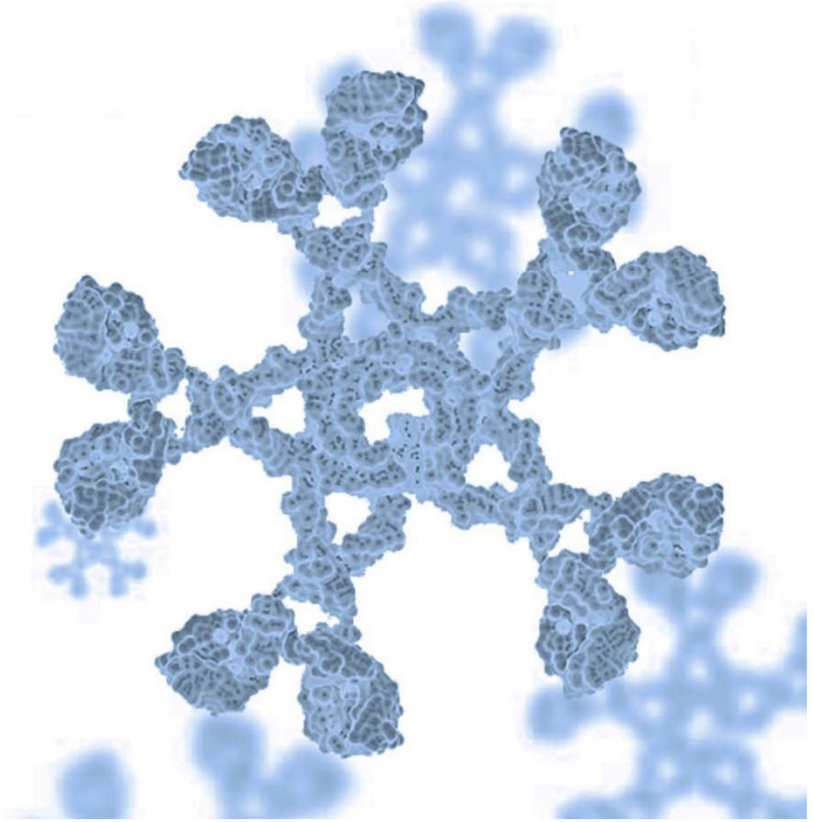
Pioneering the Development of Engineered IgM Antibodies

ASH Investor Conference Call

December 11, 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 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 IgM 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; the potential impact of continuing or worsening supply chain constraints; 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 strategic 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 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; 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”), including our Quarterly Report on Form 10-Q filed with the SEC on November 4, 2021. 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. The forward-looking statements in this presentation are based on information available to the Company as of the date hereof and, except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason.

Agenda

• Introduction	Fred Schwarzer, Chief Executive Officer
• IGM-2323 ASH Presentation	Elizabeth Budde, M.D., Ph.D., City of Hope National Medical Center
• IGM-2323 Clinical Development Plans	Chris Takimoto, M.D., Ph.D., Chief Medical Officer
• Conclusion and Q&A	Fred Schwarzer, Chief Executive Officer

IGM overview

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

Oncology	Infectious Disease	Autoimmunity & Inflammation

Lead Programs

IGM - 2323	CD20 x CD3	Non-Hodgkin's Lymphoma	Phase 2 in R/R B cell NHL to be initiated
IGM - 8444	DR5	Solid and Heme Malignancies	Phase 1 in solid tumors underway
IGM - 6268	SARS-CoV-2	COVID-19	IND-Filed; Phase 1 initiation: Q4 2021 (anticipated)
IGM - 7354	IL-15 x PD-L1	Solid and Heme Malignancies	IND submission 2022 (anticipated)

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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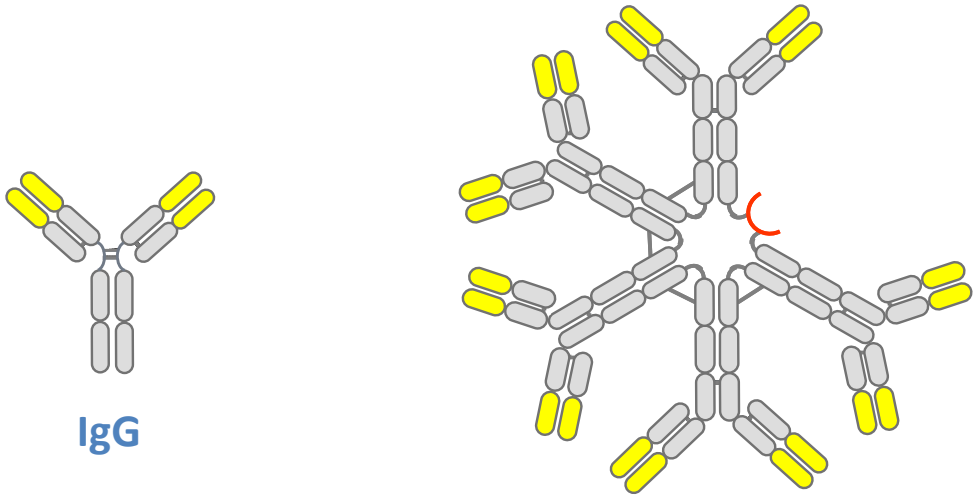
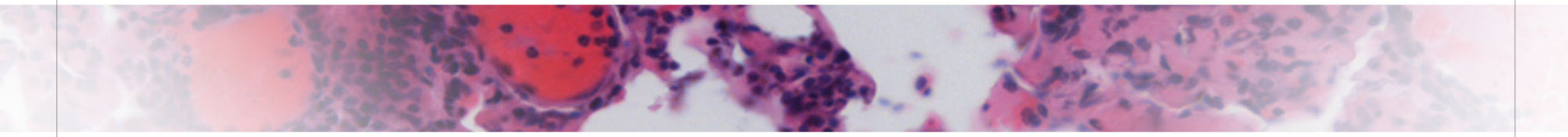
IgM antibodies have distinct structural features

Additional binding sites lead to greatly superior total binding power (Avidity)



American Society *of* Hematology
Helping hematologists conquer blood diseases worldwide



A phase 1 dose-escalation study of IGM-2323, a novel anti-CD20 x anti-CD3 IgM T-cell engager in patients with advanced B-cell malignancies

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Conflict of interest disclosure: Elizabeth Budde

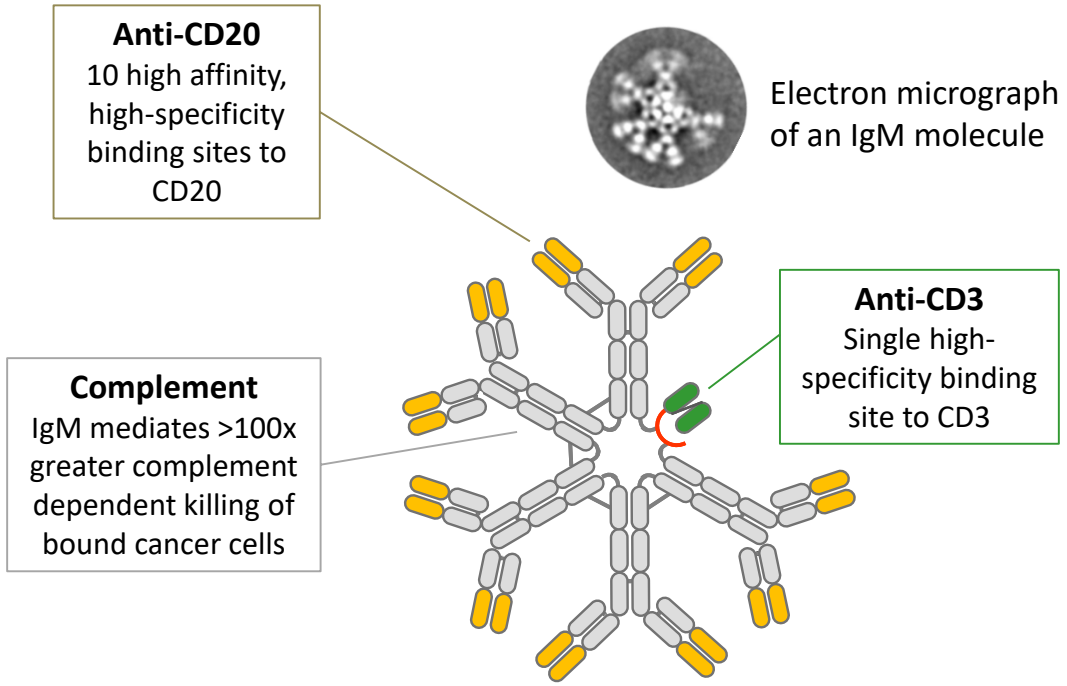
The presenting author declares the following:

- **Consultancy:** Roche, Kite Pharma/Gilead, Novartis, Beigene
- **Research funding:** Amgen, AstraZeneca, Merck, Mustang Therapeutics

IGM-2323 is a novel engineered high-affinity, high-avidity CD20xCD3 IgM bispecific T-cell engager

IGM-2323 is a novel bispecific antibody, based on an engineered pentameric IgM framework, with a recombinant J-chain that is fused to an anti-CD3 scFv

In preclinical studies, **IGM-2323** has been shown to bind irreversibly to CD20-expressing cells, including cancer cells expressing *very low* levels of CD20, and eliminate them through cell-dependent (TDCC) and cell-independent mechanisms (CDC)[1,2]



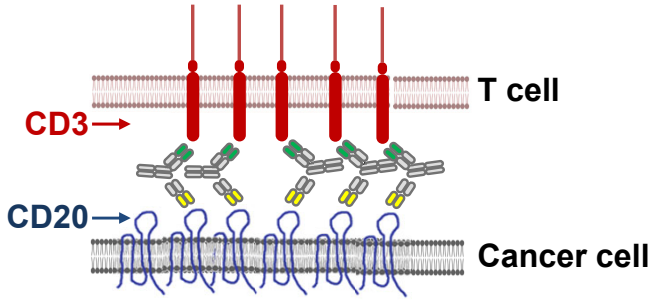
CD, cluster of differentiation; CDC, complement dependent cytotoxicity; IgG/M, immunoglobulin G/M; scFv, single-chain variable fragment; TDCC, T cell-dependent cytotoxicity

1. Baliga et al. Blood 2019;134(Suppl. 1):1574
2. Baliga et al. PEGS 2016

IGM-2323 engagement of T cells

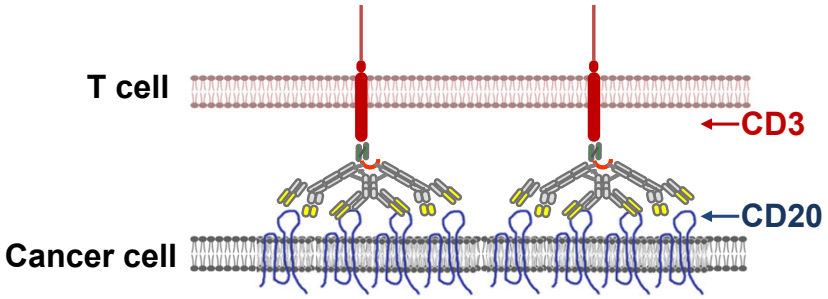
Existing bispecific T-cell engaging antibodies:
IgG or single chain

Supraphysiologic T-cell stimulation



Novel bispecific T-cell engaging antibodies:
IgM

More physiologic T-cell stimulation



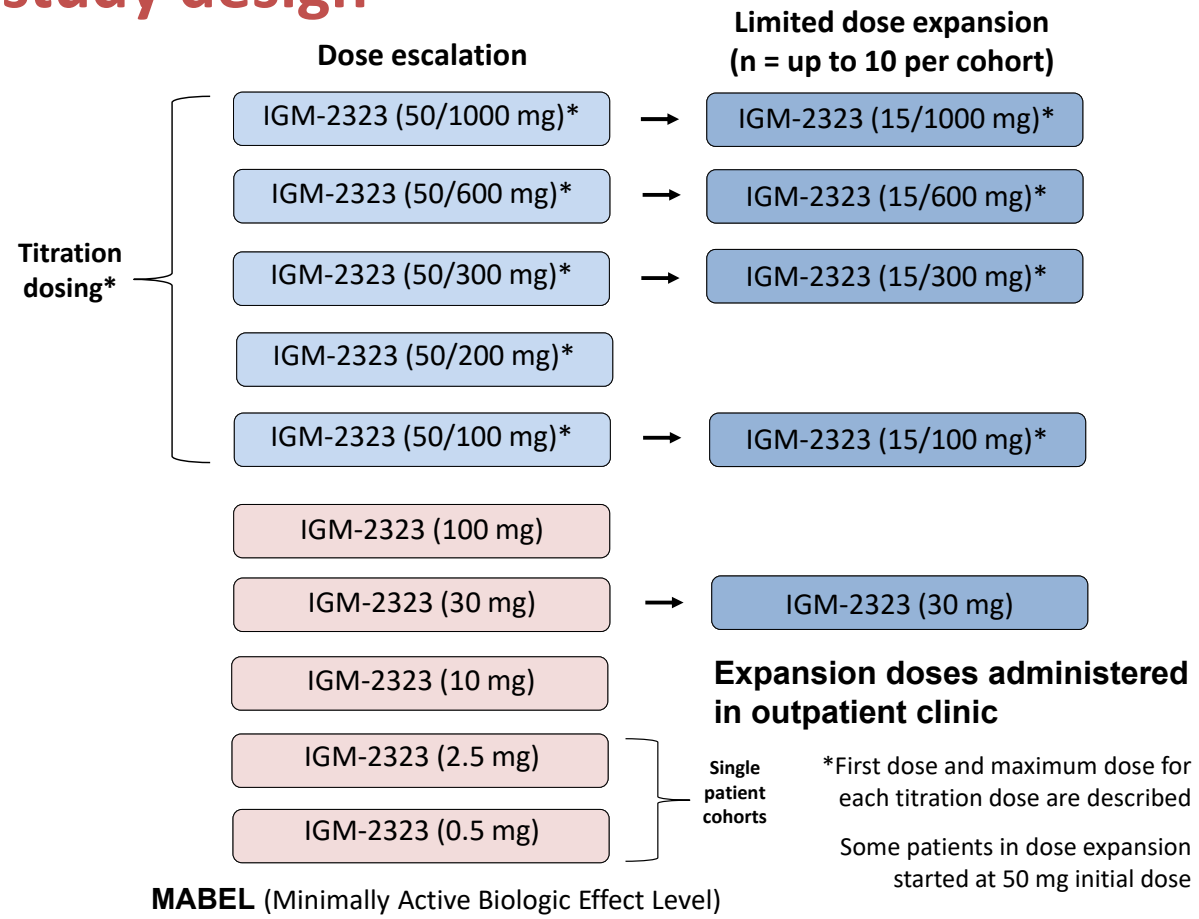
IGM-2323 may provide **more controlled T-cell activation** compared with existing bispecific T-cell engaging antibodies[1–3]

1. Faroudi et al. Proc Natl Acad Sci U S A. 2003;100:14145–50
2. Purbhoo et al. Nat Immunol 2004;5:524–30
3. Itoh et al. J Exp Med 1997;186:757–6

IGM-2323-001: Phase 1 study design

Phase 1

- Single-patient cohorts followed by standard 3+3 design
- R/R B-cell NHL (DLBCL, FL, MCL, MZL)
- 1 cycle: 21 days
- Weekly dosing: D1, D8, D15
- Dexamethasone premedication
- DLT window C1 d1–21
- Q3 week dosing allowed once CR achieved
- All planned dose escalation cohorts completed. Currently enrolling in limited dose-expansion cohorts.
- Intra-patient dose escalation allowed



Baseline demographics

Characteristic	Dosed patients (n=40)
Median age, years (range)	64 (36–84)
Gender, n (%)	
Male / Female	28 (70%) / 12 (30%)
Region, n (%)	
United States / Australia / South Korea	29 (73%) / 6 (15%) / 5 (13%)
Tumor type, n (%)	
DLBCL / MCL	18 (45%) / 4 (10%)
FL / MZL	14 (35%) / 4 (10%)
Disease stage at study entry, n (%)	
I–II	7 (18%)
III-IV	33 (82%)
Prior CAR-T therapy, n (%)	8 (20%)
Prior ASCT, n (%)	3 (8%)
Median prior lines of treatment (range)	3 (2–9)
No. of prior lines of treatment, n (%)	
2 / 3 / ≥4	14 (35%) / 10 (25%) / 16 (40%)
Median time from last treatment, months (range)	3.4 (0.6–37.2)
No. of patients who were refractory to last treatment, n (%)	25 (63%)

Data cut off: September 10, 2021

Disposition/exposure

	Dosed patients (n=40)
Median duration of treatment, months (range)	3.2 (0.0–16.3)
Median duration of study follow-up, months (range)	7.8 (0.4–23.7)
Number of patients ongoing, n (%)	12 (30%)
Discontinued from treatment, n (%)	
Progression	23 (58%)
Investigator/patient decision	5 (13%)
Adverse Event	0
Deaths*, n (%)	
Any cause	0
Related to study drug	0

*Within 30 days of last dose of study drug

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Most common treatment-related adverse events (events occurring in >10% of patients)

Non-laboratory AEs, n (%)	Titration dose levels (n=28)		All dose levels (n=40)	
	All grades	Grade ≥3	All grades	Grade ≥3
Infusion-related reaction	7 (25)	1 (4)	12 (30)	2 (5)
Cytokine release syndrome	5 (18)	1 (4)	10 (25)	1 (3)
Nausea	7 (25)	0	10 (25)	0
Fatigue	6 (21)	0	7 (18)	0
Anemia	2 (7)	1 (4)	6 (15)	2 (5)
Back pain	5 (18)	1 (4)	5 (13)	1 (3)
Laboratory AEs, n (%)	**All grades**	**Grade ≥3**	**All grades**	**Grade ≥3**
Hypophosphatemia	6 (21)	1 (4)	9 (23)	1 (3)

Data cut off: September 10, 2021

*Cytokine release syndrome graded by ASTCT Consensus Grading (Lee et al. Biol Blood Marrow Transplant 2019)

Adverse events of special interest

Titration cohorts (n=28)	Grade 1 n (%)	Grade 2 n (%)	Grade 3 n (%)	Grade 4 n (%)	Grade 5 n (%)
CRS*	3 (11)	1 (4)	1 (4)	0	0
ICANS^	0	0	0	0	0
Neutropenia	1 (4)	0	0	0	0
IRR	3 (11)	3 (11)	1 (4)	0	0

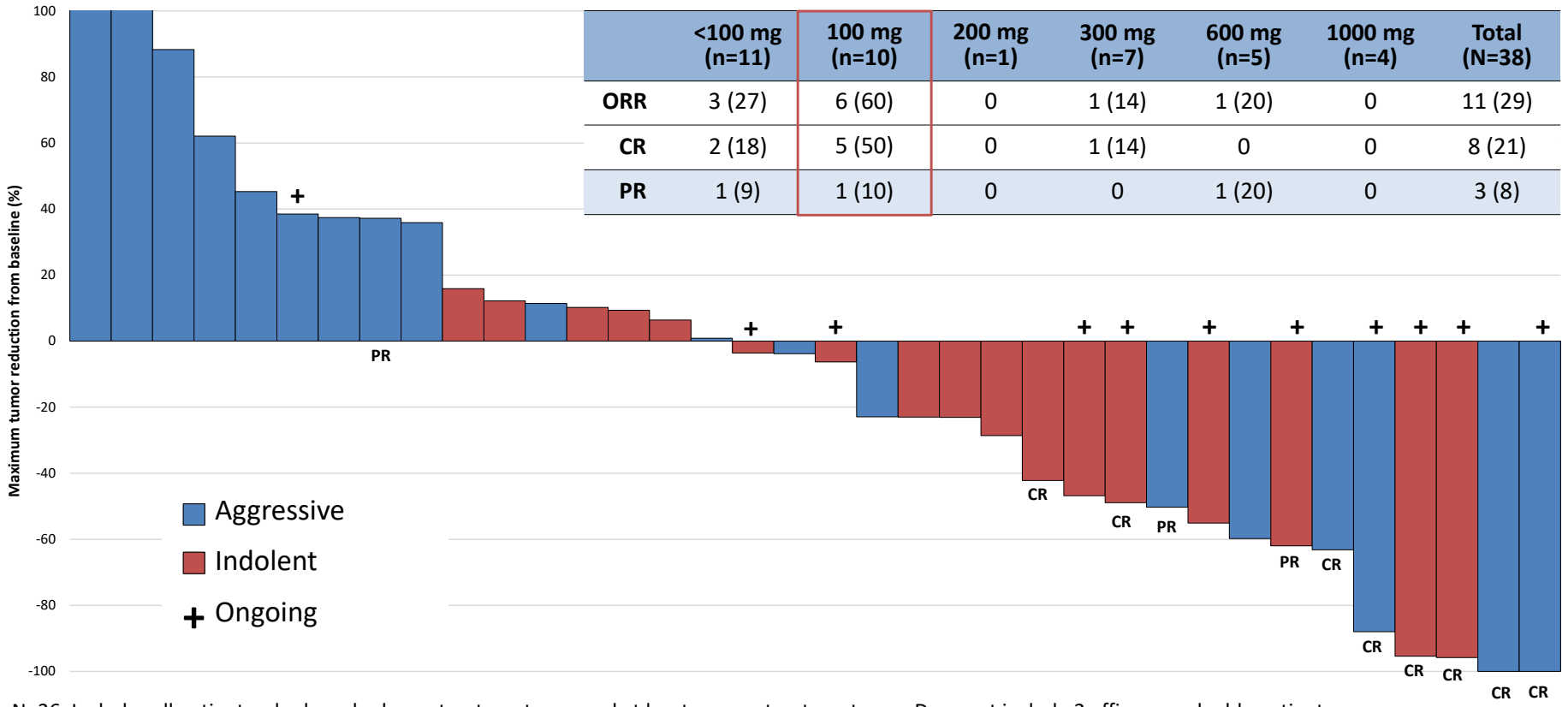
All patients (n=40)	Grade 1 n (%)	Grade 2 n (%)	Grade 3 n (%)	Grade 4 n (%)	Grade 5 n (%)
CRS*	7 (18)	2 (5)	1 (3)	0	0
ICANS^	0	0	0	0	0
Neutropenia	1 (3)	0	1 (3)	1 (3)	0
IRR	3 (8)	7 (18)	2 (5)	0	0

Data cut off: September 10, 2021

*Cytokine release syndrome graded by ASTCT Consensus Grading (Lee et al. Biol Blood Marrow Transplant 2019)
*Distinction between CRS and IRR were made by the treating investigator
*3 of 5 CRS cases in titration cohorts and 8 of 10 overall occurred in the first cycle
^ICANS: immune effector cell-associated neurotoxicity syndrome

Overall NHL cohort: best post-baseline tumor reduction and responses

	<100 mg (n=11)	100 mg (n=10)	200 mg (n=1)	300 mg (n=7)	600 mg (n=5)	1000 mg (n=4)	Total (N=38)
ORR	3 (27)	6 (60)	0	1 (14)	1 (20)	0	11 (29)
CR	2 (18)	5 (50)	0	1 (14)	0	0	8 (21)
PR	1 (9)	1 (10)	0	0	1 (20)	0	3 (8)



N=36. Includes all patients who have had a pretreatment scan and at least one on-treatment scan. Does not include 2 efficacy evaluable patients who came off treatment prior to first scan. Response assessments per Lugano

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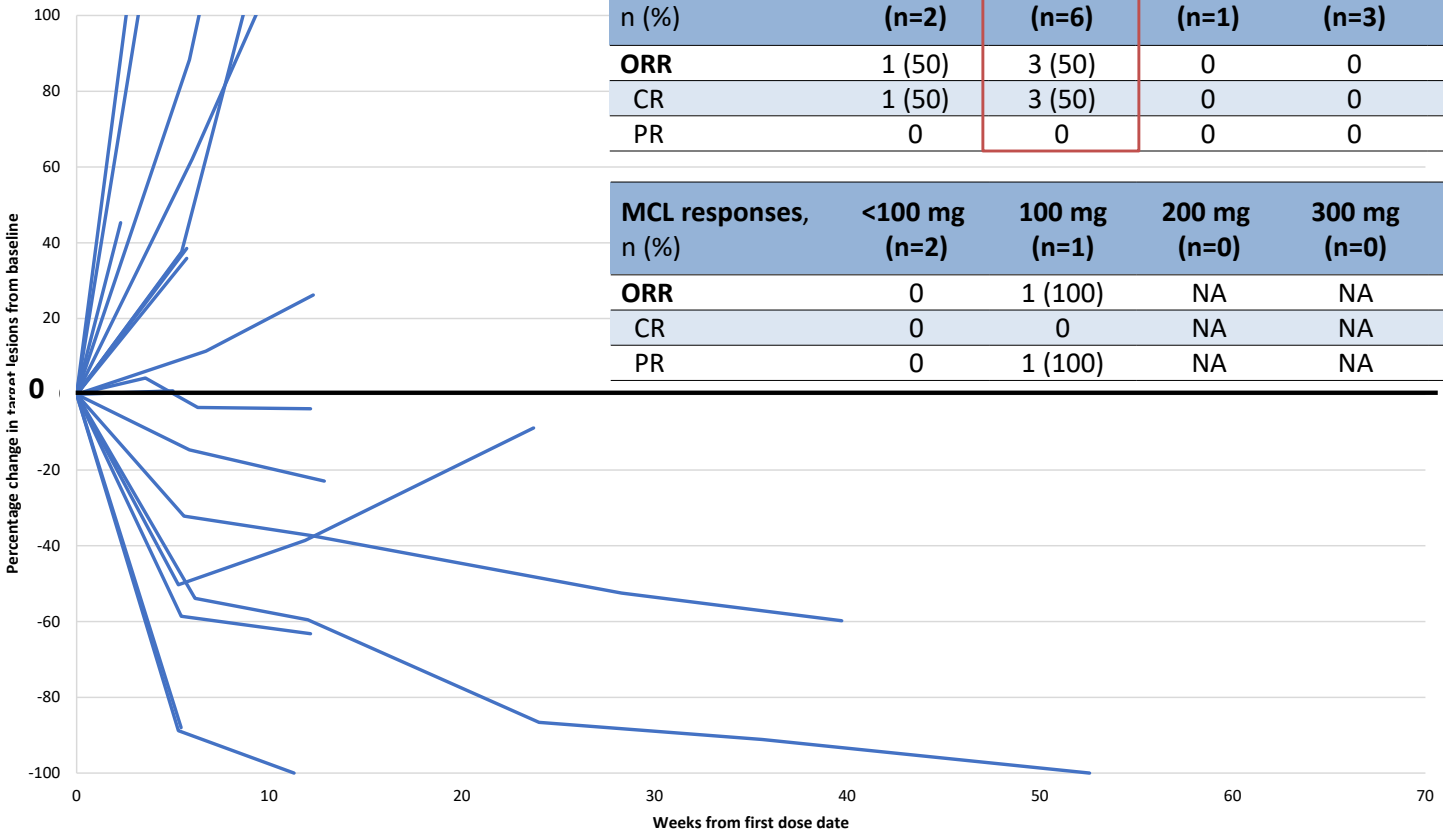
Aggressive NHL cohort (DLBCL and MCL): tumor responses



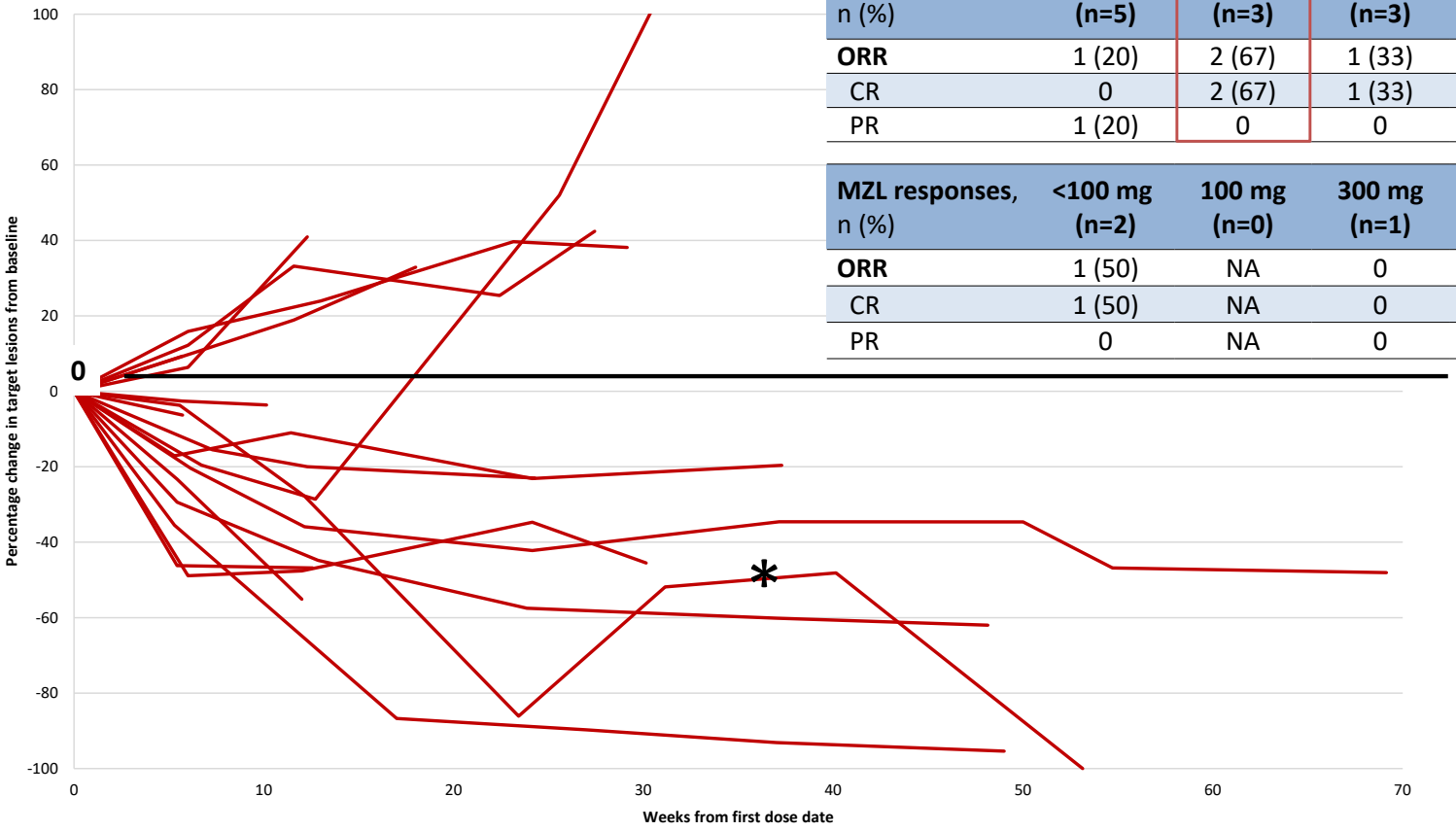
DLBCL responses, n (%)	<100 mg (n=2)	100 mg (n=6)	200 mg (n=1)	300 mg (n=3)	600 mg (n=3)	1000 mg (n=1)	All doses (n=16)
ORR	1 (50)	3 (50)	0	0	1 (33)	0	5 (31)
CR	1 (50)	3 (50)	0	0	0	0	4 (25)
PR	0	0	0	0	1 (33)	0	1 (6)

MCL responses, n (%)	<100 mg (n=2)	100 mg (n=1)	200 mg (n=0)	300 mg (n=0)	600 mg (n=1)	1000 mg (n=0)	All doses (n=4)
ORR	0	1 (100)	NA	NA	0	NA	1 (25)
CR	0	0	NA	NA	0	NA	0
PR	0	1 (100)	NA	NA	0	NA	1 (25)

NA: not applicable

Data cut off: September 10, 2021

Indolent NHL cohort (FL and MZL): tumor responses



FL responses, n (%)	<100 mg (n=5)	100 mg (n=3)	300 mg (n=3)	600 mg (n=1)	1000 mg (n=2)	All doses (n=14)
ORR	1 (20)	2 (67)	1 (33)	0	0	4 (29)
CR	0	2 (67)	1 (33)	0	0	3 (21)
PR	1 (20)	0	0	0	0	1 (7)

MZL responses, n (%)	<100 mg (n=2)	100 mg (n=0)	300 mg (n=1)	600 mg (n=0)	1000 mg (n=1)	All doses (n=4)
ORR	1 (50)	NA	0	NA	0	1 (25)
CR	1 (50)	NA	0	NA	0	1 (25)
PR	0	NA	0	NA	0	0

NA: not applicable

*FL patient with CR, possible pseudoprogression, and continued treatment with ongoing benefit

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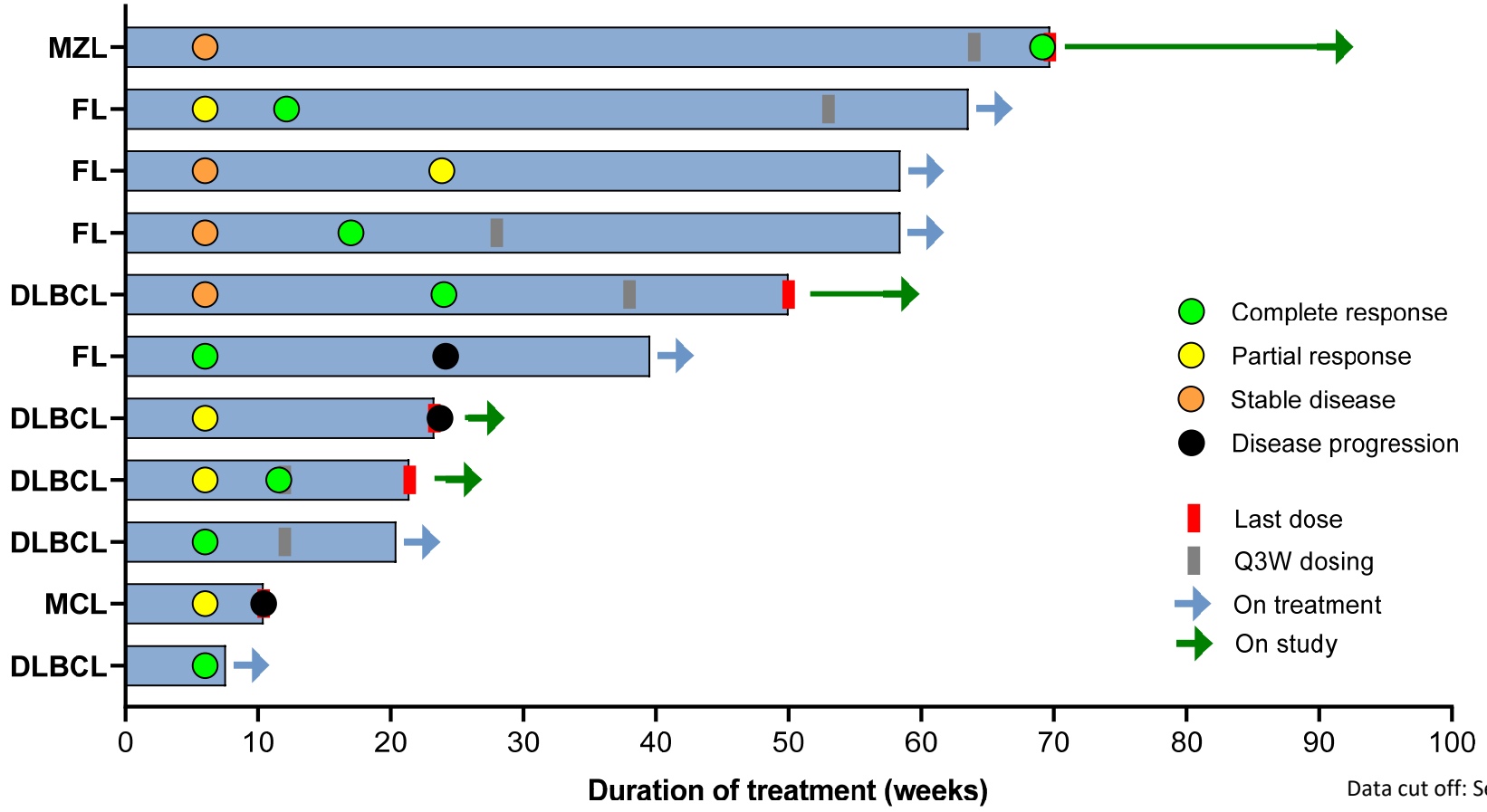
Patient status: responders only



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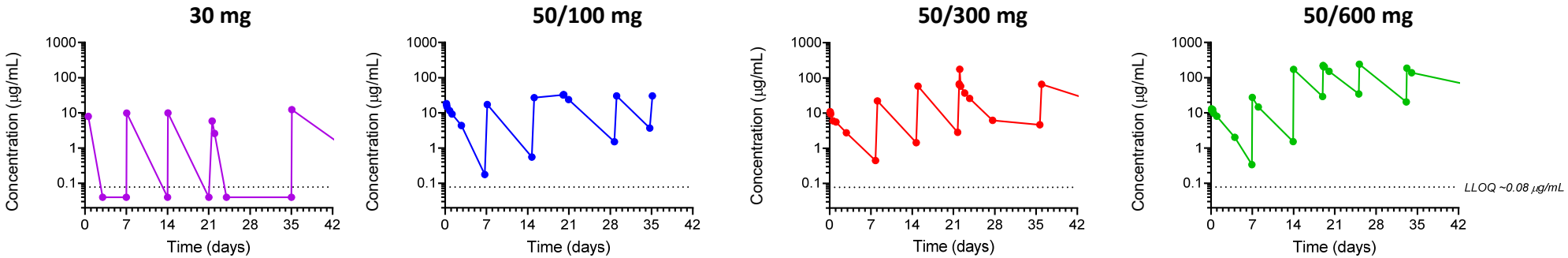
IGM-2323 pharmacokinetics

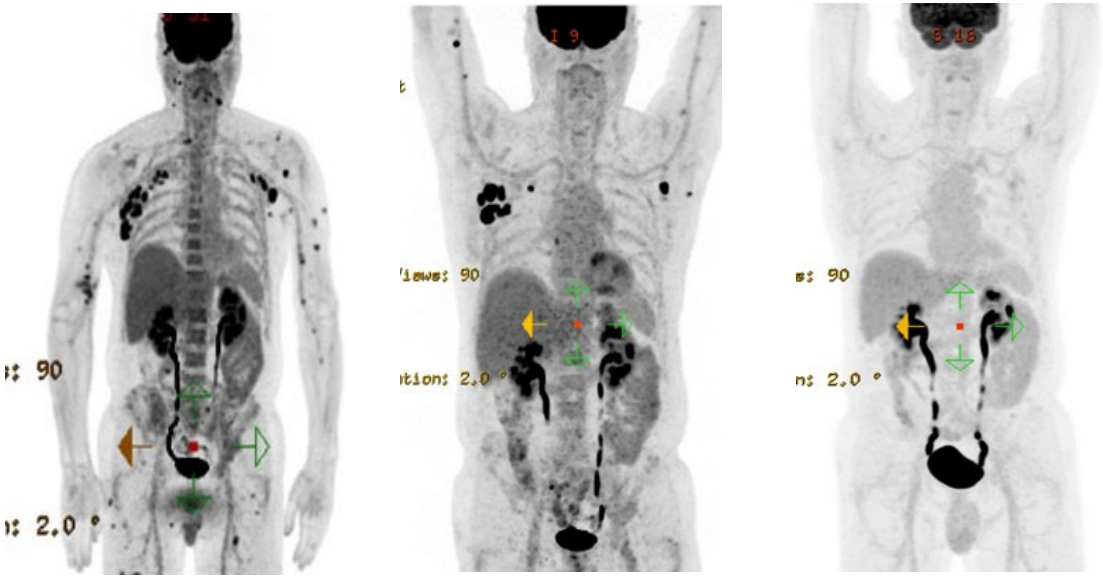
Representative PK profiles: 30 mg expansion & titration cohorts



- No drug-induced antidrug antibodies detected to date
- Sustained and dose-dependent effect on IGM-2323 levels throughout dosing interval at ≥100 mg
- Preliminary population estimate of $t_{1/2}$ is ~1.5 days

63-year-old male with Stage II FL- CR at week 12

PET imaging

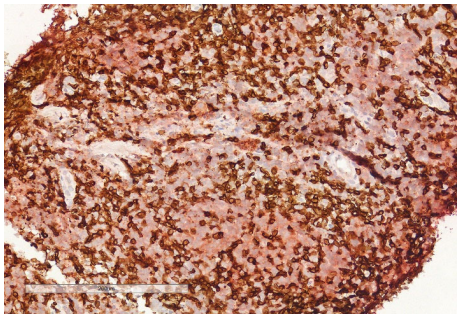


Baseline **Week 6** **Week 12**

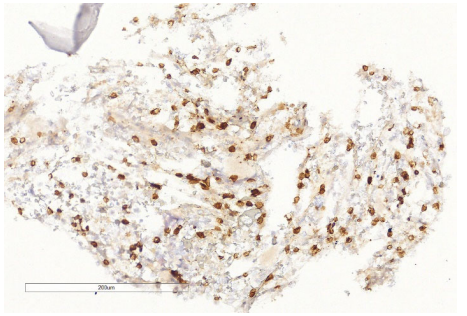
- 63-year-old male with Grade 2 FL; diagnosed in January 2018
- s/p R-CHOP (CR) and R-utomilumab/avelumab (PR)
- Off treatment for 7 months prior to IGM-2323
- Patient remains on treatment in CR
- Images courtesy of Dana Farber Cancer Institute

Tumor CD20/CD3 expression

Pre-treatment



Cycle 7 Day 2



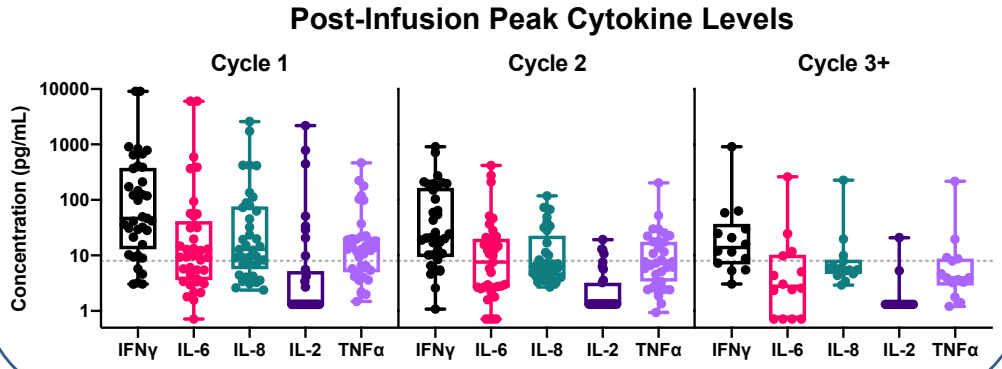
Dual IHC:
CD20
CD3

- 3 of 3 patients with pre-/post-biopsy had CD20 decrease/CD3 increase
- 2 of 4 CR patients with tissue available had low CD20 expression at baseline (H-score=15 and 30)

IGM-2323 induces potent T-cell effector cytokines while minimizing cytokines associated with CRS

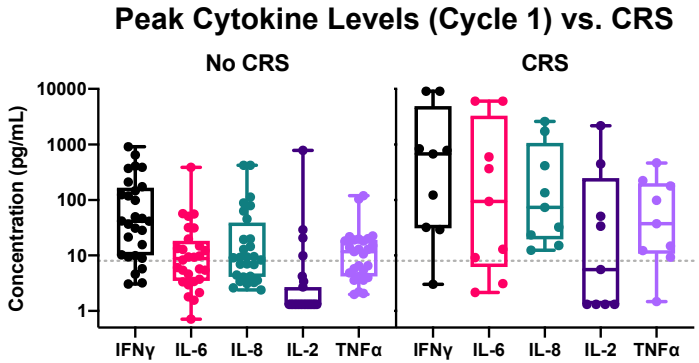
IGM-2323 induces IFNγ dominant immune activity in majority of patients

- Biologically active dose starting at 10 mg
- Transient cytokine elevations (~2–12 hours) over multiple infusions



Poly-cytokine response may be associated with CRS

- Timing of poly-cytokine increase matches CRS onset



Box plots show highest concentration of plasma cytokines from n=39 patients. Dotted line indicates median of baseline cytokine levels

Conclusions

IGM-2323 is active against R/R NHLs and demonstrates a highly favorable safety profile

- Active in heavily pre-treated NHLs with evidence of prolonged DOR as a single agent, including those who have received prior CAR-T
- Low rates of grade 2 or higher CRS, no ICANS, and minimal neutropenia
- Repeatable IFNγ dominant T-cell activation due to a potentially more physiologic immune stimulation, which is in contrast to other T-cell engagers

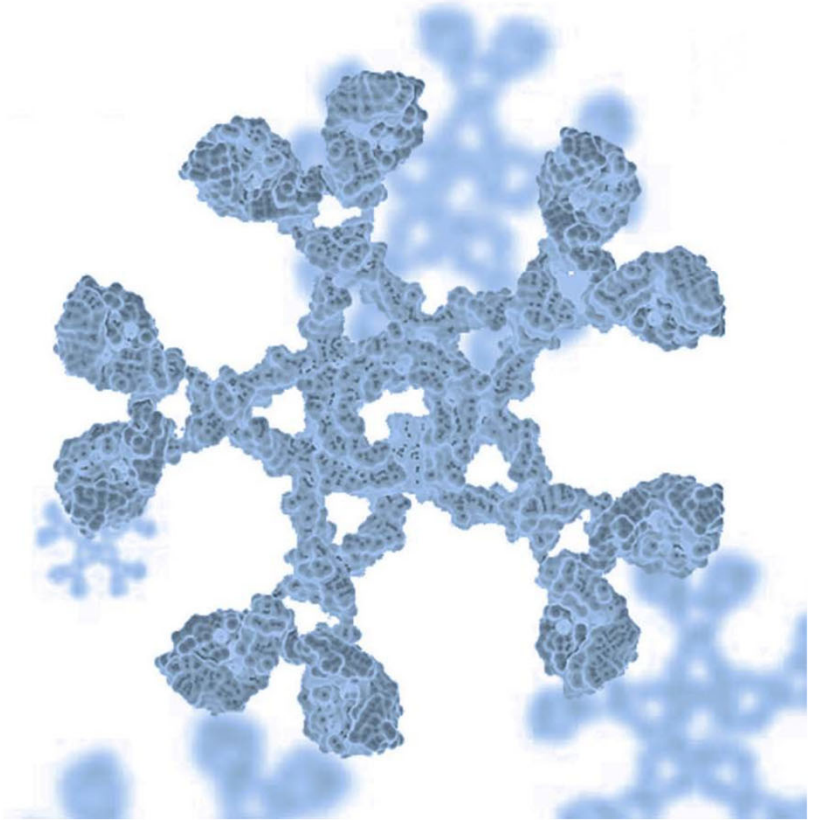
Phase 2 randomized dose-selection studies underway

- Select optimal phase 2 dose in R/R DLBCL and FL, aligning with FDA guidance (Project Optimus)
- Further exploration of q3 week dosing after first cycle

Acknowledgements

- We would like to thank the following individuals and groups for their important contributions to this program:
  - Study patients and their families
  - Study sites and staff
  - Rachel Wei, PhD, head of biometrics at IGM Biosciences
  - Dave Ramies, MD and Paul Fredlund, MD for their careful data review
  - Lee Miller, RPI, for slide development

Chris Takimoto, M.D., Ph.D.
Chief Medical Officer



IGM-2323 Data Conclusions

- Encouraging indications of efficacy and safety at 100 mg titration dose levels
  - Complete responses at 100 mg
    - 3/6 in DLBCL
    - 2/3 in FL
  - Favorable safety profile with titration dosing regimen over all dose levels (N=28):
    - 18% CRS, majority Grade 1
    - No Gr2+ neutropenia observed to date
    - No CRS-associated neurotoxicity observed to date

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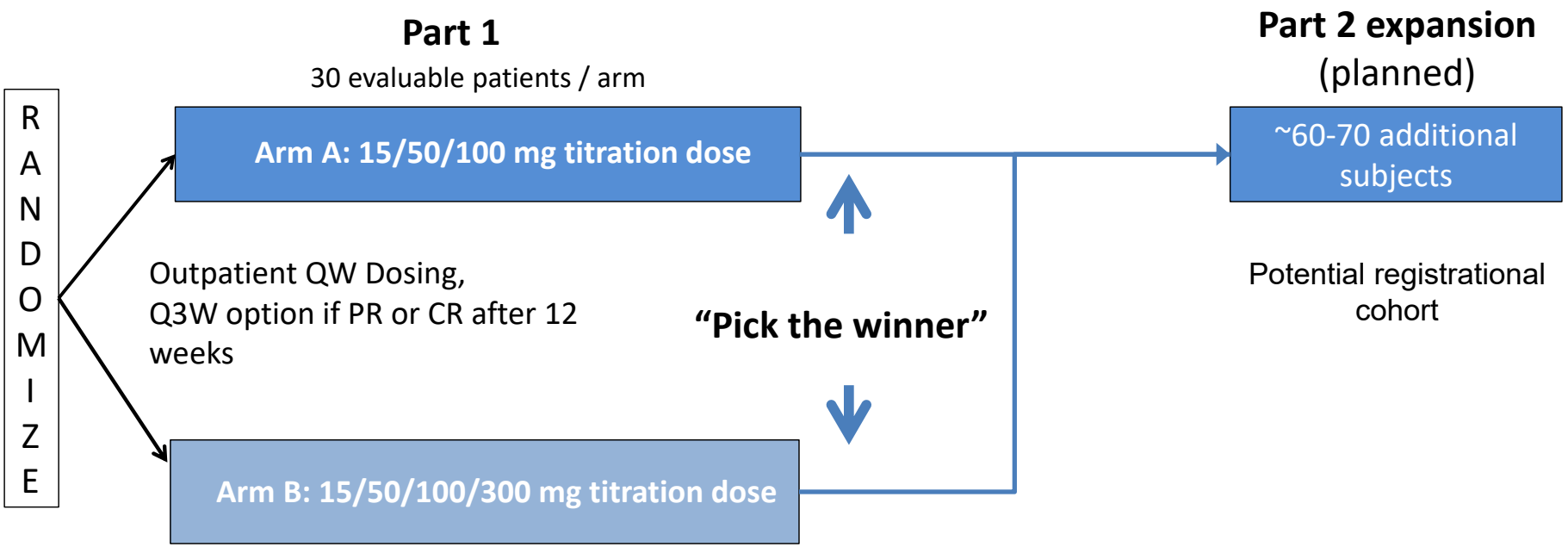
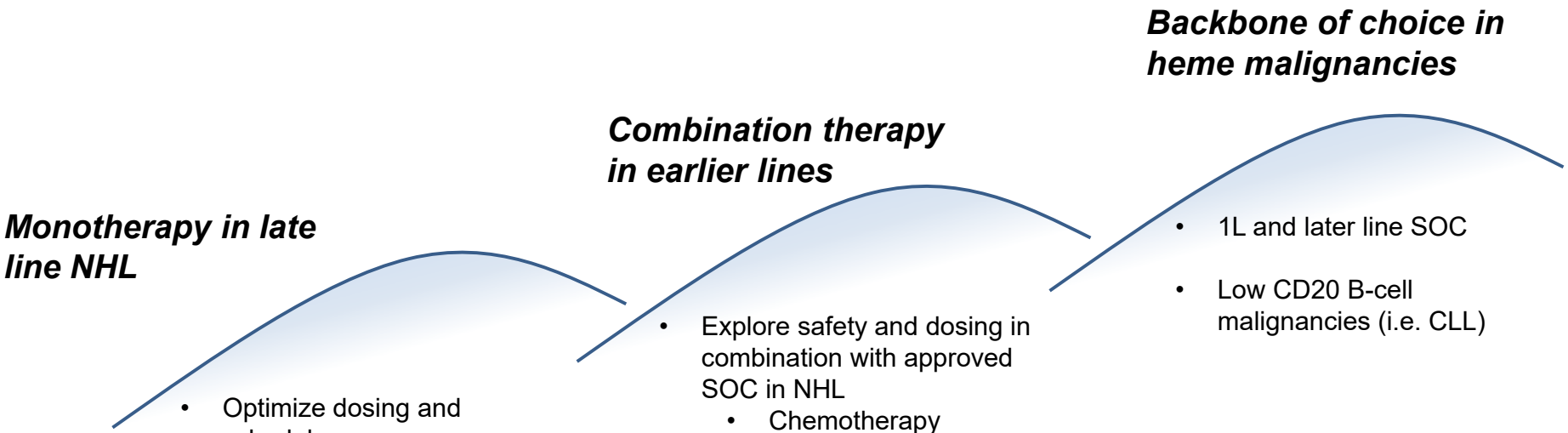
Phase 2 randomized dose-selection studies with seamless expansion into a potential registrational cohort



NOTE: There will be two dose-selection studies: one in DLBCL; the other in FL

IGM-2323: A Potential Backbone Therapy in Hematology



Monotherapy in late line NHL

- Optimize dosing and schedule
- Establish POC and launch in 3L+ NHL

Combination therapy in earlier lines

- Explore safety and dosing in combination with approved SOC in NHL
  - Chemotherapy
  - CD19-targeting agents
  - IMiDs
- Define efficacy signals in earlier lines of treatment

Backbone of choice in heme malignancies

- 1L and later line SOC
- Low CD20 B-cell malignancies (i.e. CLL)

- **Excellent emerging safety and efficacy profile in relapsed/refractory non-Hodgkin's Lymphoma**
- **Safety profile lends itself well to combination therapy in earlier lines of treatment (low overlapping toxicities, minimal additional safety burden)**

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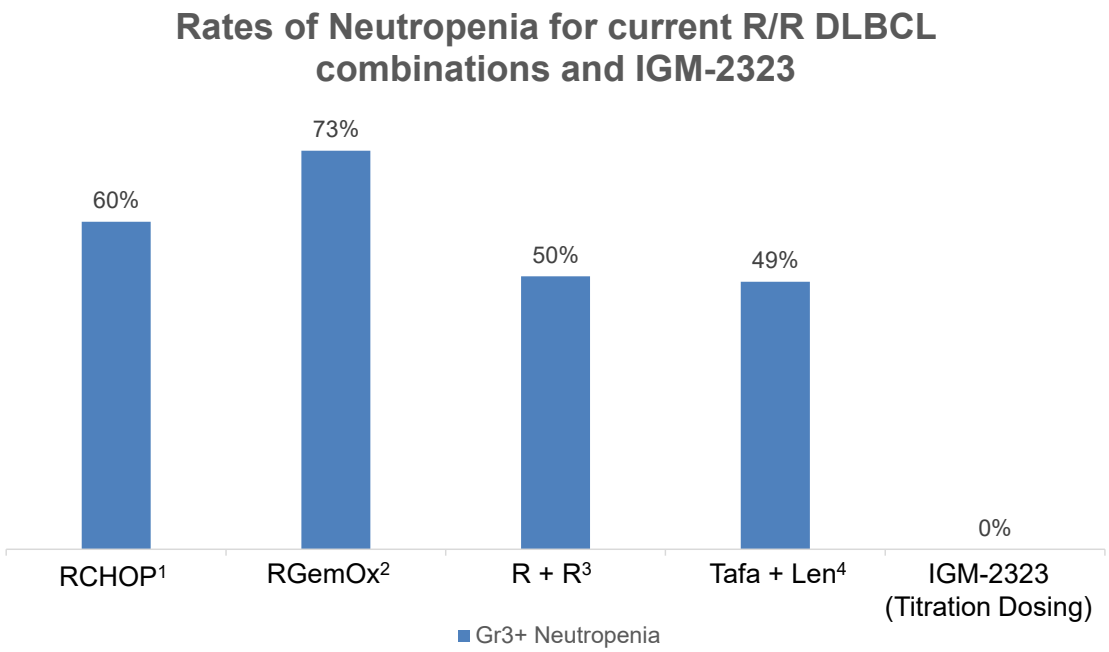
Current SOC treatments for R/R DLBCL have substantial hematologic toxicities, potentially complicating combination approaches



- **Many current combination regimens** already have **significant hematologic toxicity**
  - **3-24% of patients experience febrile neutropenia** on current combinations
  - Potential for **interruptions or discontinuations** with associated reduction in potential efficacy
- **IGM-2323 has not shown significant neutropenia (0% Gr3+)** with titration dosing (N=28) as well as **minimal other Gr3+ toxicities**
  - Improves feasibility for **addition** to any of existing therapies

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4234916/;
2. https://pubmed.ncbi.nlm.nih.gov/23753028/
3. https://revlimidhcp.com/rrfl/safety
4. https://www.haematologica.org/article/view/haematol.2020.275958

Data cut off: September 10, 2021

IGM-2323 safety profile and mechanism of action potentially enables combinations with Standard of Care regimens in earlier lines of NHL treatment

Initial cohorts for planned IGM-2323 Phase 1 Combination Trial

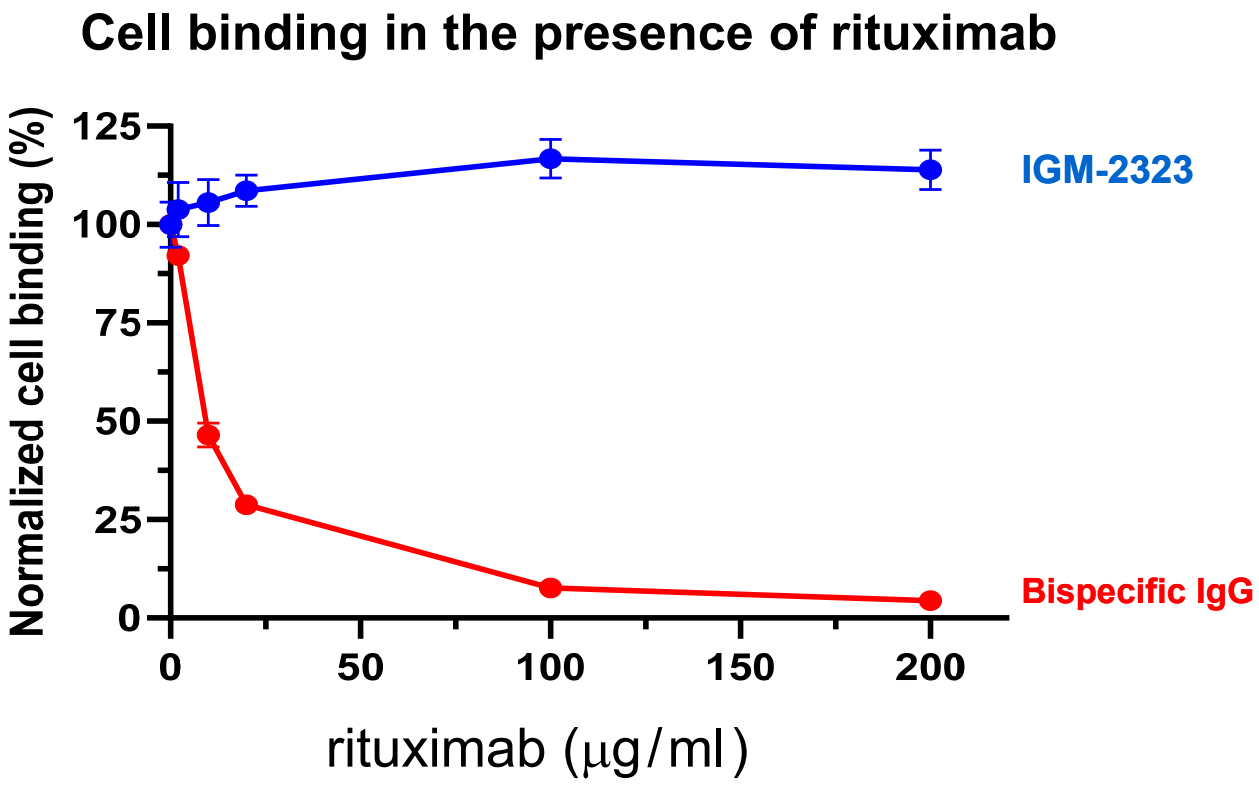
Regimen	Indication	Rationale
IGM-2323 + Rituximab-GemOx	2L+ DLBCL, ASCT ineligible	Minimal overlapping AEs; straightforward development path
IGM-2323 + Tafasitamab/Lenalidomide	2L + DLBCL, ASCT ineligible	Minimal overlapping AEs; addressing multiple complementary MOAs
IGM-2323 + Rituximab/Lenalidomide	2L+ FL	Minimal overlapping AEs; addressing multiple complementary MOAs

Other combinations under consideration:

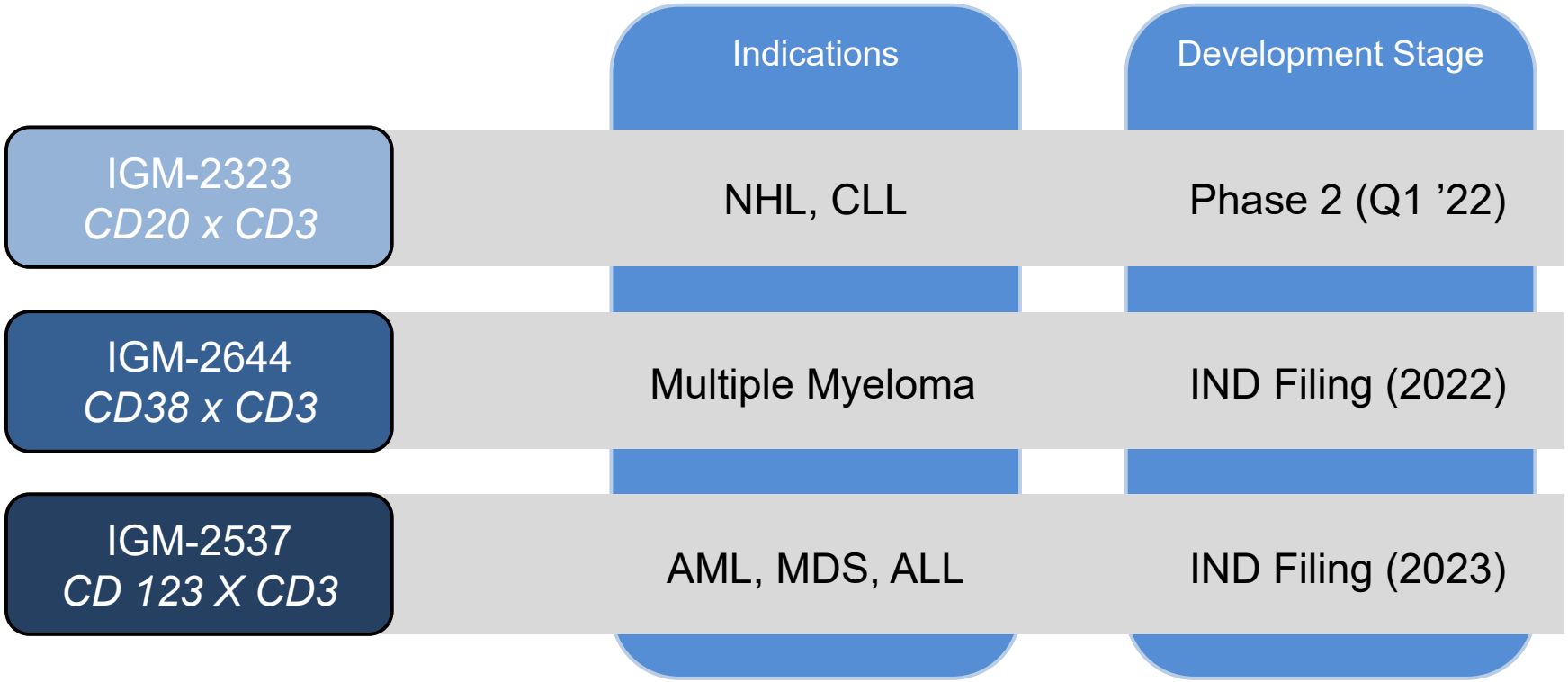
- iMiDs
- Antibody-Drug Conjugates
- PI3K inhibitors
- Protein degraders
- BTK inhibitors

IGM-2323 successfully binds in presence of rituximab

In-vitro data supports use in rituximab combination regimens



Safety and efficacy profile of IGM-2323 supports development of bispecific antibodies against important hematologic targets



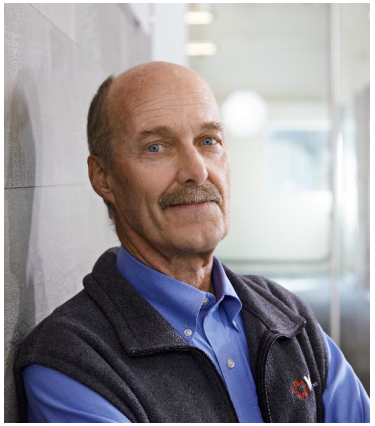
IGM pipeline

Therapeutic Area	Mode	Target	Indications	Phase of Development					Worldwide Commercial Rights	Anticipated Milestones
				Discovery	Pre-clinical	Phase 1	Phase 2	Phase 3		
Oncology	T-cell Engager	IGM-2323 (CD20 x CD3)	NHL, CLL						igm biosciences	Phase 2 Initiation: Q1 2022
		IGM-2644 (CD38 x CD3)	Multiple Myeloma						igm biosciences	Phase 1 initiation: 2022 (anticipated)
		IGM-2537 (CD123 x CD3)	AML, MDS, ALL						igm biosciences	Phase 1 initiation: 2023 (anticipated)
	Receptor Cross-linking Agonist	IGM-8444 (DR5)	Solid and Hematologic Malignancies						igm biosciences	Additional Phase 1 data in solid tumors: 2022
	Targeted Cytokines	IGM-7354 (IL-15 x PD-L1)	Solid and Hematologic Malignancies						igm biosciences	Phase 1 initiation: 2022 (anticipated)
Infectious Disease	Target Neutralizer	IGM-6268 (SARS-CoV-2)	COVID-19						igm biosciences	Phase 1 initiation: Q4 2021

Q & A

Fred Schwarzer
Chief Executive Officer

Chris Takimoto, M.D., Ph.D.
Chief Medical Officer



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