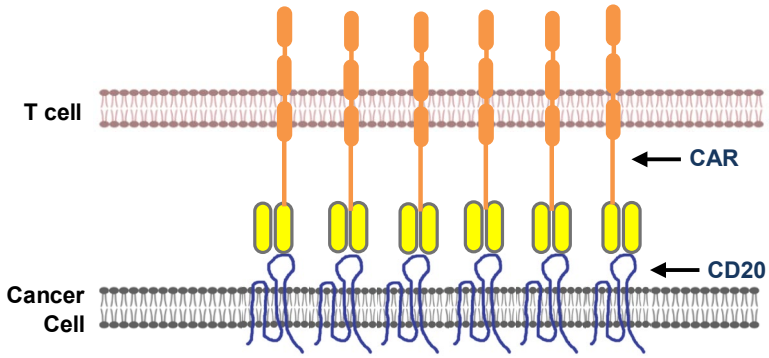
Non-human primate cytokine release data

Peak plasma inflammatory cytokine levels in non-human primates following treatment with modified IGM-2323



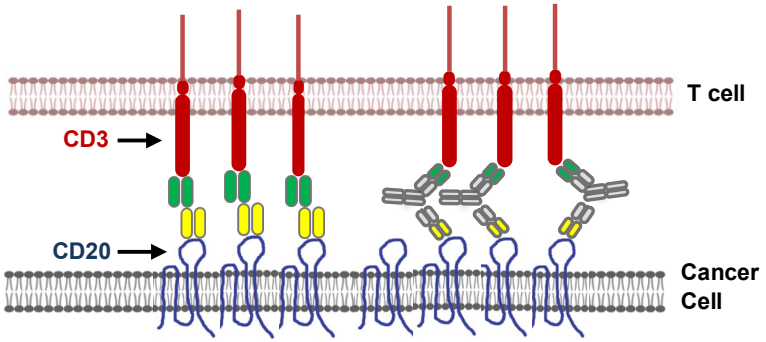
Immune Synapses

CAR-T

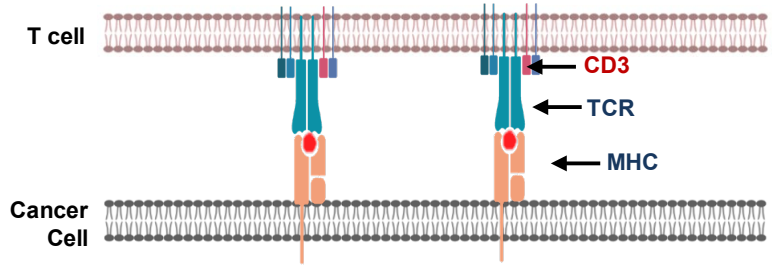


Bispecific T cell : Target Engager Single Chain Units

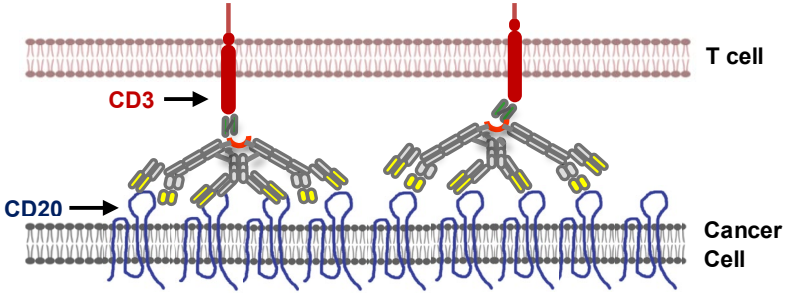
Bispecific T cell : Target Engager IgG



T cell receptor : MHC Engagement



Bispecific T cell : Target Engager IgM



CAR-T, Chimeric antigen receptor-T cell
MHC, Major histocompatibility complex plus peptide
TCR, T cell receptor

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

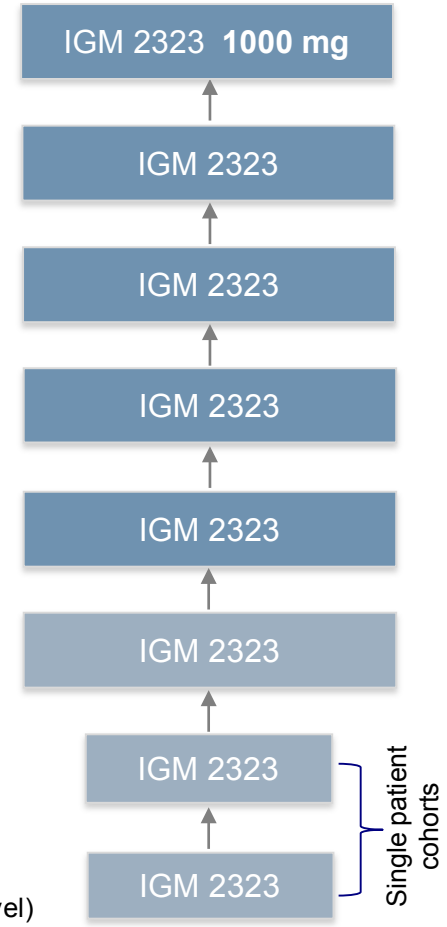
Dose escalation schedule

Phase 1

Single patient cohorts
followed by
standard 3+3 design

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

DLT window C1 d1-21



Expansion Cohorts

R/R DLBCL

R/R FL

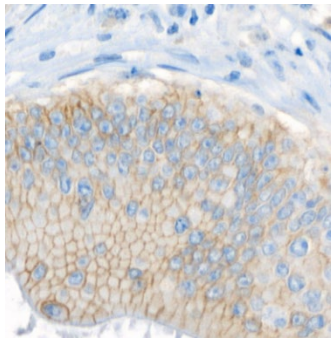
Potential Additional Expansion Cohorts

R/R CLL

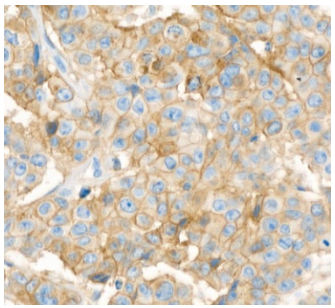
TNFr Superfamily: Trimerizing Agonists

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

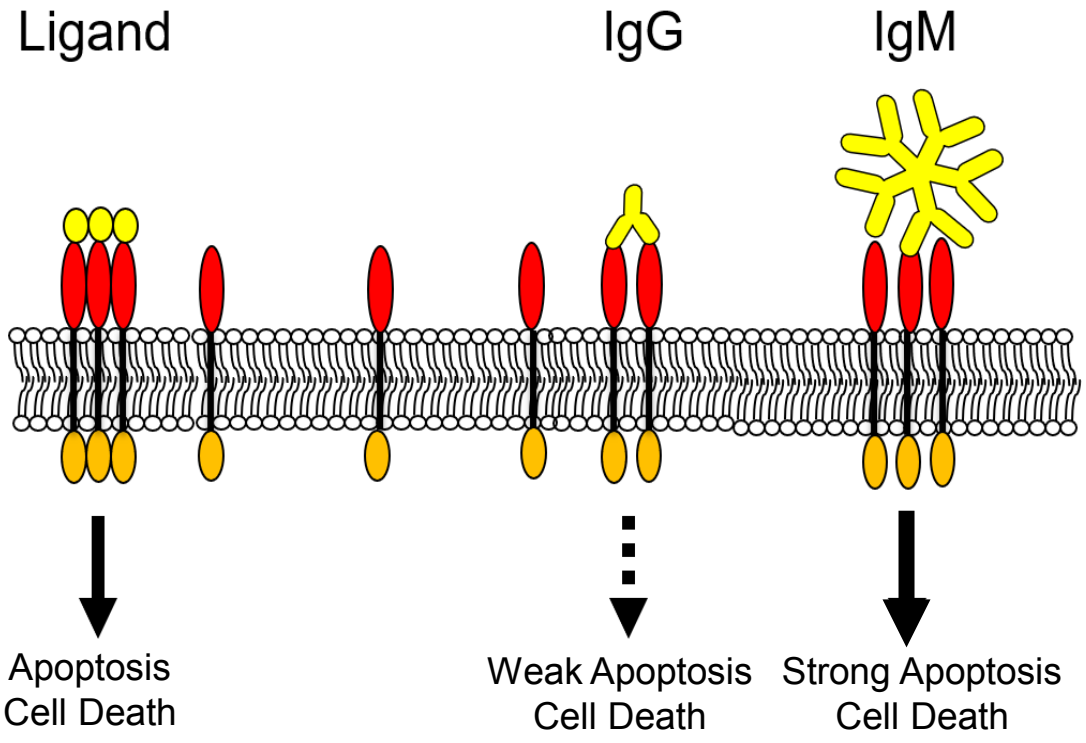
DR5 Expression



Colon Adenocarcinoma



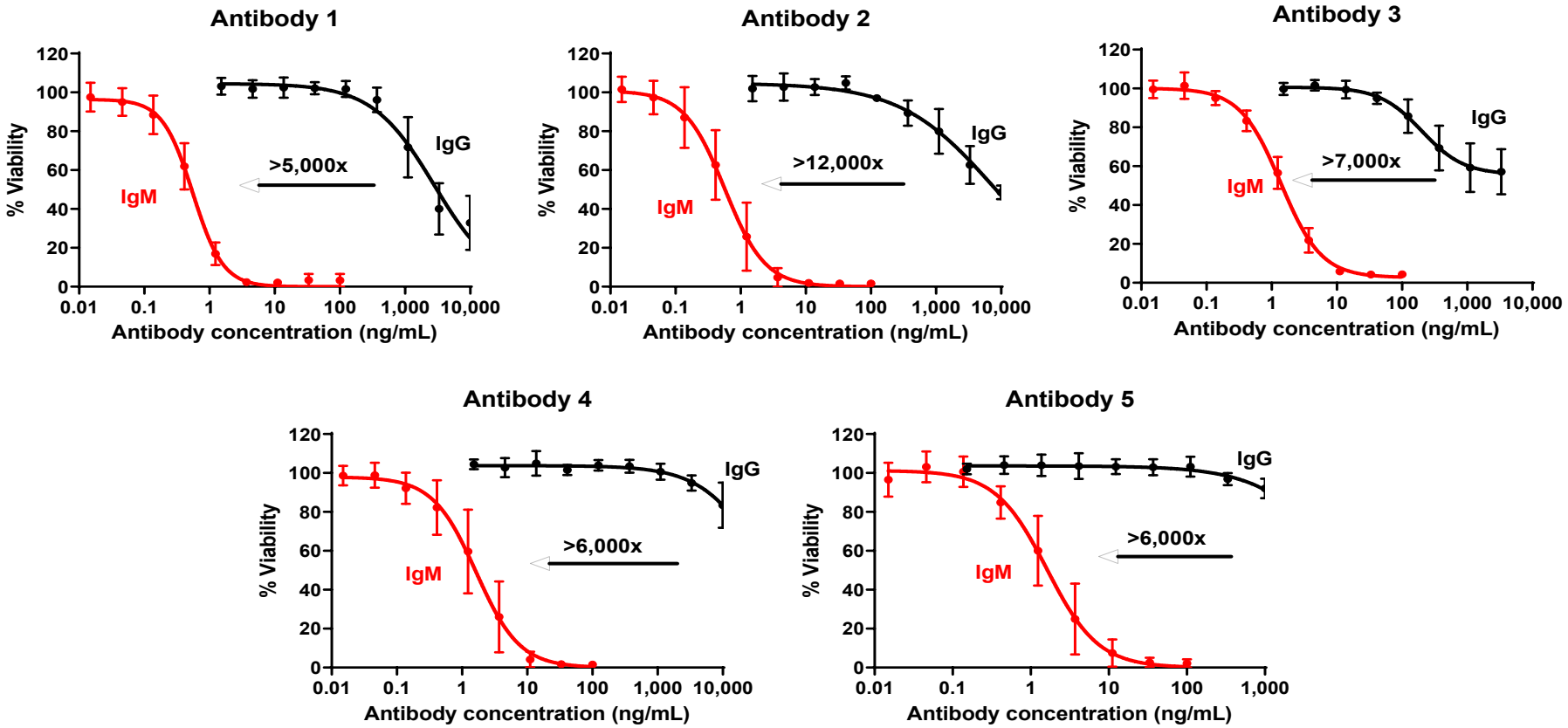
Gastric Adenocarcinoma



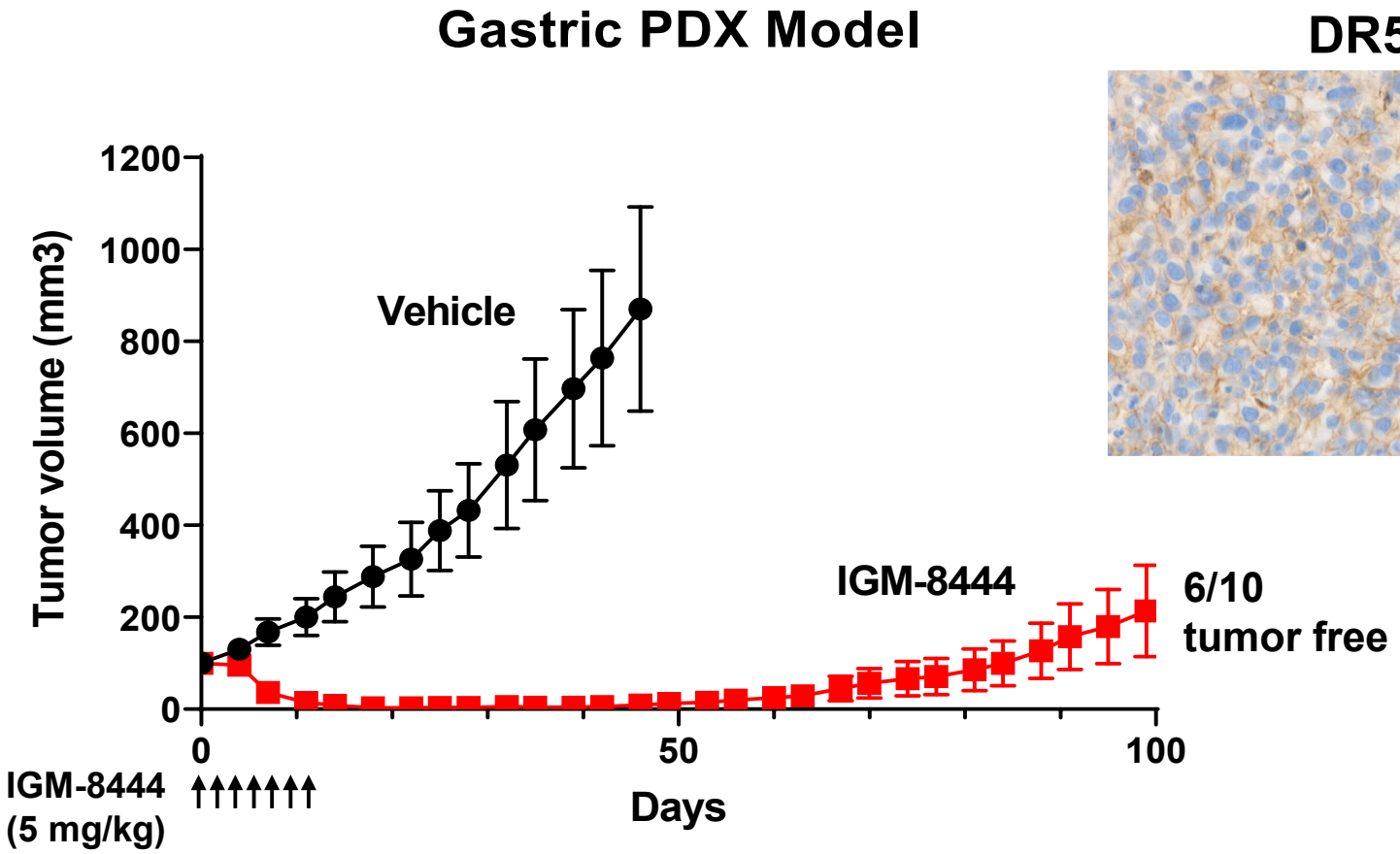
Also: pancreatic, lung, breast and prostate tumors, leukemia and lymphoma

DR5: IgM Superior *In Vitro* to IgG

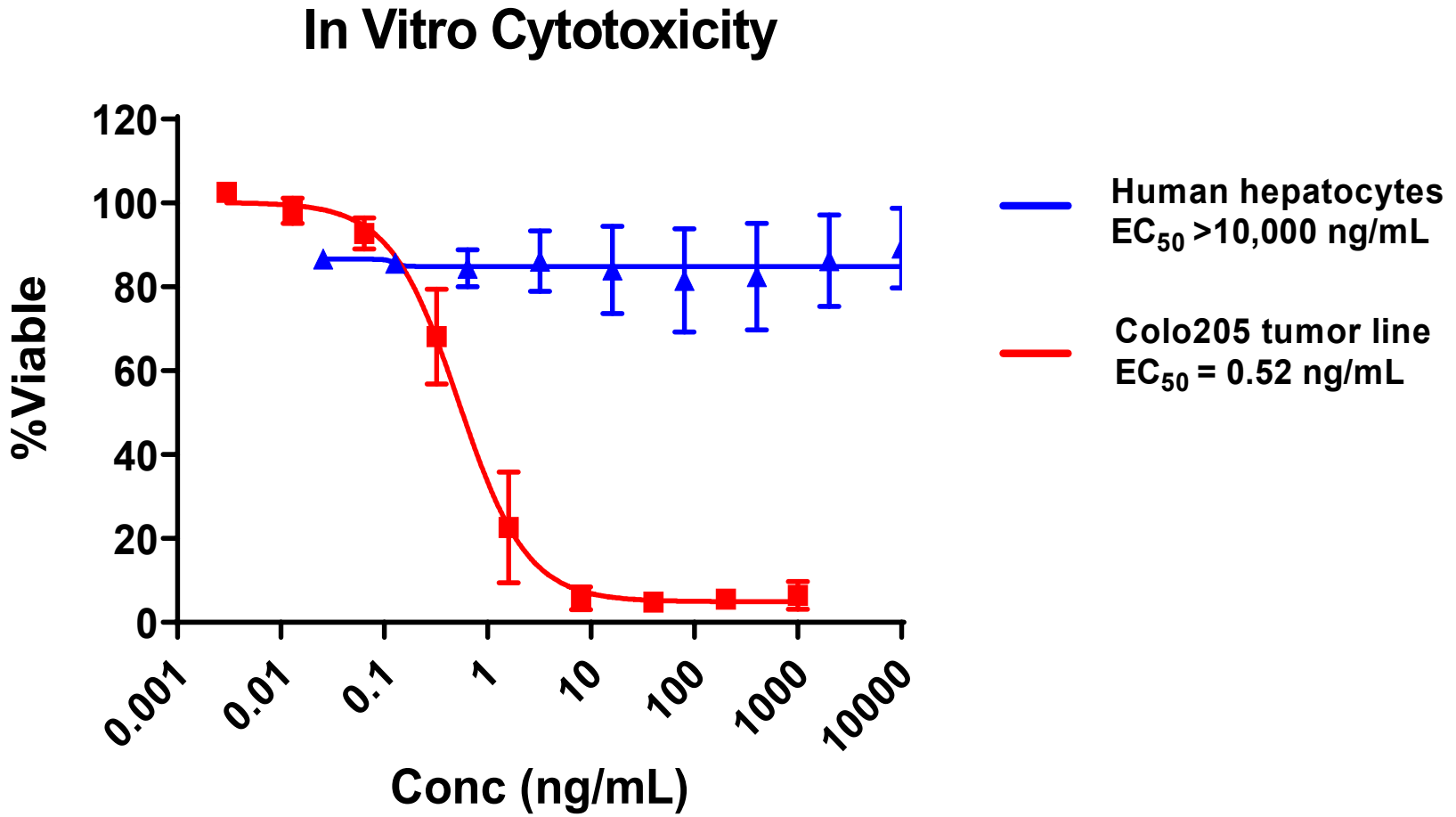
Cell line killing comparison *in vitro* of IgG and IgM DR5 antibodies with five different binding domains



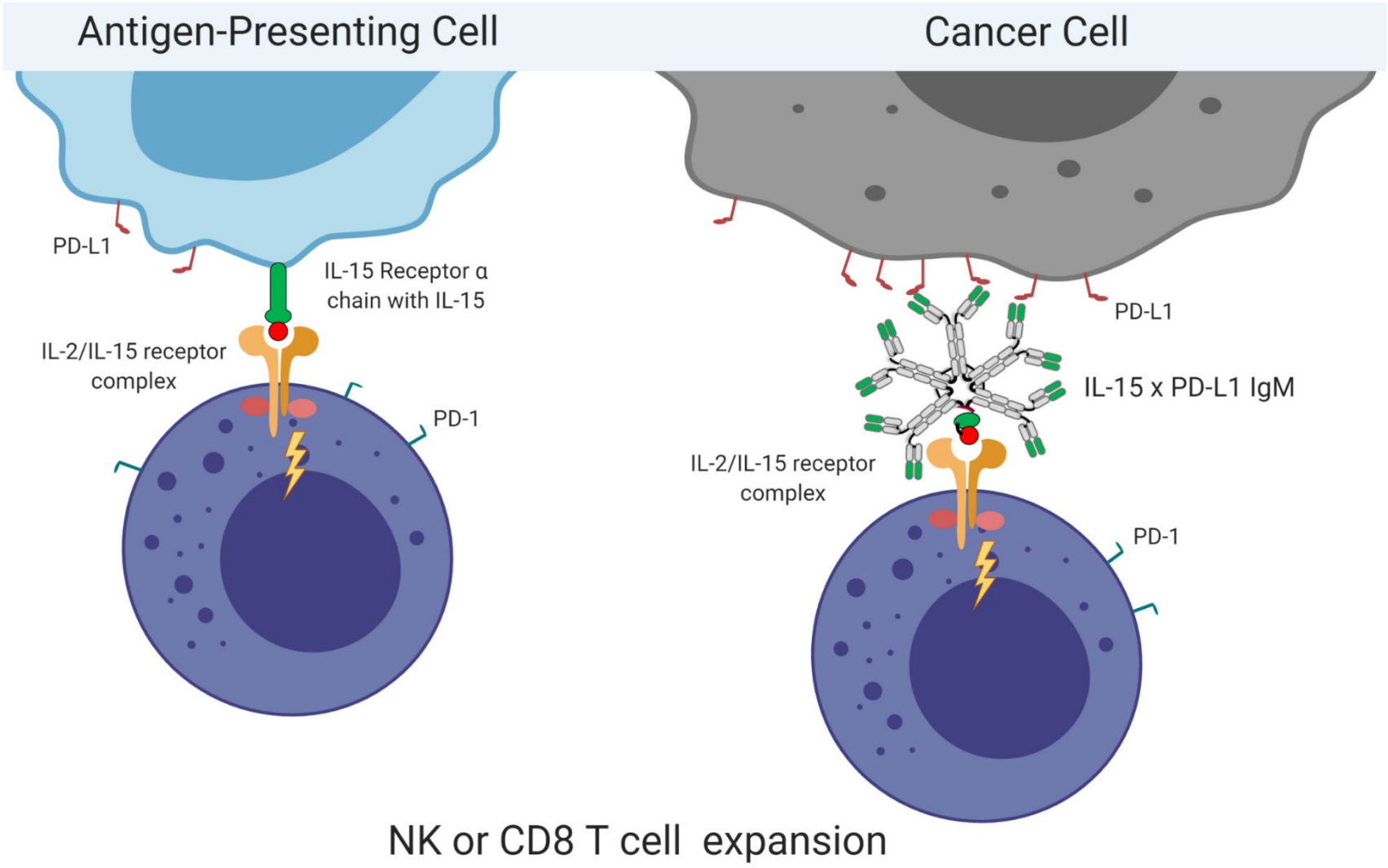
DR5: IGM-8444 *In Vivo* mouse xenograft study



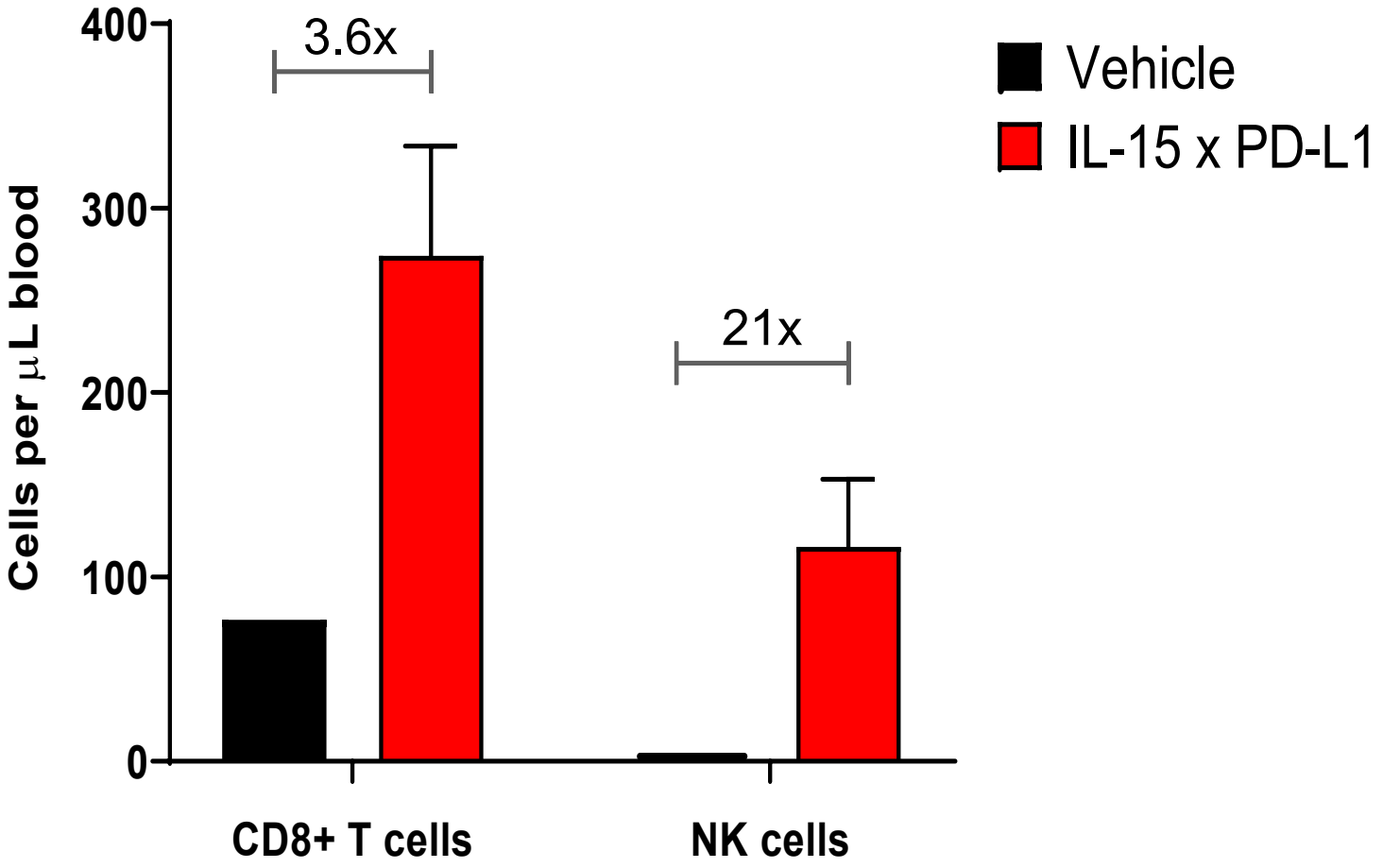
DR5: IGM-8444 *In Vitro* therapeutic window



IL-15 delivered by high avidity PD-L1 IgM antibody



IL-15 x PD-L1 IgM induces NK and CD8 T cell expansion in humanized mice



Leadership Team

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VP, Process Sciences & Manufacturing

Shire
Celgene

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IGM Overview

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

Lead Programs

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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

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Thank You