MacroGenics®

Developing
Breakthrough Biologics,
Life-changing Medicines™

Corporate Presentation

March 2020

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Investigational Agents

All Company product candidates described or mentioned herein are investigational and have not yet been approved for marketing by any regulatory authority.

Building a Leadership Position in Immuno-Oncology

Late-stage immuno-oncology company	• December 2020 PDUFA goal date for most advanced product candidate • Three additional ongoing or anticipated registration-directed studies
Proprietary platform technologies	• Bispecific DART® platform technology that exploits multiple mechanisms • Fc-engineering to enhance innate and adaptive immunity
Deep and differentiated pipeline	• Unique immune-based mechanisms • Retain major market rights for 6 of 7 clinical assets
Funded to execute on plan	• $216M cash, cash equivalents and marketable securities at 12/31/19 • Multiple 2020 inflection points

Deep and Differentiated Immuno-Oncology Pipeline

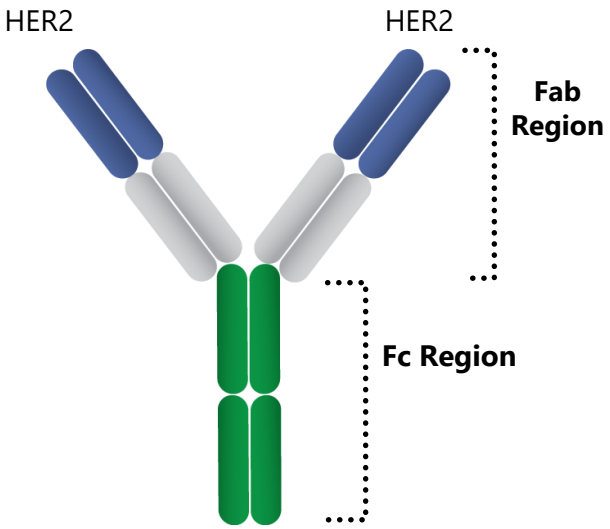
Program (Target)	Potential Indication(s)	First-in-Human (Phase 1)	Proof-of-Concept (Phase 2)	Pivotal (Phase 3)	Major Market Rights
Margetuximab (HER2)	HER2+ Breast				MacroGenics; Greater China: zai Lab
	HER2+ Gastric/GEJ (+MGA012/MGD013)				
Flotetuzumab (CD123 × CD3)	AML				MacroGenics
	AML (+MGA012)				
MGA012 (PD-1)	Solid Tumors				Incyte[(b)]
Enoblituzumab (B7-H3)	SCCHN (+MGA012/MGD013)				MacroGenics; Greater China: I-MAB Biopharma
MGD013 (PD-1 × LAG-3)	Solid Tumors & Heme Malignancies				MacroGenics; Greater China: zai Lab
MGD019 (PD-1 × CTLA-4)	Solid Tumors				MacroGenics
MGC018 (B7-H3)[(a)]	Solid Tumors				MacroGenics

MGD = DART | MGA = Antibody | MGC = ADC

(a) MGC018 is an antibody-drug conjugate (ADC) based on a duocarmycin payload with cleavable peptide linker that was licensed from Synthon Biopharmaceuticals.
(b) MacroGenics retains rights to develop its pipeline assets in combination w/MGA012 (INCMGA0012) and to manufacture a portion of global clinical and commercial supply needs of MGA012.
All Company product candidates described or mentioned herein are investigational and have not yet been approved for marketing by any regulatory authority.

Margetuximab: Anti-HER2 mAb Engineered to Enhance Activity of Immune System

December 2020 PDUFA goal date for BLA for HER2+ metastatic breast cancer (mBC)

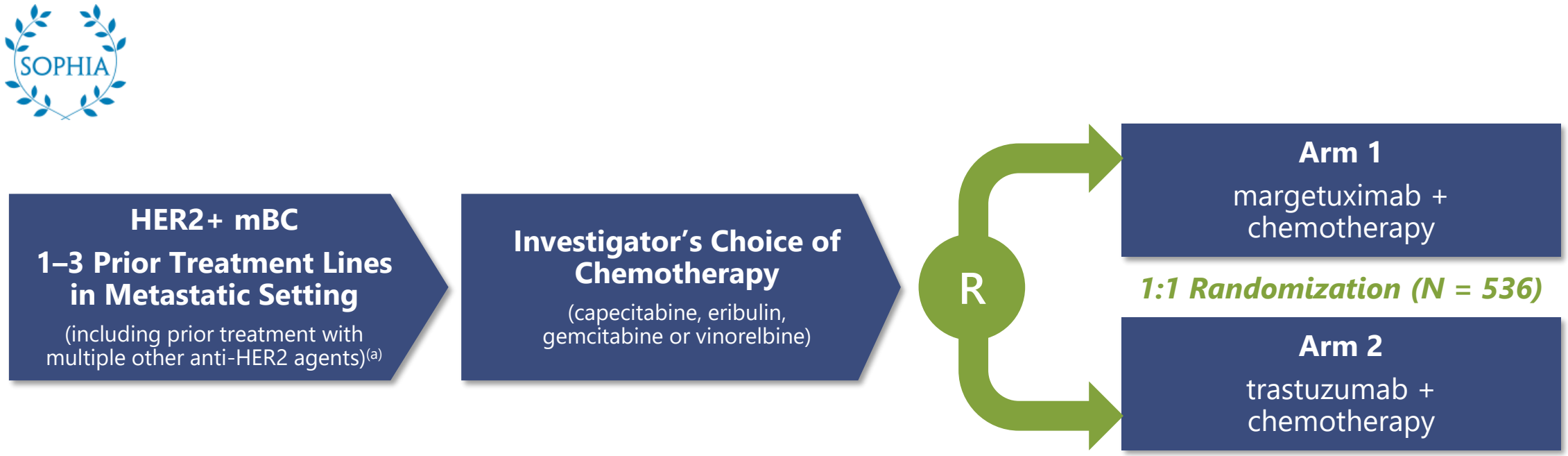


Function/ MoA	• Inhibits HER2 signaling (similar to trastuzumab) • Fc region engineered to engage innate and adaptive immunity as mediators of anti-tumor activity
Pivotal Clinical Studies	• Ph. 3 SOPHIA study versus trastuzumab in HER2+ mBC • Ph. 2/3 MAHOGANY study w/checkpoint inhibitor in HER2+ gastric cancer
2020 Anticipated Milestones	• BLA for HER2+ mBC: ODAC expected (2H); PDUFA goal date (December 18, 2020) • Final SOPHIA OS analysis (N=385) (2H) • Obtain initial data from MAHOGANY Module A

Margetuximab is investigational and has not yet been approved for marketing by any regulatory authority

Phase 3 SOPHIA Study Comparing Margetuximab to Trastuzumab

Designed to support registration in 3rd/4th line HER2+ metastatic breast cancer



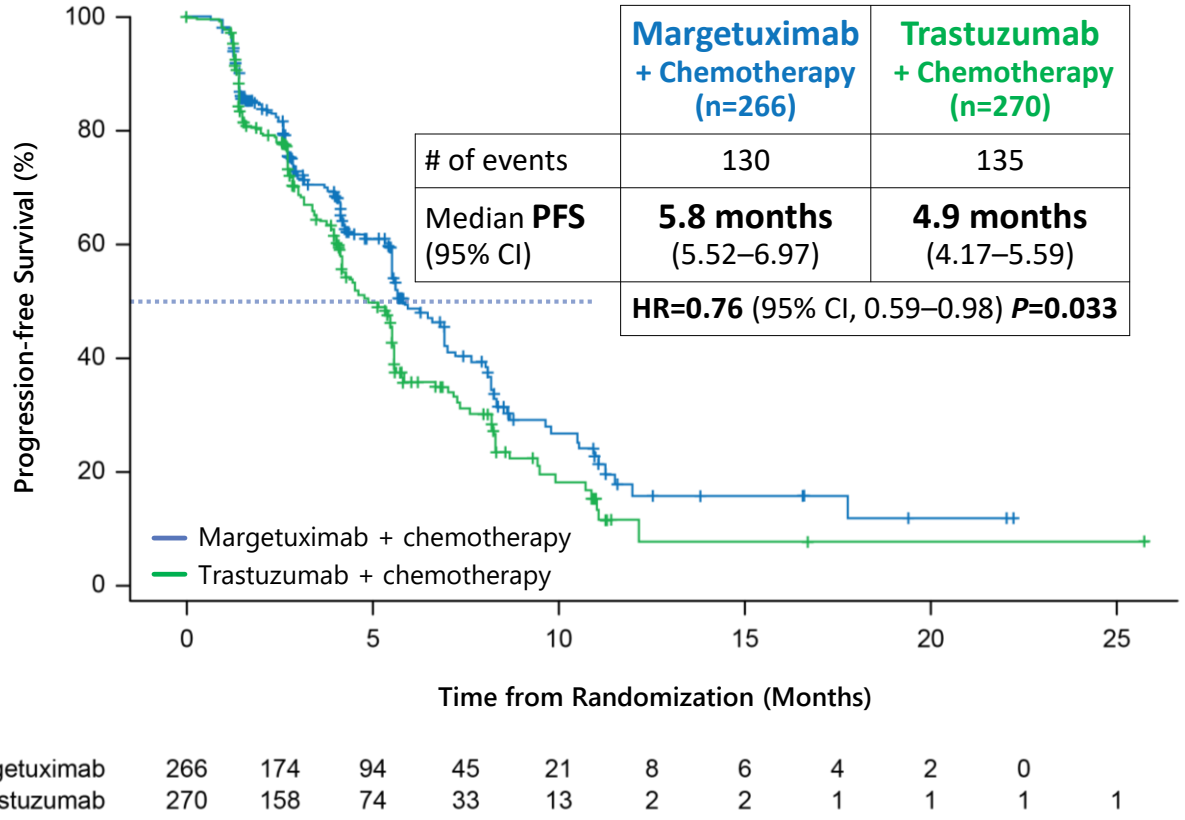
- **Sequential primary endpoints: PFS and OS**
- Patients carrying CD16A (FcγRIIIa) 158F allele were pre-specified exploratory subpopulation

PFS (N=257, HR=0.67, α=0.05, power=90%)
OS (N=385, HR=0.75, α=0.05, power=80%)

(a) All study patients had previously received trastuzumab and pertuzumab, and approximately 90% had previously received ado-trastuzumab emtansine.

Primary PFS Endpoint: Margetuximab Demonstrated Superiority to Trastuzumab

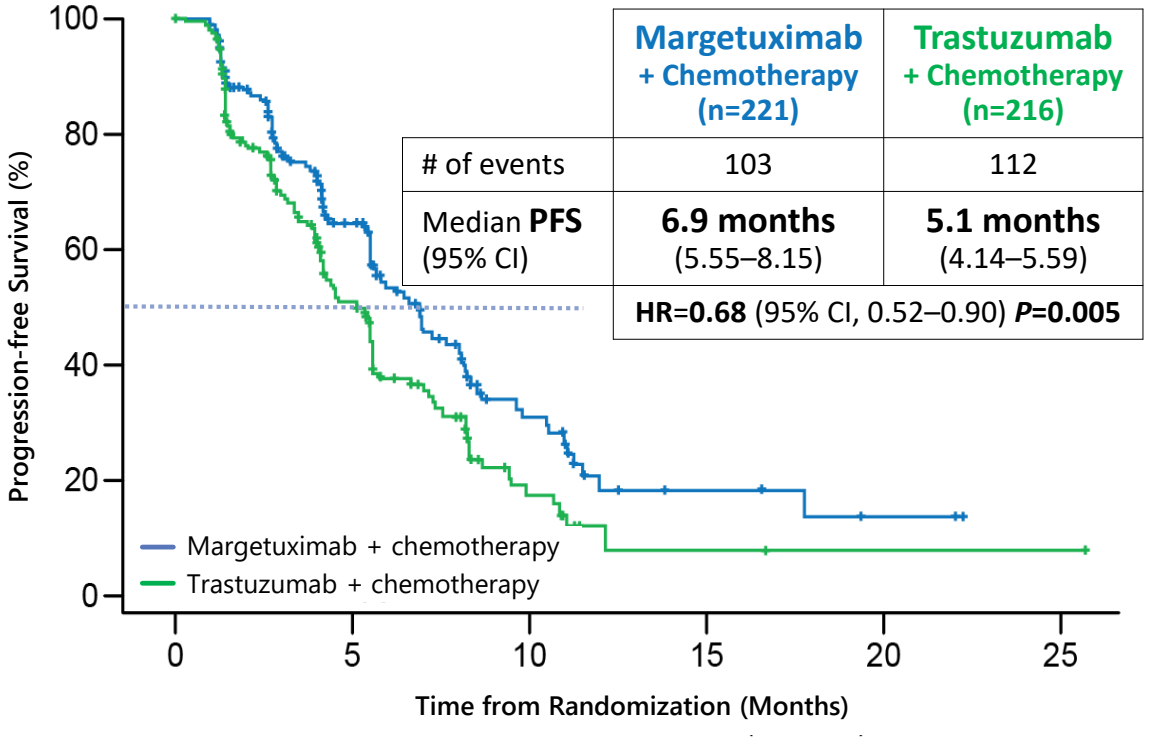
PFS Primary Endpoint (ITT Population):
24% Risk Reduction of Disease Progression



	Margetuximab + Chemotherapy (n=266)	Trastuzumab + Chemotherapy (n=270)
# of events	130	135
Median **PFS** (95% CI)	**5.8 months** (5.52–6.97)	**4.9 months** (4.17–5.59)
	HR=0.76 (95% CI, 0.59–0.98) ***P*=0.033**	

Margetuximab	266	174	94	45	21	8	6	4	2	0	
Trastuzumab	270	158	74	33	13	2	2	1	1	1	1

Pre-specified Exploratory Subpopulation (CD16A-158F Carriers):
32% Risk Reduction of Disease Progression



	Margetuximab + Chemotherapy (n=221)	Trastuzumab + Chemotherapy (n=216)
# of events	103	112
Median **PFS** (95% CI)	**6.9 months** (5.55–8.15)	**5.1 months** (4.14–5.59)
	HR=0.68 (95% CI, 0.52–0.90) ***P*=0.005**	

Margetuximab	221	157	84	42	21	8	6	4	2	0	
Trastuzumab	216	129	62	30	11	2	2	1	1	1	1

October 2018 data cut-off after 265 PFS events in ITT population.
CI=confidence interval. ITT=Intent to Treat population: N=536. CD16A 158F Carriers=FF or FV Genotype.
HR=Hazard Ratio (ITT by stratified Cox model; F Carriers by unstratified Cox model).

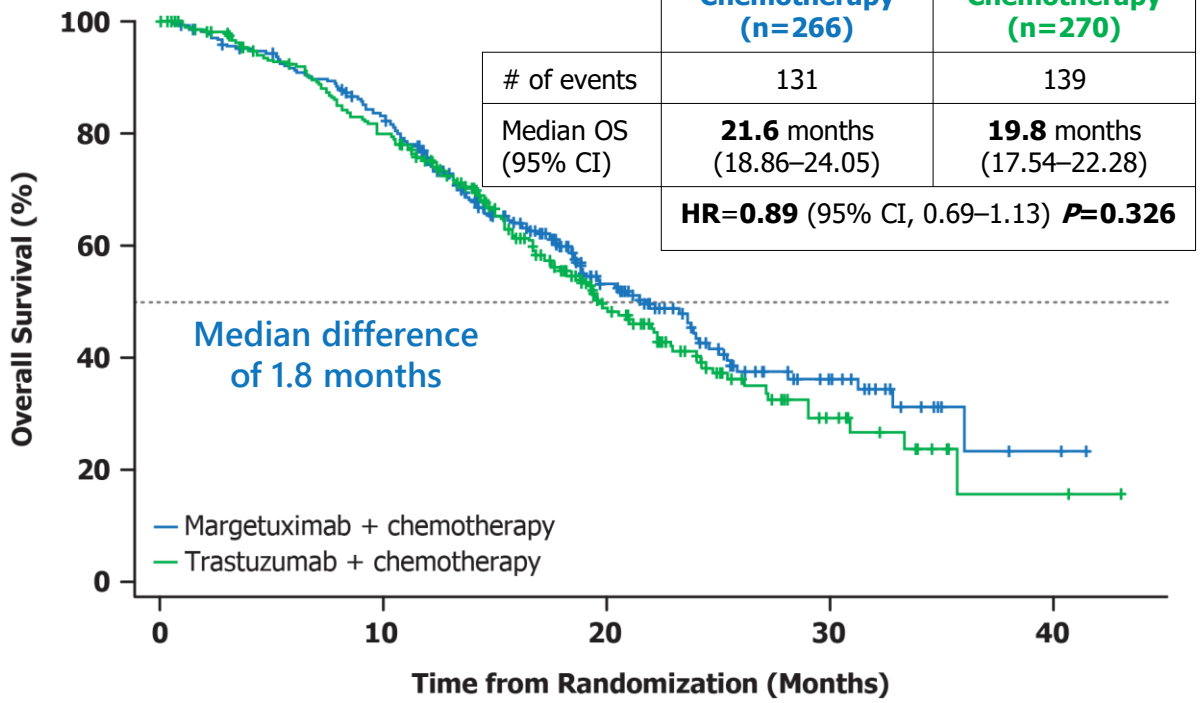
Rugo, et al., ASCO 2019

Second Interim Overall Survival Analysis: Trend Favored Margetuximab

Final analysis expected 2H20

ITT Population

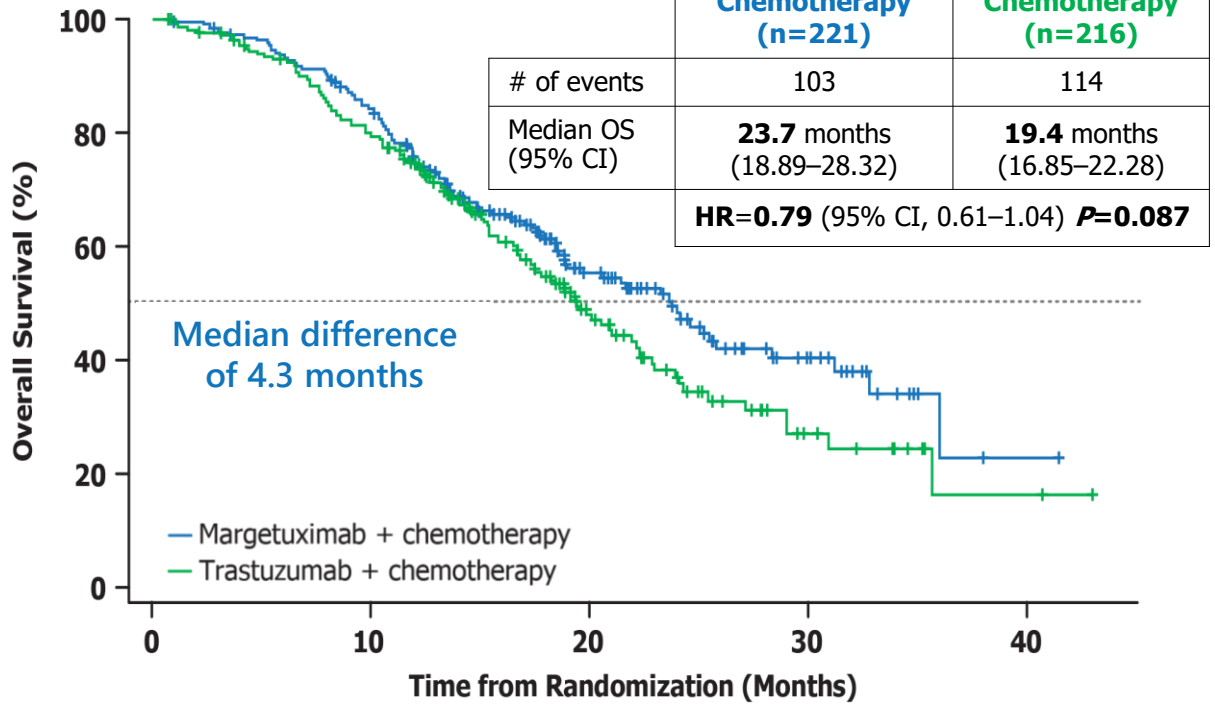
	Margetuximab + Chemotherapy (n=266)	Trastuzumab + Chemotherapy (n=270)
# of events	131	139
Median OS (95% CI)	**21.6** months (18.86–24.05)	**19.8** months (17.54–22.28)
	HR=0.89 (95% CI, 0.69–1.13) ***P*=0.326**	



Margetuximab	266	259	249	239	230	214	188	159	131	107	80	64	47	35	31	22	14	9	3	2	2	0
Trastuzumab	270	260	246	236	218	205	183	160	126	102	74	57	43	30	22	16	10	6	2	2	2	1	0

Pre-specified Exploratory Subpopulation (CD16A-158F Carriers):

	Margetuximab + Chemotherapy (n=221)	Trastuzumab + Chemotherapy (n=216)
# of events	103	114
Median OS (95% CI)	**23.7** months (18.89–28.32)	**19.4** months (16.85–22.28)
	HR=0.79 (95% CI, 0.61–1.04) ***P*=0.087**	



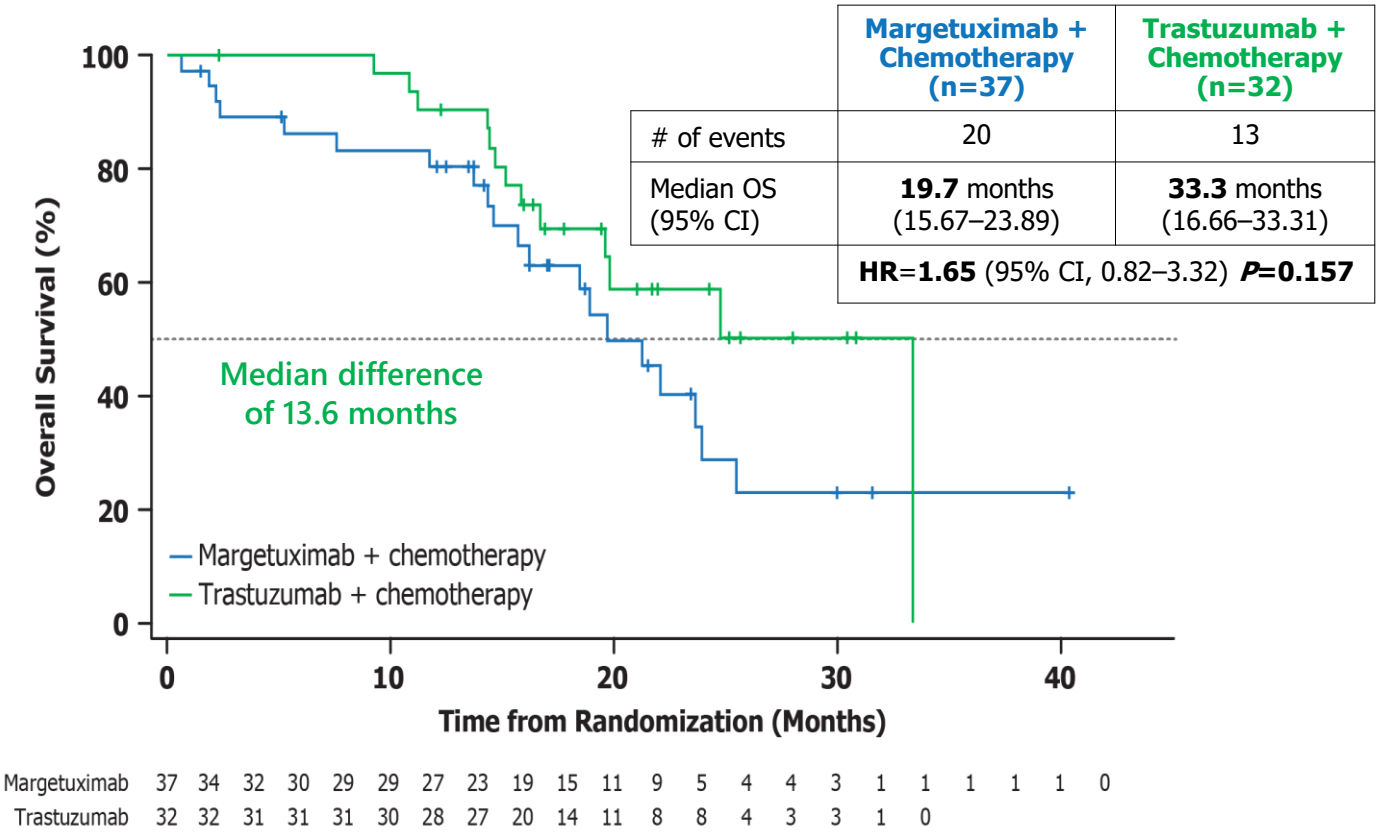
Margetuximab	221	219	212	204	196	181	157	135	111	91	68	55	42	31	27	19	13	8	2	1	1	0
Trastuzumab	216	210	201	192	176	165	145	123	98	81	57	43	30	21	16	11	9	6	2	2	2	1	0

September 2019 data cut-off after 270 events in ITT population. Median follow-up: 15.6 months.
ITT=Intent to Treat population: N=536. CD16A 158F Carriers=FF or FV Genotype.
CI=confidence interval. HR=Hazard Ratio (ITT by stratified Cox model; F Carriers by unstratified Cox model).

Rugo, et al., SABCS 2019

Pre-specified Exploratory OS in CD16A-158 VV Homozygotes

VV subpopulation represents 33 events (270 events in ITT population)



	Margetuximab + Chemotherapy (n=37)	Trastuzumab + Chemotherapy (n=32)
# of events	20	13
Median OS (95% CI)	**19.7** months (15.67–23.89)	**33.3** months (16.66–33.31)
	HR=1.65 (95% CI, 0.82–3.32) ***P*=0.157**	

Unbalanced patient characteristics

Baseline Characteristic	Margetuximab + Chemotherapy (n=37)	Trastuzumab + Chemotherapy (n=32)
Cancer disease history		
Brain, n (%)	8 (**22%**)	3 (**9%**)
Breast, n (%)	10 (**27%**)	5 (**16%**)
Liver, n (%)	16 (**43%**)	10 (**31%**)
Lung, n (%)	11 (**30%**)	13 (**41%**)
Lymph node, n (%)	21 (**57%**)	16 (**50%**)
HER2 IHC 3+, n (%)	19 (**51%**)	18 (**56%**)
Hormone receptor +, n (%)	23 (**62%**)	18 (**56%**)
ECOG PS 1, n (%)	14 (**38%**)	16 (**50%**)
>60 years of age, n (%)	16 (**43%**)	5 (**16%**)
>2 prior metastatic lines of therapy, n (%)	15 (**41%**)	9 (**28%**)

Less favorable

September 2019 data cut-off after 270 events in ITT population. Median follow-up: 15.6 months.
CI=confidence interval. HR=Hazard Ratio (by unstratified Cox model).

Rugo, et al., SABCS 2019

Overall Safety Profiles Similar

Adverse Events (AE)

	Margetuximab + Chemotherapy (n=264)		Trastuzumab + Chemotherapy (n=266)	
Any grade AE, n (%)	260 (98.5)		261 (98.1)	
Any margetuximab or trastuzumab-related AE, n (%)	160 (60.6)		132 (49.6)	
Grade ≥3 AE, n (%)	142 (53.8)		140 (52.6)	
Grade ≥3 margetuximab or trastuzumab-related AE, n (%)	34 (12.9)		22 (8.3)	
Any SAE, n (%)	43 (16.3)		49 (18.4)	
Any margetuximab or trastuzumab-related SAE, n (%)	5 (1.9)		4 (1.5)	
AE leading to treatment[a] discontinuation, n (%)	8 (3.0)		7 (2.6)	
AEs resulting in death,[b] n (%)	3 (1.1)[c]		2 (0.8)[d]	
AEs of special interest, n (%)	**All Grade**	**Grade ≥3**	**All Grade**	**Grade ≥3**
Infusion-related reaction (IRR)	35 (13.3)	4 (1.5)	9 (3.4)	0
Discontinuation due to IRRs, n (%)	2 (0.6)	0	0	0
LV dysfunction leading to dose delay or discontinuation, n (%)	4 (1.5)	0	6 (2.3)	0

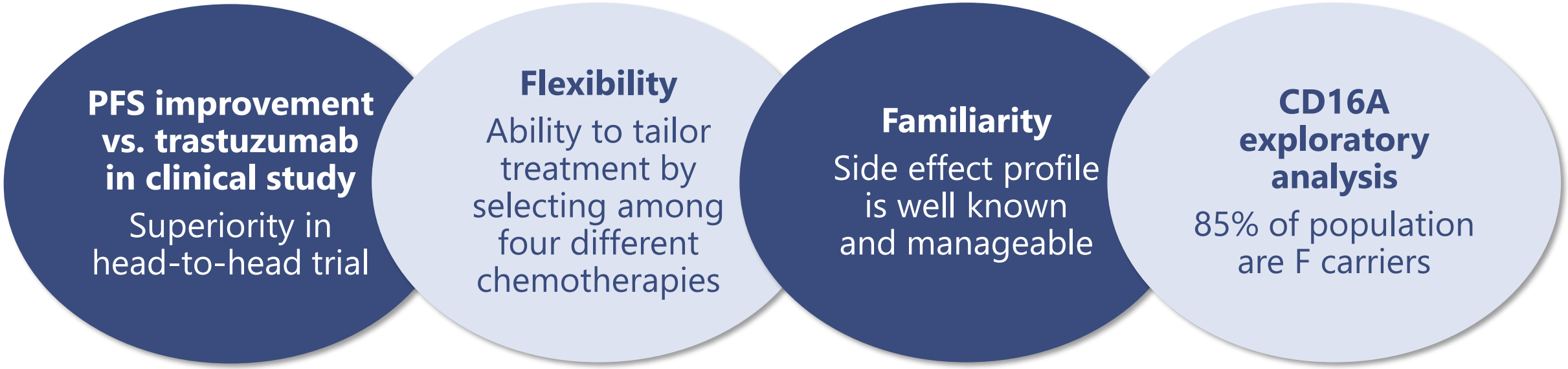
Safety Population (randomized patients who received any study treatment): N=530. April 2019 cut-off.
(a) Including both anti-HER2 study therapy and chemotherapy. (b) No AEs resulting in death were considered related to anti-HER2 study therapy.
(c) Pneumonia (n=2), pneumonia aspiration (n=1). (d) Pneumonia (n=1), acute kidney injury (n=1). LV=left ventricular; SAE=serious AE.

Rugo, et al., SABCS 2019

Margetuximab's Potential Role in Treatment of HER2+ mBC

Need remains for additional therapies in later lines

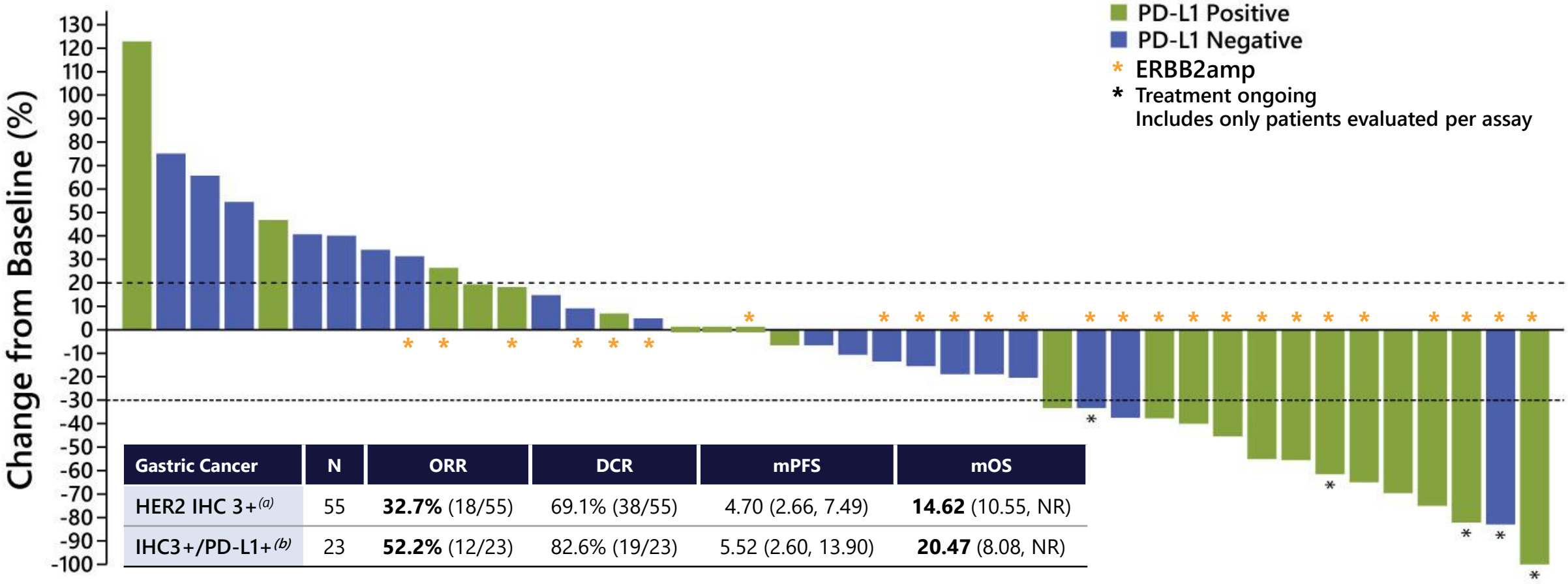
Patients will progress on other HER2-directed therapies



Margetuximab is investigational and has not yet been approved for marketing by any regulatory authority

Promising Activity in Advanced Gastric Cancer Patients in Phase 2 Study

33% ORR in HER2 3+ gastric cancer previously treated with chemotherapy and trastuzumab



Gastric Cancer	N	ORR	DCR	mPFS	mOS
HER2 IHC 3+[(a)]	55	**32.7%** (18/55)	69.1% (38/55)	4.70 (2.66, 7.49)	**14.62** (10.55, NR)
IHC3+/PD-L1+[(b)]	23	**52.2%** (12/23)	82.6% (19/23)	5.52 (2.60, 13.90)	**20.47** (8.08, NR)

Data cut-off July 10, 2019. Includes patients who received ≥1 margetuximab and pembrolizumab dose in expansion phase, and had baseline measurable disease and ≥1 post-baseline disease assessment.

(a) Immunohistochemistry (IHC) test gives score of 0 to 3+ that measures amount of HER2 receptor protein on surface of cells in cancer tissue sample. Score of 0 to 1+ is called "HER2 negative", score of 2+ is called "borderline", score of 3+ is called "HER2 positive."

(b) "PD-L1 Positive" reflects Combined Positive Score (per standard FDA approved assay) ≥1% (PD-L1 tested on archival tissue by IHC; clone 22C3 pharmDx).

Catenacci, et al., ESMO 2019

Gastric Cancer as Follow-on Indication

Data from 2L margetuximab + anti-PD-1 mAb presents opportunity to advance to 1L

HER2+ gastric cancer benchmarks

	1st Line	2nd Line			3rd Line
	SOC	SOC	Ongoing Phase 2 Study	Failed	Ongoing Study
Agent (Study)	Trastuzumab + Chemo[a] (TOGA)	Ramucirumab + Paclitaxel[b] (RAINBOW)	**Margetuximab + Pembrolizumab[c]** IHC 3+	**Margetuximab + Pembrolizumab[c]** IHC 3+/PD-L1+	Pembrolizumab[d] (KEYNOTE-61) PD-L1+	DS-8201[e]
ORR	47%	28%	**33%**	**52%**	15.8%	43%
Median PFS	6.7 mos.	4.4 mos.	**4.7 mos.**	**5.5 mos.**	1.5 mos.	5.6 mos.
Median OS	**13.1 mos.**	9.6 mos.	**14.6 mos.**	**20.5 mos.**	9.1 mos.	12.8 mos.
≥ Grade 3 TRAEs	**68%**	Overall: N/A 41% Neutropenia 15% Hypertension 12% Fatigue	**20%**		14%	48%
Gastric/GEJ Patient Mix	80/20%	80/20%	**100%/0%**		70%/30%	80%/20%

SOC = Standard of Care

(a) Data from Herceptin package insert; Bang, et al., Lancet, 2010;

(b) Data from Cyramza package insert; Wilkes, et al., Lancet Oncology, 2014;

(c) Data presented at ESMO 2019; Grade 3 TRAE includes all GC and GEJ patients.

(c) Data presented at ESMO 2019; Grade 3 TRAE includes all GC and GEJ patients.

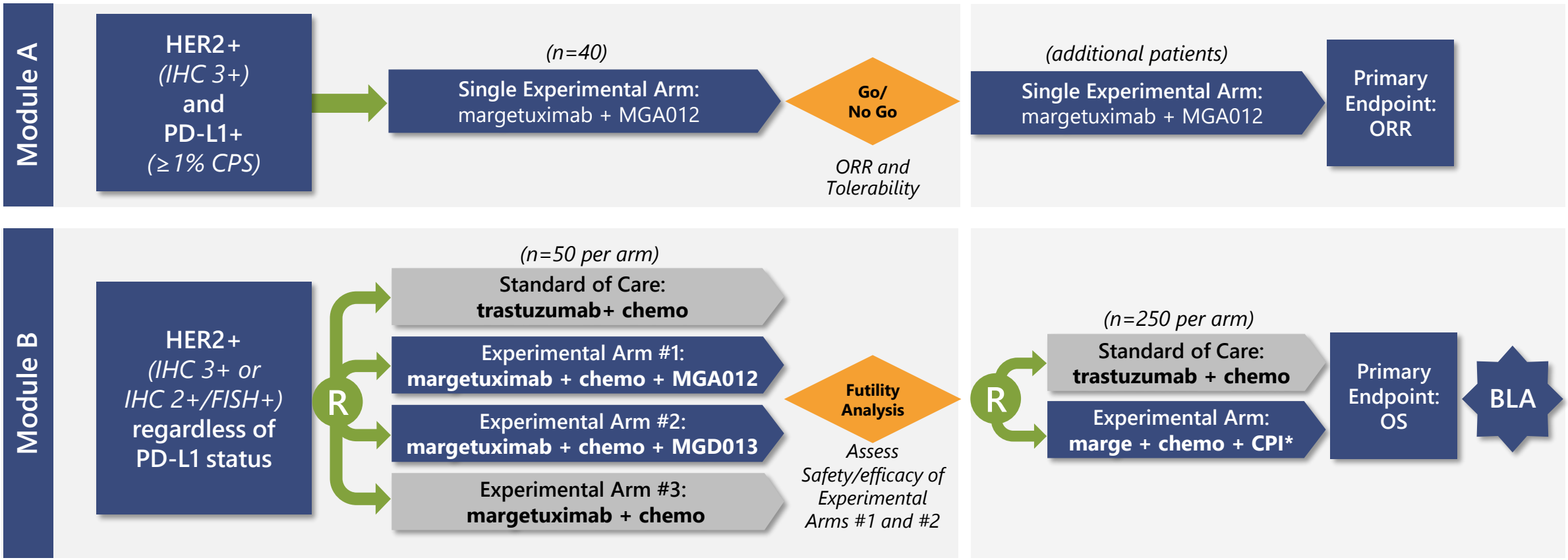
(d) Shitara, et al., 2018, Lancet;

(e) Shitara, et al., 2019, Lancet Oncol.

MAHOGANY Phase 2/3 Study: Registration Path in 1L Gastric & GEJ Cancer

Module A has potential for U.S Accelerated Approval of chemotherapy-free regimen

MAHOGANY



MAHOGANY *(**Ma**rgetuximab in **H**ER2-p**o**sitive **Ga**stric Cancer*

** Pending chronic tox study (if regimen with MGD013 is selected).*

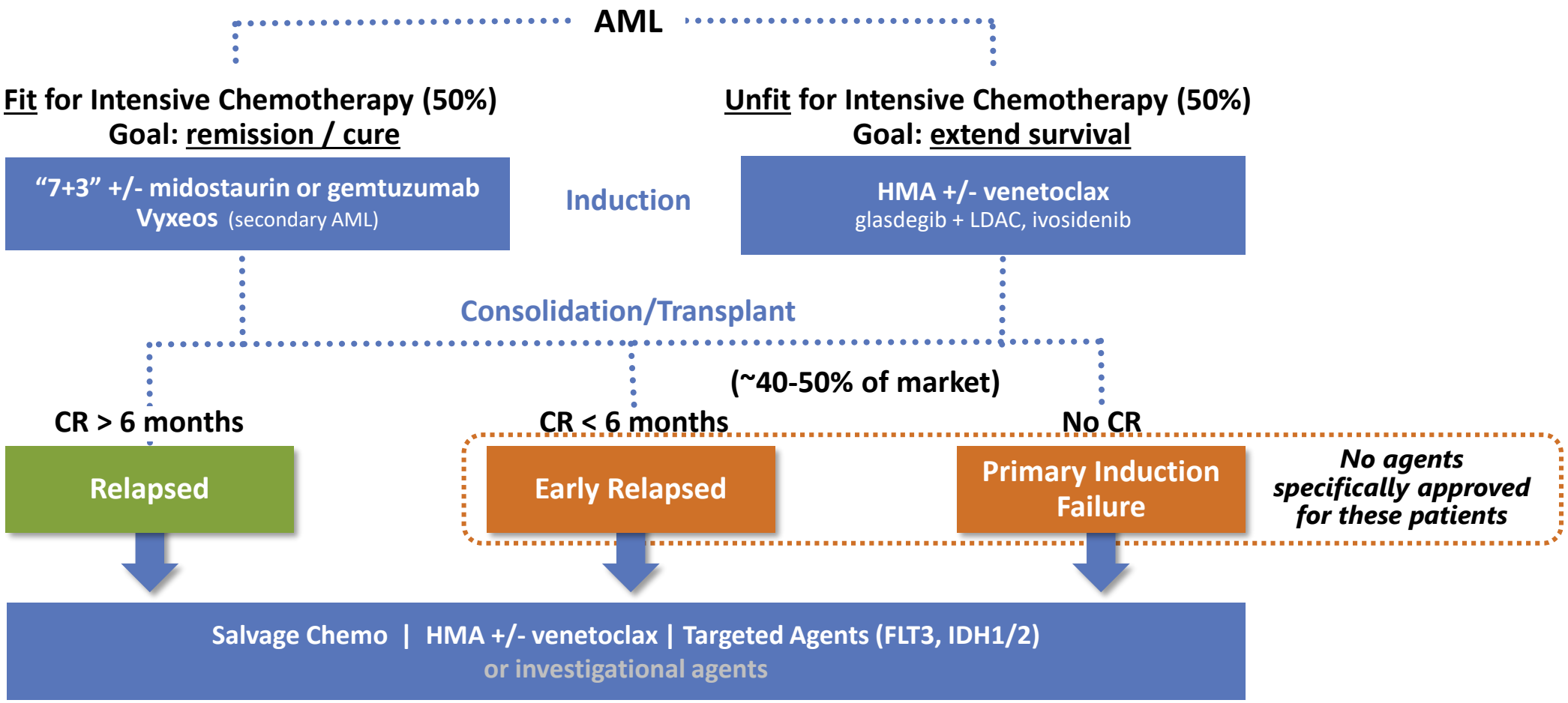
Flotetuzumab: CD123 × CD3 DART Molecule

Establishing leadership position among CD123-targeting bispecifics

Function/ MoA	• Redirected T-cell killing against leukemia cells – Eliminates leukemic stem cells – Spares normal hematopoietic stem cells – Engages any T-cell without HLA-restriction
Ongoing Clinical Studies	• Phase 1/2 study in relapsed or refractory AML • Phase 1 study combined with MGA012 in R/R AML
2020 Anticipated Milestones	• Define potential registration path in primary induction failure (PIF) AML pending FDA discussions (1H)

Primary Induction Failure & Early Relapsed AML: Significant Unmet Need

50% of patients have no known targetable mutation; flotetuzumab is mutation-agnostic



Phase 1/2 Development in AML

Expansion in primary induction failure & early relapsed AML patients

Dose Escalation

Establish Target Dose and Schedule (n=47)

Target Dose: 500 ng/kg/day
Cycle 1: Continuous Infusion over 28 Days
Cycle ≥ 2: 4 Days On / 3 Days Off

Dose Expansion

Data presented at ASH 2018

Data presented at ASH 2019

Relapsed/Refractory AML at RP2D (n=50)

Subset Analysis of Refractory Population: Primary Induction Failure & Early Relapsed AML (n=30)

Incorporated multi-step, lead-in dosing and supportive care to mitigate CRS

Enriched for refractory subpopulation; Optimized lead-in dosing

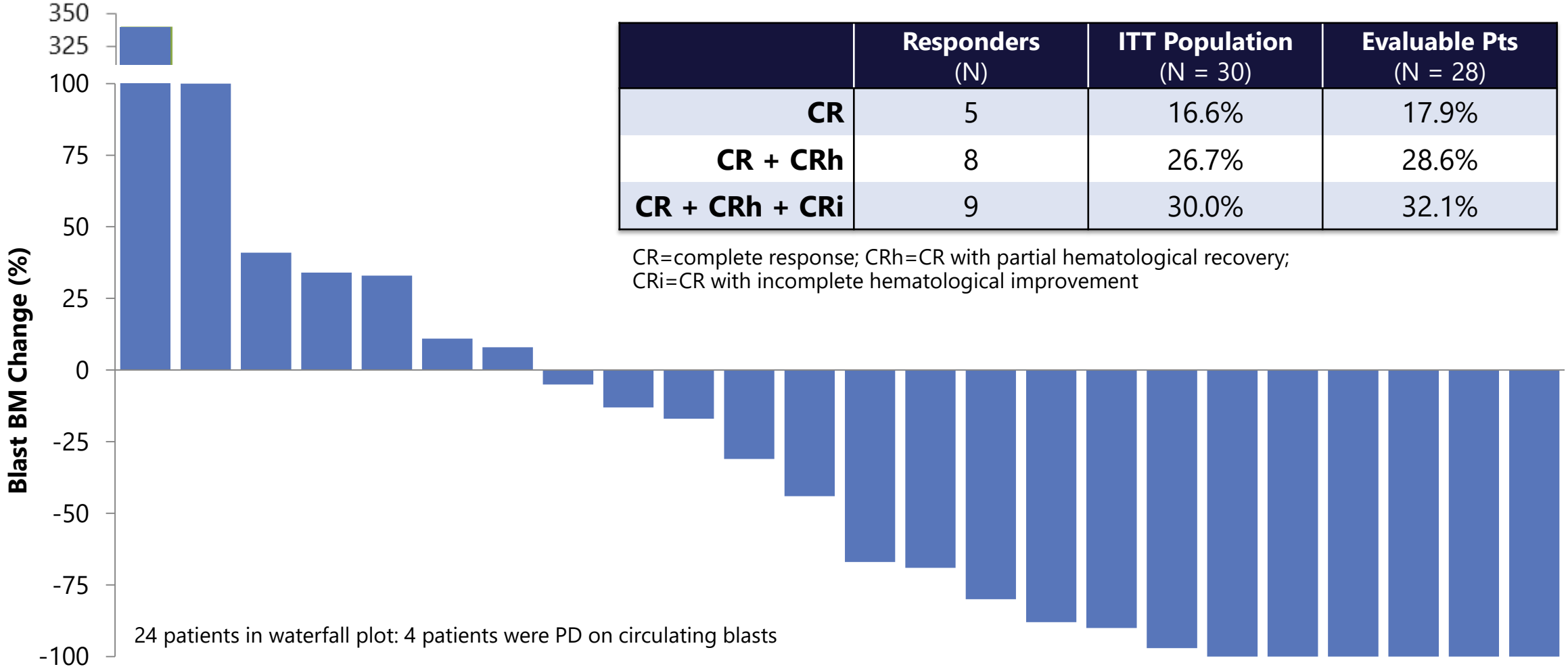
Inclusion/Exclusion Criteria	• **Refractory population:** – **Refractory to ≥2 induction attempts, or** – **1st relapse with initial CR duration of <6 months, or** – **HMA failure to ≥4 cycles** • Relapsed population (initial CR >6 months) • No prior allogeneic hematopoietic cell transplant
Endpoints	• Safety and disease status assessed by modified IWG criteria • Gene expression profiling performed using NanoString® PanCancerIO 360™ assay

Flotetuzumab is Active in Primary Induction Failure & Early Relapsed AML Patients

Benchmark analysis suggests historical CR+CRh rates in this setting of ~12.5%[(a)]

	Responders (N)	ITT Population (N = 30)	Evaluable Pts (N = 28)
CR	5	16.6%	17.9%
CR + CRh	8	26.7%	28.6%
CR + CRh + CRi	9	30.0%	32.1%

CR=complete response; CRh=CR with partial hematological recovery;
CRi=CR with incomplete hematological improvement

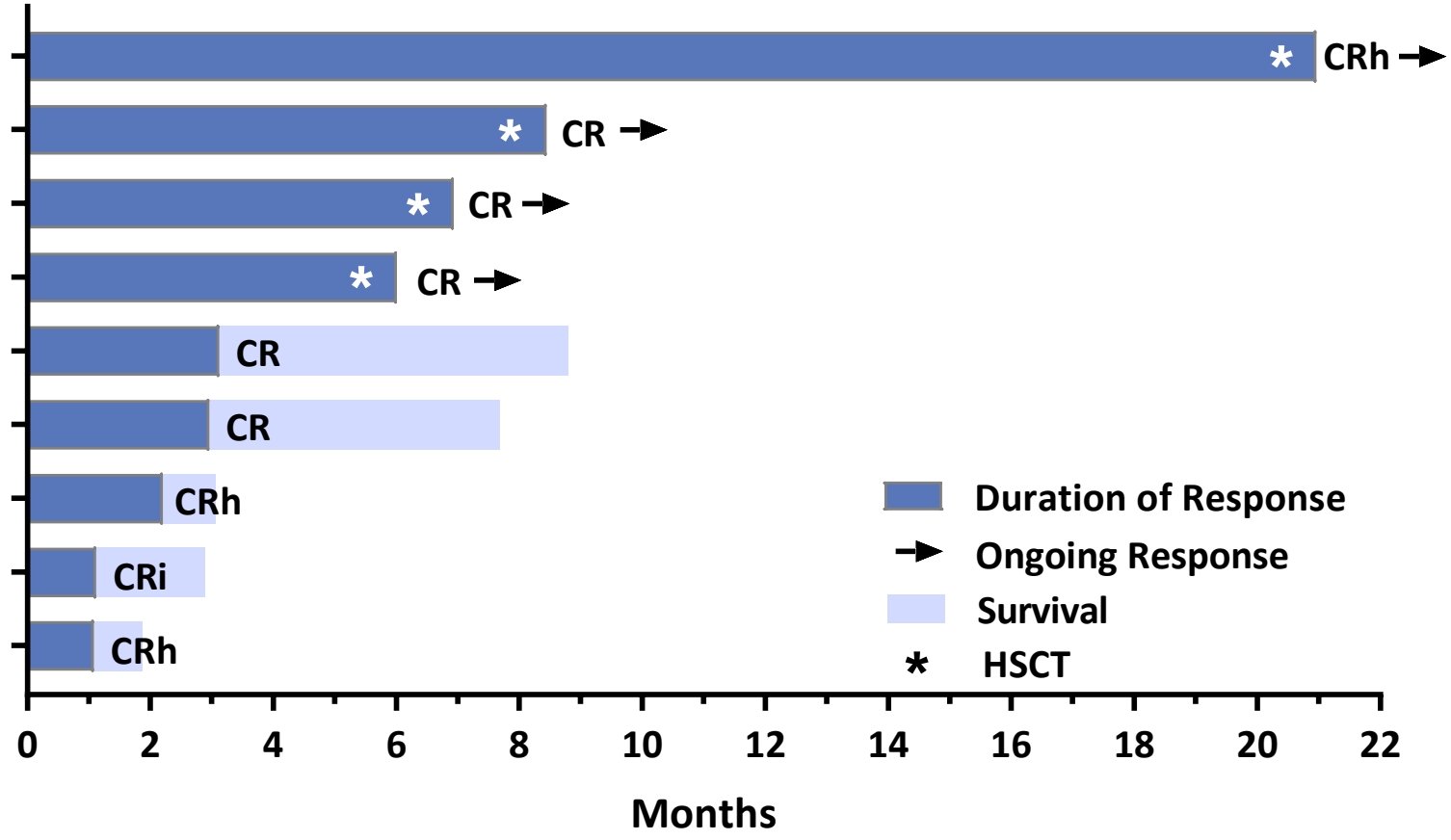


(a) Unpublished analysis of the CLASSIC I, VALOR, ADMIRAL trials and additional trials that included venetoclax, gemtuzumab-ozogamicin, and IDH1/2 inhibitors; (n=1328): CR/CRh = 12.5% [95% CI = 7.7%, 19.6%]

Uy, et al., ASH 2019

Flotetuzumab: Duration of Response in PIF & Early Relapsed AML Patients

Prior Rx Lines	Prior Rx Included:	Response to Flotetuzumab
2	7+3/HiDAC	* CRh →
2	HiDAC/Venetoclax	* CR →
3	HiDAC (x2)	* CR →
2	AZA/Midostaurin	* CR →
4	HiDAC (x2)/MEC	CR
2	7+3 (x2)	CR
2	HiDAC/Venetoclax	CRh
4	7+3/FLAG-Ida/FLAG	CRi
4	AZA/CD33xCD3 (Amv564)	CRh



** Four responders (3 CR, 1 CRh) received allo-HSCT consolidation*

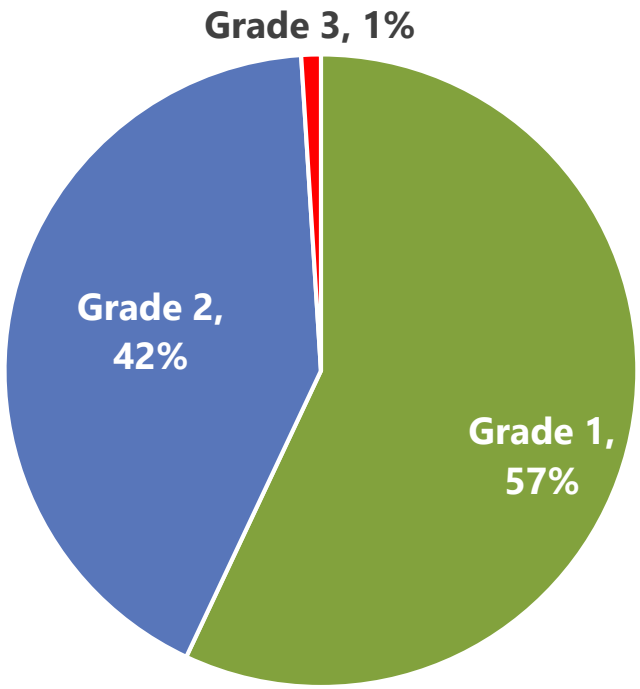
Uy, et al., ASH 2019

Mitigating Cytokine Release Syndrome Associated With T Cell Engagers

Decreased CRS severity and increased total flotetuzumab dose intensity

- Infusion-related reaction /cytokine release syndrome (IRR/CRS) occurred in all (30/30) patients:
  - Mild to moderate (grade 1 or 2) in severity; only one grade 3 event reported in one patient
  - Most events observed were of short duration (Median: Grade 1=1 day; Grade 2=2 days; Grade 3=3 days)
- CRS mitigation strategies:
  - Lead-in dosing schedule for flotetuzumab
  - Early use of tocilizumab as supportive care
  - Short half-life molecule can be "switched-off" (Continuous infusion advantageous for managing exposure)

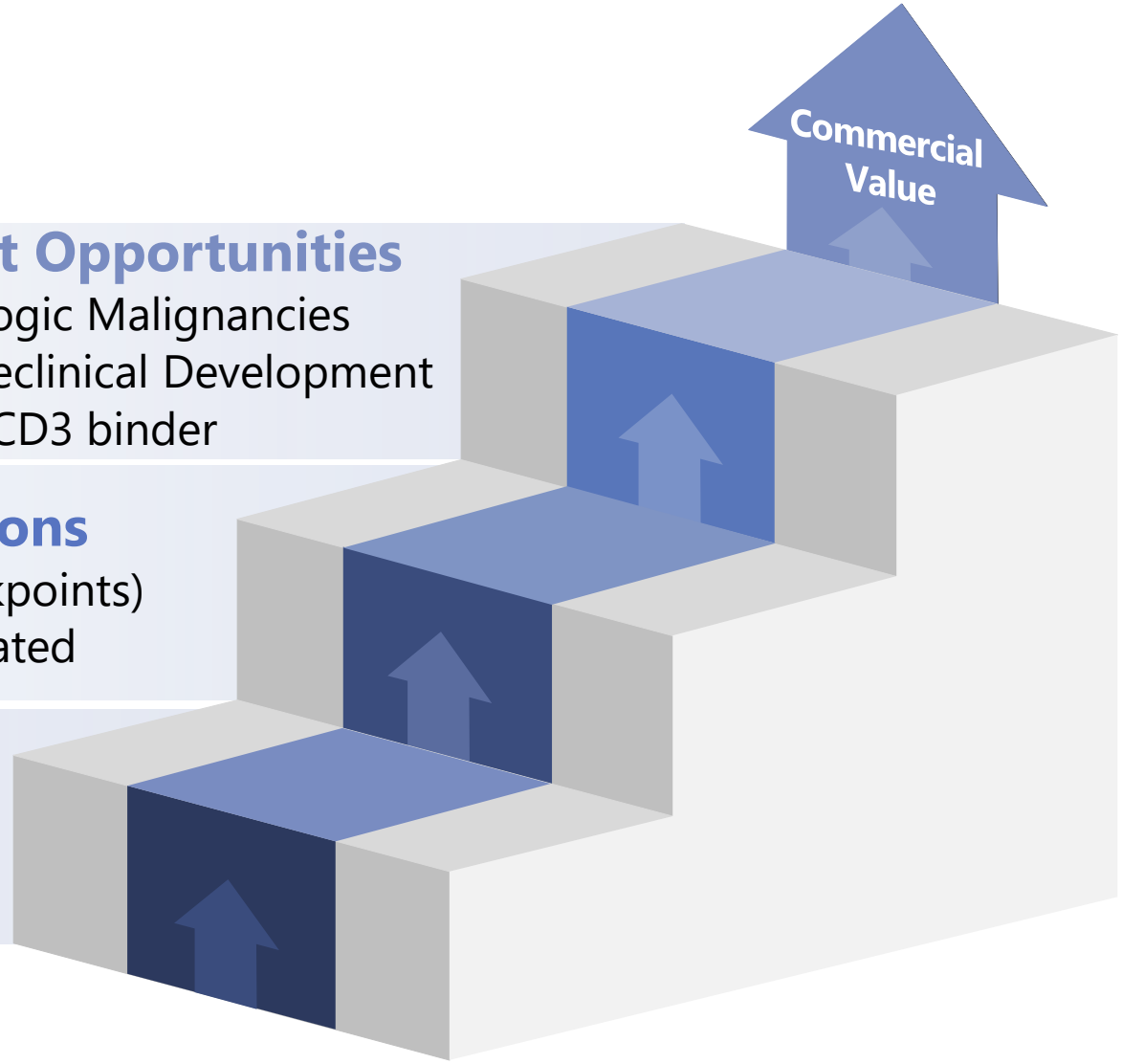
Distribution of CRS Events by Grade



There were no grade 4 events

Uy, et al., ASH 2019

Capturing Full Potential of Flotetuzumab and CD123 × CD3 Bispecific Molecules



Future Development Opportunities

- Other CD123+ Hematologic Malignancies
- 2nd Gen. Molecule in Preclinical Development
  - Fc-bearing; alternate CD3 binder

Expand Through Combinations

- Relapsed/Refractory AML (w/checkpoints)
  - Combination with MGA012 initiated

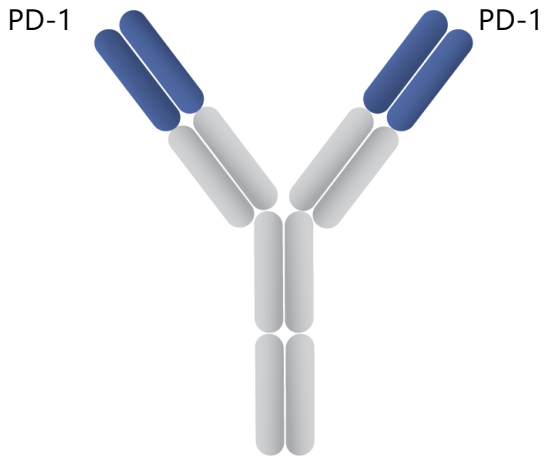
Potential First Indication

- Primary Induction Failure/Early Relapsed AML
  - Pivotal monotherapy study being planned*

** Pending ongoing discussions with FDA*

MGA012: Anti-PD-1 antibody

Global collaboration with Incyte

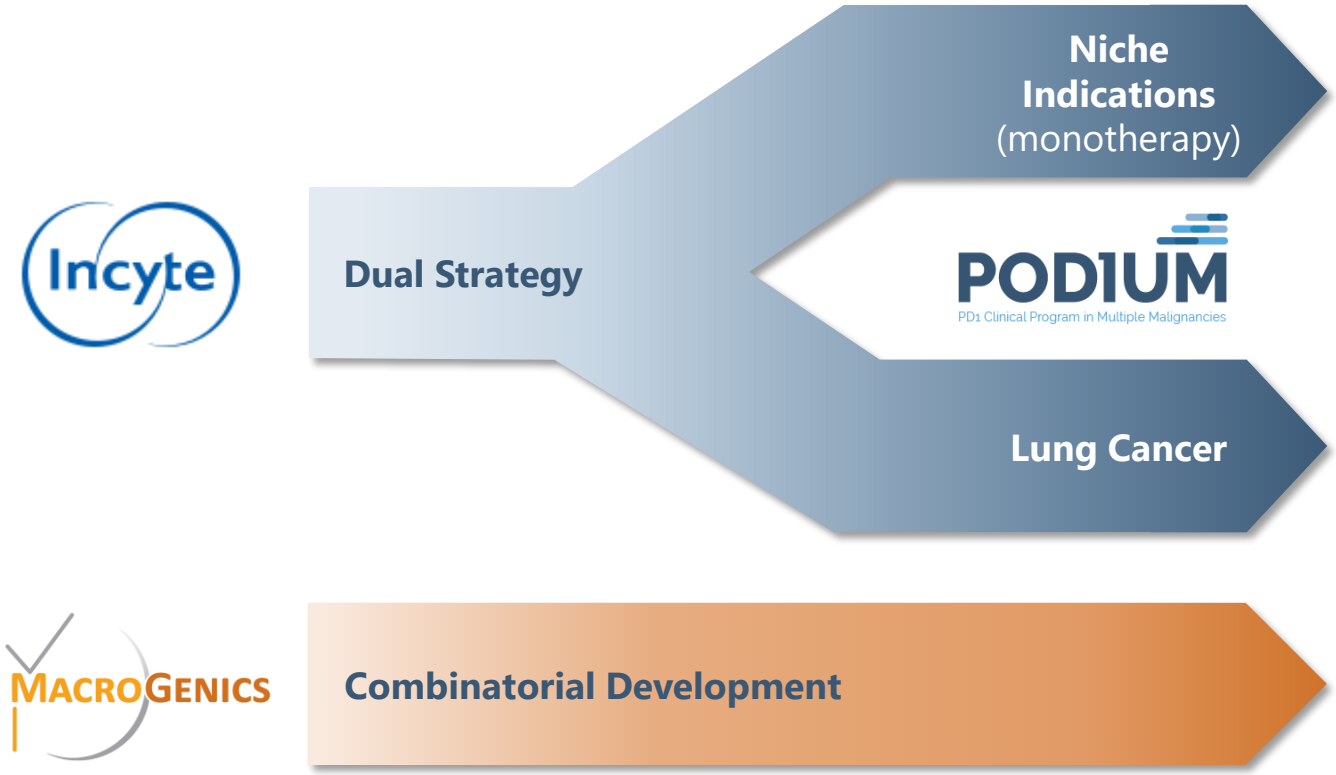


Function/ MoA	• Humanized, hinge-stabilized IgG4 mAb • Inhibits PD-1
Ongoing Clinical Studies	• Six registration-directed studies ongoing or planned in 2020 across a broad range of tumor types[(a)]
Global Incyte Transaction	• Up to $750M in milestones ($15M received to date) • Tiered royalties of 15-24% on future MGA012 sales • Rights to develop pipeline assets with MGA012
2020 Anticipated Milestones	• Monotherapy data in anal cancer • Initiation of Ph. 3 randomized studies in NSCLC

(a) ClinicalTrials.gov referenced February 22, 2020

Comprehensive Development Plans for MGA012

Multiple potentially registration-enabling clinical studies



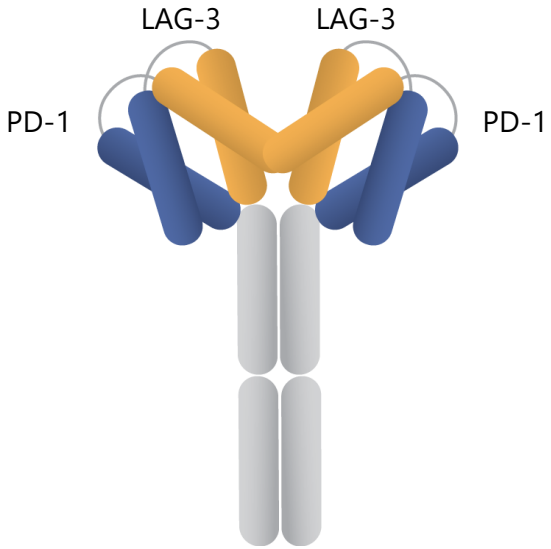
- **Anal Cancer**
- **MSI High Endometrial Cancer**
- **Merkel Cell Carcinoma**

- **1L NSCLC + platinum-based chemotherapy** (POD1UM-304)
- **Stage III NSCLC + chemoradiation** (POD1UM-301)

- **Gastric Cancer +margetuximab ± chemotherapy** (MAHOGANY)

ClinicalTrials.gov referenced February 22, 2020

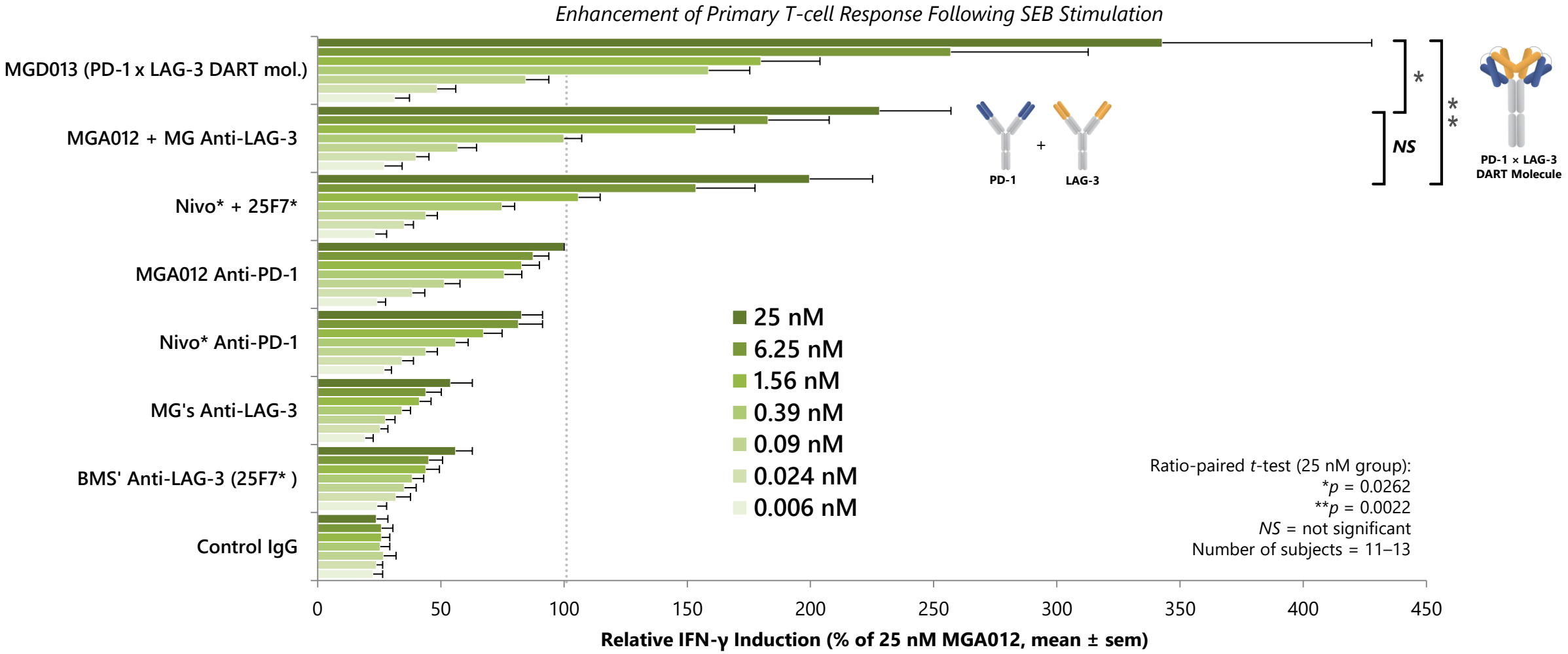
MGD013 (PD-1 × LAG-3): First Bispecific Checkpoint Molecule in Clinical Trials



Function/ MoA	• Simultaneous and/or independent blockade of two checkpoint molecules • Reactivation of exhausted T cells
Ongoing Clinical Studies	• Ph. 1 dose expansion in nine tumor types (solid and liquid); checkpoint-naïve and checkpoint-experienced
2020 Anticipated Milestones	• Present data from ongoing Ph. 1 at scientific conf. (1H) • Select indications for further monotherapy development • Planned combination studies with both margetuximab and enoblituzumab

MGD013: Synergistic T-cell Activation

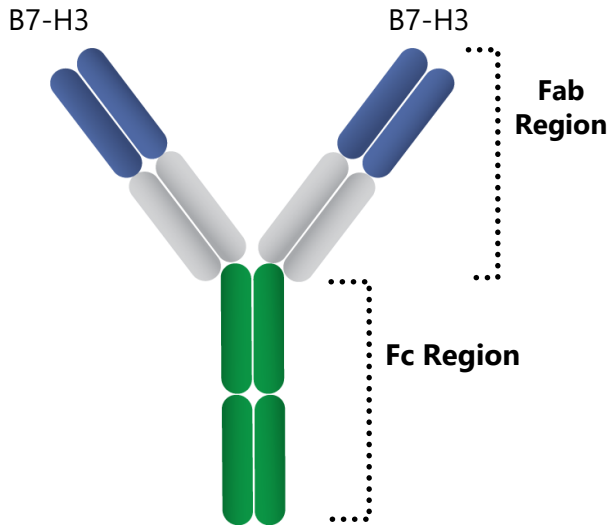
DART molecule construct enhances T-cell activation vs. anti-PD-1 + anti-LAG-3 mAbs in vitro



**IFNγ release by 25 nM MGA012 = 3276±744 pg/ml.*

Enoblituzumab: Potential Leading Anti-B7-H3 mAb

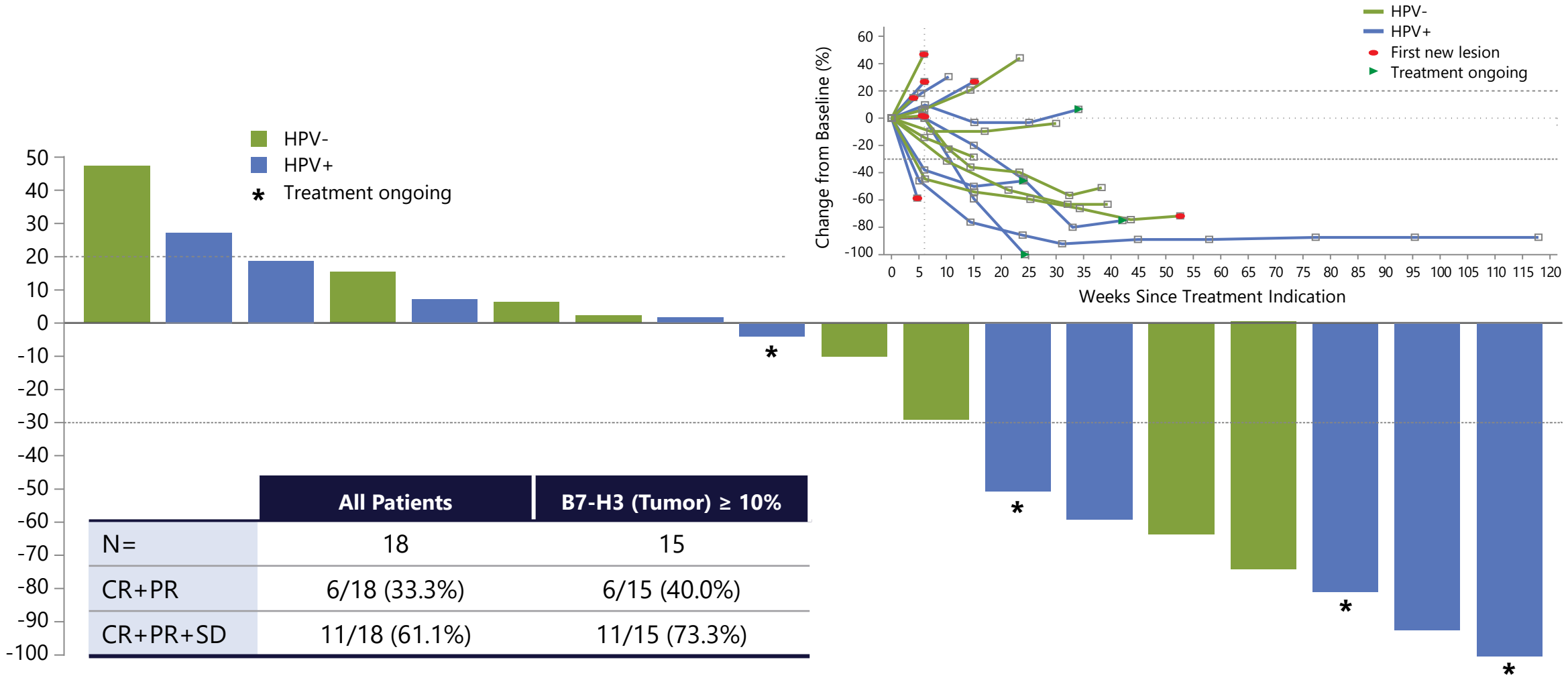
Leveraging immune modulation through Fc optimization



Function/ MoA	• Fc region engineered to enhance immune response, including ADCC • Evidence of T-cell immunomodulation
Clinical Study	• Fully enrolled Phase 1 study w/anti-PD-1 in 2L+ SCCHN and NSCLC
2020 Anticipated Milestones	• Plan to evaluate chemo-free regimens in 1L SCCHN patients to inform further development – Enoblituzumab + MGA012 – Enoblituzumab + MGD013

Antitumor Activity in SCCHN Patients *(Anti-PD-1/PD-L1 Naïve)* + anti-PD-1 mAb

Induction of tumor regression in SCCHN patients, irrespective of HPV status



	All Patients	B7-H3 (Tumor) ≥ 10%
N=	18	15
CR+PR	6/18 (33.3%)	6/15 (40.0%)
CR+PR+SD	11/18 (61.1%)	11/15 (73.3%)

Data cut-off date: October 12, 2018. Received ≥1 prior line of chemotherapy and TKI treatment. B7-H3 testing was retrospective.

Aggarwal, et al., SITC 2018

Encouraging Data from 2L+ Enoblituzumab plus Anti-PD-1 mAb

Opportunity to advance to 1L SCCHN

	Study Results in Checkpoint-naïve Patients				
Agent (Study)	**Enoblituzumab + Pembrolizumab**	Nivolumab (CHECKMATE-141)[a]	Pembrolizumab (KEYNOTE-012)[b]	Pembrolizumab (KEYNOTE-040)[c]	*Pembrolizumab +chemotherapy (KEYNOTE-048)[d]*
Line	**2L+**	2L	2L+	2L	*1L*
N	**18**	240	174	247	*281*
ORR	**33.3%**	13%	16%	15%	*36%*

(a) Ferris, et al., 2016, N Eng J Med
(b) Keytruda® package insert
(c) Cohen, et al., 2017, ESMO LBA45; Cohen, et al., 2019, The Lancet
(d) Burtness, et al., 2018, ESMO

Core Product Candidates with Key Milestones Anticipated in 2020

Margetuximab
(Anti-HER2 mAb)

Breast Cancer
- ☑ BLA filing acceptance (1Q)
- ❑ Final OS (2H)
- ❑ ODAC expected (2H)
- ❑ PDUFA date (12/18/2020)

Gastric/GEJ Cancer
- ❑ Initial data MAHOGANY Module A (2H)

Flotetuzumab
(CD123 × CD3 DART molecule)

- ❑ Define registration path for PIF/ER AML (1H)

MGA012
(Anti-PD-1 mAb)

Per Incyte's disclosure

Incyte

MGD013
(PD-1 × LAG-3 DART molecule)

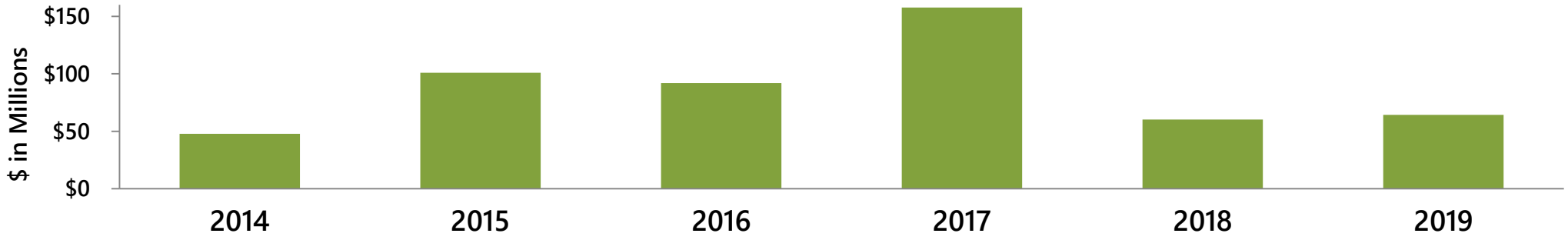
- ❑ Present data from ongoing Phase 1 (1H)
- ❑ Select indications for further development

Financial Overview

- $216M Cash, cash equivalents and marketable securities as of December 31, 2019
  - Focused on extending cash runway into 2022 via anticipated and potential collaboration payments, program prioritization and ongoing realignment of resources
- Historical financial details:

$ in Millions	2014	2015	2016	2017	2018	2019
Total Revenues	$48	$101	$92	$158	$60	$64
R&D Expense	70	98	122	147	191	195
Total Operating Expenses	86	121	152	180	231	241
Cash & Investments	158	339	285	305	233	216

- Revenues from collaborative and government agreements (>$500M since 2013 IPO):



Notes

Thank You!

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