MacroGenics®

Developing
Breakthrough Biologics,
Life-changing Medicines™

Corporate Update

July 29, 2021

Legal Notices

The information in this slide deck is current as of July 29, 2021, unless otherwise noted, and is qualified in its entirety by reference to MacroGenics' Annual, Quarterly and Current Reports filed with the SEC. MacroGenics undertakes no obligation to update any of the information herein.

Cautionary Note on Forward-Looking Statements

Any statements in these materials about future expectations, plans and prospects for MacroGenics ("Company"), including statements about the Company's strategy, future operations, clinical development of the Company's therapeutic candidates, commercial prospects of or product revenues from MARGENZA, milestone or opt-in payments from the Company's collaborators, the Company's anticipated milestones and future expectations and plans and prospects for the Company and other statements containing the words "subject to", "believe", "anticipate", "plan", "expect", "intend", "estimate", "project", "may", "will", "should", "would", "could", "can", the negatives thereof, variations thereon and similar expressions, or by discussions of strategy constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: risks that MARGENZA revenue, expenses and costs may not be as expected, risks relating to MARGENZA market acceptance, competition, reimbursement and regulatory actions, the uncertainties inherent in the initiation and enrollment of future clinical trials, expectations of expanding ongoing clinical trials, availability and timing of data from ongoing clinical trials, expectations for the timing and steps required in the regulatory review process, expectations for regulatory approvals, the impact of competitive products, our ability to enter into agreements with strategic partners and other matters that could affect the availability or commercial potential of the Company's product candidates, business or economic disruptions due to catastrophes or other events, including natural disasters or public health crises such as the novel coronavirus (referred to as COVID-19), and other risks described in the Company's filings with the Securities and Exchange Commission. In addition, the forward-looking statements included in these materials represent the Company's views only as of the date hereof. The Company anticipates that subsequent events and developments will cause the Company's views to change. However, while the Company may elect to update these forward-looking statements at some point in the future, the Company specifically disclaims any obligation to do so, except as may be required by law. These forward-looking statements should not be relied upon as representing the Company's views as of any date subsequent to the date hereof.

Trademarks

DART, TRIDENT, MacroGenics, the MacroGenics logo and MARGENZA are trademarks or registered trademarks of MacroGenics, Inc. The Incyte logo is a registered trademark of Incyte Corporation. The Zai Lab logo is a registered trademark of Zai Lab, Limited. The I-Mab logo is a registered trademark of I-Mab Biopharma. The ImmunoGen logo is a registered trademark of ImmunoGen, Inc.

Investigational Agents

The safety and efficacy of investigational agents and/or investigational uses of approved products have not been established.

Building a Leadership Position in Immuno-Oncology

Commercial-stage immuno-oncology company	• MARGENZA™ launched mid-March 2021 • Multiple registration-directed studies
Proprietary platform technologies	• Bispecific DART® platform technology that exploits multiple mechanisms • Fc Optimization platform to enhance innate and adaptive immunity
Deep and differentiated pipeline	• Unique immune-based mechanisms • Retain major market rights for 7 of 8 clinical assets
Funded to execute on plan	• $297M Cash, cash equivalents and marketable securities at 6/30/21[(a)] • Multiple upcoming inflection points • Cash runway through 2023 via anticipated and potential collaboration payments

(a) Does not include $55M in consideration ($25M upfront payment + $30M equity investment) received from Zai Lab in July 2021 (related to execution of collab. agreement announced June 16, 2021).

MARGENZA — Now Launched

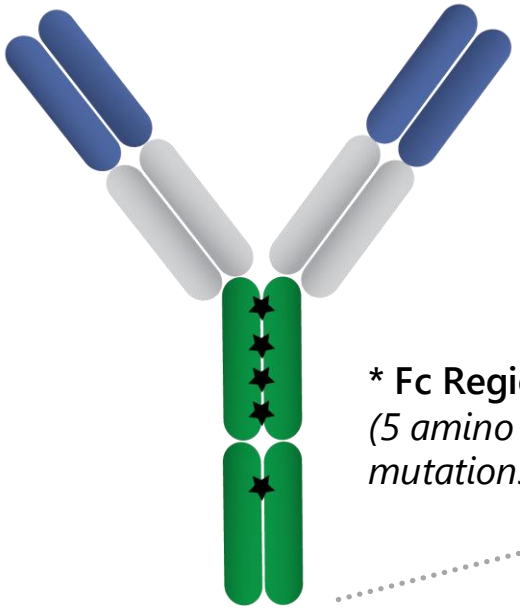
Margenza™
(margetuximab-cmkb)
250 mg/10 mL injection for intravenous use

MARGENZA is a HER2/neu receptor antagonist indicated, in combination with chemotherapy, for the treatment of adult patients with metastatic HER2-positive breast cancer who have received two or more prior anti-HER2 regimens, at least one of which was for metastatic disease.

See Important Safety Information, including Boxed Warning, on slide 7.

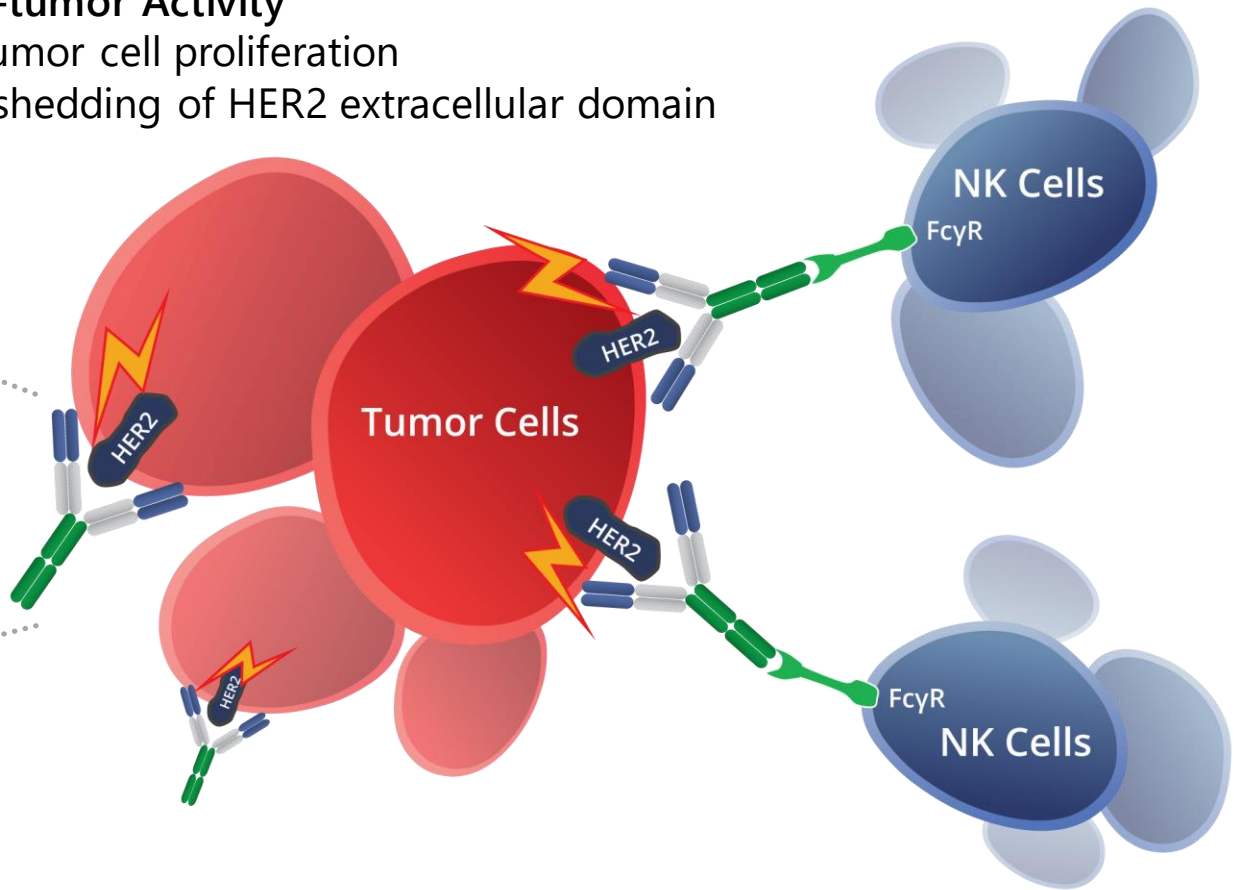
Designed to Increase Anti-tumor Immune Responses Through Fc-Engineering

Margenza™



*** Fc Region**
(5 amino acid mutations)

Direct Anti-tumor Activity
- Inhibits tumor cell proliferation
- Reduces shedding of HER2 extracellular domain



Proprietary Fc Optimization Platform:
- Increased binding to CD16A (activating)
- Decreased binding to CD32B (inhibitory)

Antibody-Dependent Cellular Cytotoxicity (ADCC)
- Immune cell-mediated anti-tumor activity
- Greater in vitro ADCC and NK cell activation

MARGENZA FDA Approval Based on Results of SOPHIA

Improved PFS vs. Herceptin®, both with chemotherapy, in pretreated HER2+ metastatic breast cancer

Efficacy

- 24% Reduction in risk of disease progression or death (HR=0.76, p=0.033)
- mPFS favoring MARGENZA
  - MARGENZA = 5.8 months (95% CI: 5.5, 7.0)
  - Trastuzumab = 4.9 months (95% CI: 4.2, 5.6)
- Overall Response Rate
  - MARGENZA = 22% (95% CI: 17, 27)
  - Trastuzumab = 16% (95% CI: 12, 20)
- Final Overall Survival analysis expected by end of 3Q 2021

Safety

- Boxed Warning for left ventricular dysfunction and embryo-fetal toxicity
- Infusion reactions in 13% of patients treated with MARGENZA
  - Almost all Grade 1 or Grade 2; 1.5% Grade 3
  - Resolved within 24 hours with routine supportive care
- Most common adverse drug reactions (≥20%) with MARGENZA in combination with chemotherapy:
  - Fatigue/asthenia (57%), nausea (33%), diarrhea (25%), and vomiting (21%)

See Important Safety Information, including Boxed Warning, on slide 7.

MARGENZA — Important Safety Information

WARNING: LEFT VENTRICULAR DYSFUNCTION AND EMBRYO-FETAL TOXICITY

- **Left Ventricular Dysfunction:** MARGENZA may lead to reductions in left ventricular ejection fraction (LVEF). Evaluate cardiac function prior to and during treatment. Discontinue MARGENZA treatment for a confirmed clinically significant decrease in left ventricular function.
- **Embryo-Fetal Toxicity:** Exposure to MARGENZA during pregnancy can cause embryo-fetal harm. Advise patients of the risk and need for effective contraception.

WARNINGS & PRECAUTIONS:

Left Ventricular Dysfunction

- Left ventricular cardiac dysfunction can occur with MARGENZA.
- In SOPHIA, left ventricular dysfunction occurred in 1.9% of patients treated with MARGENZA.
- MARGENZA has not been studied in patients with a pretreatment LVEF value of <50%, a prior history of myocardial infarction or unstable angina within 6 months, or congestive heart failure NYHA class II-IV.
- Withhold MARGENZA for ≥16% absolute decrease in LVEF from pre-treatment values or LVEF below institutional limits of normal (or 50% if no limits available) and ≥10% absolute decrease in LVEF from pretreatment values.
- Permanently discontinue MARGENZA if LVEF decline persists greater than 8 weeks, or dosing is interrupted more than 3 times due to LVEF decline.
- Evaluate cardiac function within 4 weeks prior to and every 3 months during and upon completion of treatment. Conduct thorough cardiac assessment, including history, physical examination, and determination of LVEF by echocardiogram or MUGA scan.
- Monitor cardiac function every 4 weeks if MARGENZA is withheld for significant left ventricular cardiac dysfunction.

Embryo-Fetal Toxicity

- Based on findings in animals and mechanism of action, MARGENZA can cause fetal harm when administered to a pregnant woman. Post-marketing studies of other HER-2 directed antibodies during pregnancy resulted in cases of oligohydramnios and oligohydramnios sequence manifesting as pulmonary hypoplasia, skeletal abnormalities, and neonatal death.
- Verify pregnancy status of women of reproductive potential prior to initiation of MARGENZA.
- Advise pregnant women and women of reproductive potential that exposure to MARGENZA during pregnancy or within 4 months prior to conception can result in fetal harm.
- Advise women of reproductive potential to use effective contraception during treatment and for 4 months following the last dose of MARGENZA.

Infusion-Related Reactions (IRRs)

- MARGENZA can cause IRRs. Symptoms may include fever, chills, arthralgia, cough, dizziness, fatigue, nausea, vomiting, headache, diaphoresis, tachycardia, hypotension, pruritus, rash, urticaria, and dyspnea.
- In SOPHIA, IRRs were reported by 13% of patients on MARGENZA plus chemotherapy. Most of the IRRs occur during Cycle 1. Grade 3 IRRs were reported in 1.5% of MARGENZA treated patients.
- Monitor patients during and after MARGENZA infusion. Have medications and emergency equipment to treat IRRs available for immediate use.
- In patients experiencing mild or moderate IRRs, decrease rate of infusion and consider premedications, including antihistamines, corticosteroids, and antipyretics. Monitor patients until symptoms completely resolve.
- Interrupt MARGENZA infusion in patients experiencing dyspnea or clinically significant hypotension and intervene with supportive medical therapy as needed. Permanently discontinue MARGENZA in all patients with severe or life-threatening IRRs.

MOST COMMON ADVERSE REACTIONS:

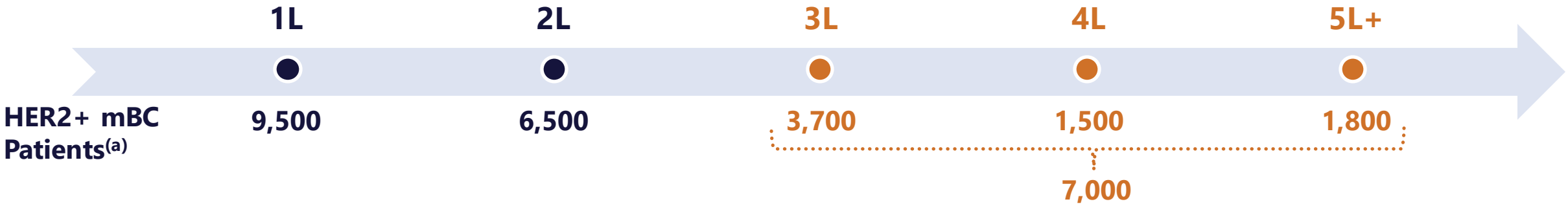
The most common adverse drug reactions (>10%) with MARGENZA in combination with chemotherapy are fatigue/asthenia (57%), nausea (33%), diarrhea (25%), vomiting (21%), constipation (19%), headache (19%), pyrexia (19%), alopecia (18%), abdominal pain (17%), peripheral neuropathy (16%), arthralgia/myalgia (14%), cough (14%), decreased appetite (14%), dyspnea (13%), infusion-related reactions (13%), palmar-plantar erythrodysesthesia (13%), and extremity pain (11%).

You may report side effects to the FDA at (800) FDA-1088 or www.fda.gov/medwatch or to MacroGenics at (844)-MED-MGNX (844-633-6469).

For full Prescribing Information, including Boxed Warning, go to www.margenza.com

Rapidly Evolving HER2+ Metastatic Breast Cancer Treatment Landscape

Oncologists will consider specific patient attributes for sequencing of therapies



1L & 2L Therapy Options

trastuzumab + pertuzumab + taxane

trastuzumab emtansine

Approved in early breast cancer

3L+Therapy Options

Recently Approved Therapies:

- MARGENZA (margetuximab)
- tucatinib
- trastuzumab deruxtecan
- neratinib

Older Options:

- trastuzumab combinations
- lapatinib combinations

(a) MacroGenics' estimate for U.S. market from publicly available data.

Fully Aligned & Engaged with EVERSANA to Support Commercialization

Innovative risk-sharing structure provides balance of flexibility and control

MacroGenics

- Books sales and controls decision-making
- Leads execution of all development and manufacturing activities
- Maintains flexibility to pursue future licensing collaborations

EVERSANA™

- Provides access to its broad spectrum of commercialization services
- Receives revenue share payments (pre-defined % of net sales, capped at 125% of cumulative service fees)

- **Post-approval commercialization costs are shared equally**
- **Co-exclusive rights to commercialize MARGENZA in U.S.**
- **5-Year term following FDA approval, subject to predefined termination provisions**

Deep and Differentiated Immuno-Oncology Pipeline

Program (Target)	Potential Indication(s)	First-in-Human (Phase 1)	Proof-of-Concept (Phase 2)	Pivotal/ Registration Directed	Approved	Major Market Rights
Margetuximab (HER2)	HER2+ Breast Cancer					MacroGenics; Greater China: Zai Lab
	HER2+ GC/GEJ (+retifanlimab/tebotelimab)					
Flotetuzumab (CD123 × CD3)	Refractory AML					MacroGenics
Retifanlimab[a] (PD-1)	NSCLC, Anal Cancer, MSI-h Endometrial Cancer					Incyte; Greater China: Zai Lab
Enoblituzumab (B7-H3)	SCCHN (+retifanlimab/tebotelimab)					MacroGenics; Greater China: I-MAB Biopharma
Tebotelimab (PD-1 × LAG-3)	Solid Tumors & Heme Malignancies					MacroGenics; Greater China: Zai Lab
MGD019 (PD-1 × CTLA-4)	MSS CRC, NSCLC, mCRPC, Melanoma					MacroGenics
MGC018 (B7-H3)	mCRPC, TNBC, NSCLC, SCCHN, Melanoma					MacroGenics
IMGC936 (ADAM9)	NSCLC, TNBC, CRC, Gastric Cancer, Pancreatic Cancer					MacroGenics; 50/50: immunogen

MGD = DART | MGA = Antibody | MGC = ADC

The safety and efficacy of investigational agents and/or investigational uses of approved products have not been established.

(a) MacroGenics retains rights to develop its pipeline assets in combination w/retifanlimab (formerly MGA012) and to manufacture a portion of global clinical and commercial supply needs of retifanlimab.

Investigation of Gastric Cancer as Potential Follow-on Indication

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

Benchmarks

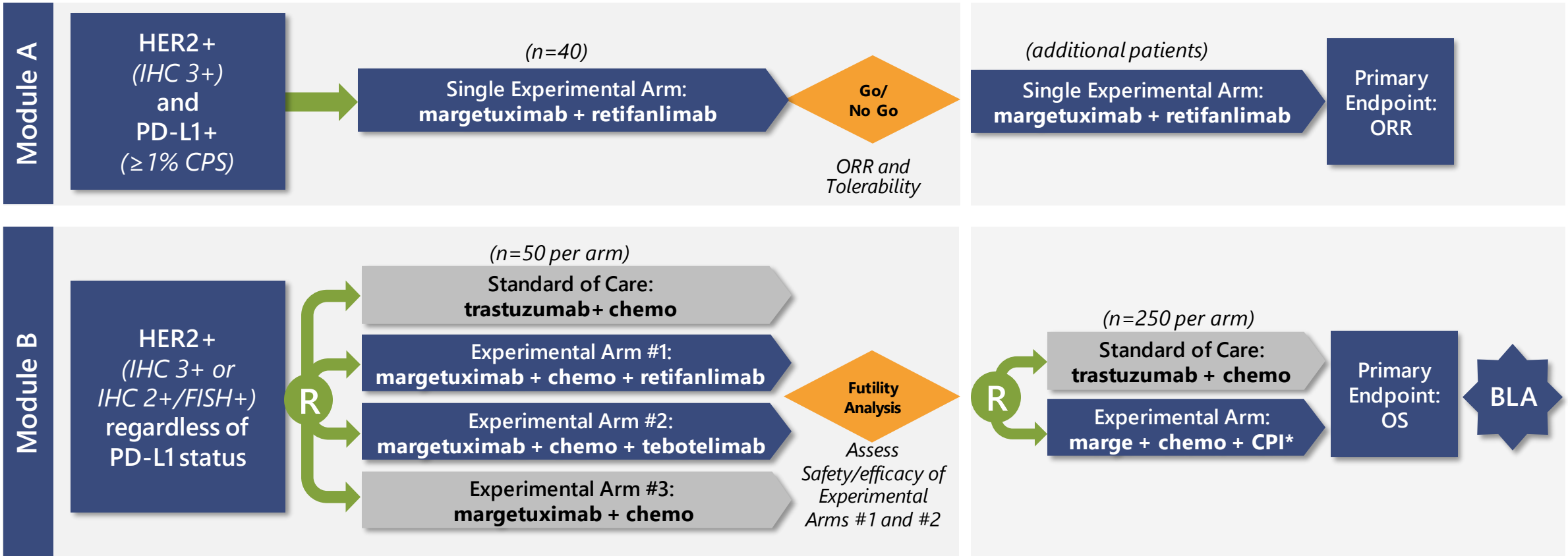
	1st Line	2nd Line			3rd Line
	SOC	SOC	Ongoing Phase 2 Study	Failed	Ongoing Study
Agent (Study)	Trastuzumab + Chemo[a] (TOGA)	Ramucirumab + Paclitaxel[b] (RAINBOW)	**Margetuximab + Pembrolizumab[c]** IHC 3+	**Margetuximab + Pembrolizumab[c]** IHC 3+/PD-L1+	Pembrolizumab[d] (KEYNOTE-61) PD-L1+	DS-8201[e]
ORR	47%	28%	**24%**	**44%**	15.8%	43%
Median PFS	6.7 mos.	4.4 mos.	**4.3 mos.**	**4.8 mos.**	1.5 mos.	5.6 mos.
Median OS	**13.1 mos.**	9.6 mos.	**13.9 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%	**64%/36%**		70%/30%	80%/20%

SOC = Standard of Care
(a) Data from Herceptin package insert; Bang, et al., 2010, Lancet;
(b) Data from Cyramza package insert; Wilkes, et al., 2014, Lancet Oncology;
(c) Catenacci, et al., 2020, Lancet Oncology;
(d) Shitara, et al., 2018, Lancet;
(e) Shitara, et al., 2020, Lancet Oncology.
The safety and efficacy of investigational uses of approved products have not been established.

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

Module A has potential for U.S. Accel. Approval of chemo-free regimen; Clinical data update 3Q/ESMO

MAHOGANY



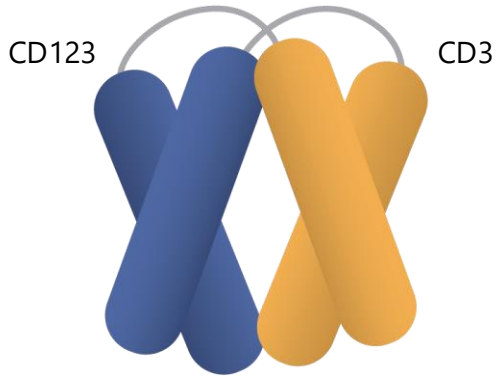
MAHOGANY *(**Ma**rgetuximab in **H**ER2-p**o**sitive **Ga**stric Cancer*

The safety and efficacy of investigational uses of approved products have not been established.

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

Flotetuzumab: CD123 × CD3 DART Molecule

Establishing leadership position among CD123-targeting bispecifics



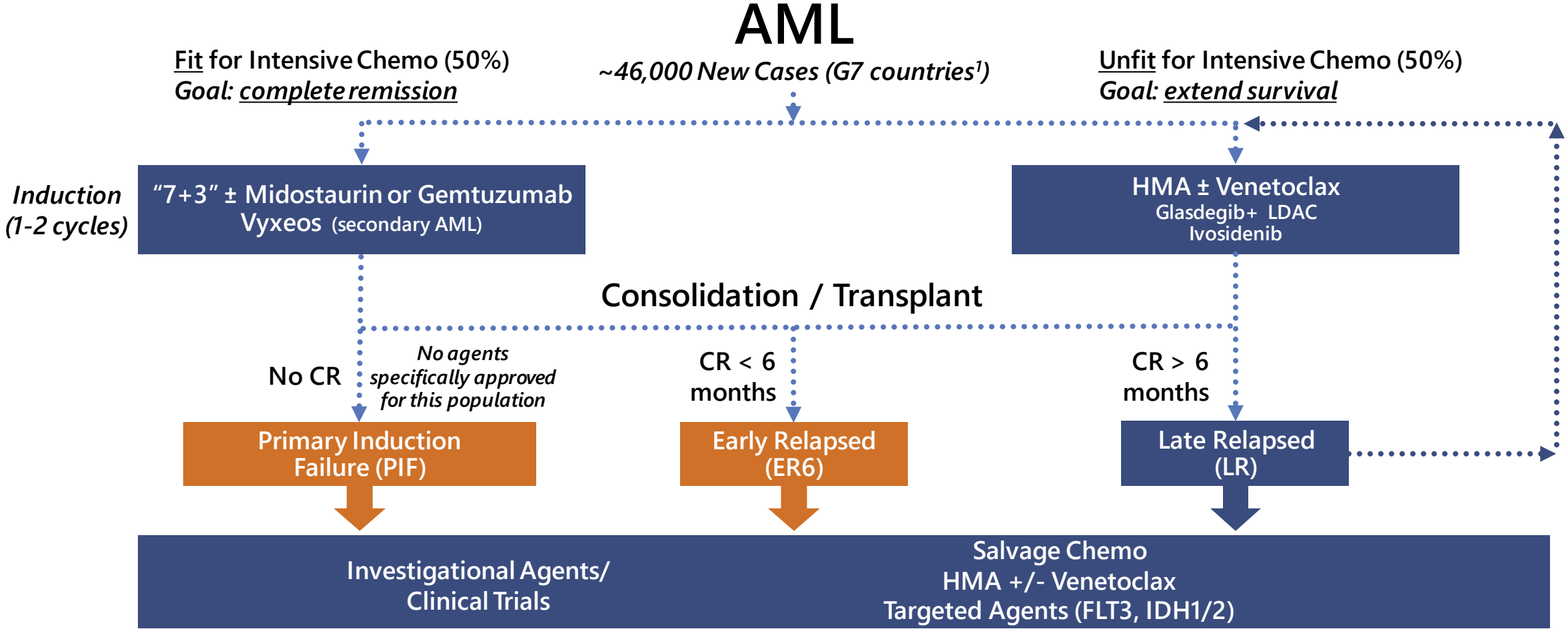
Function/ MoA	• Redirected T-cell killing against leukemia cells – Eliminates leukemic stem cells; spares normal hematopoietic stem cells – Engages any T-cell without HLA-restriction
Clinical Studies	• Single arm study to support registration – Primary induction failure (PIF) and early relapse (ER) AML[(a)] – Expansion of ongoing Phase 1/2 study
Anticipated Upcoming Milestones	• Provide clinical development update (2H)

(a) Patients who never achieved complete remission in response to induction therapy (PIF) or achieved a complete remission lasting less than 6 months (ER)

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

Primary Induction Failure & Early Relapsed AML: Significant Unmet Need

~50% of AML patients are refractory to induction therapy or have short remission



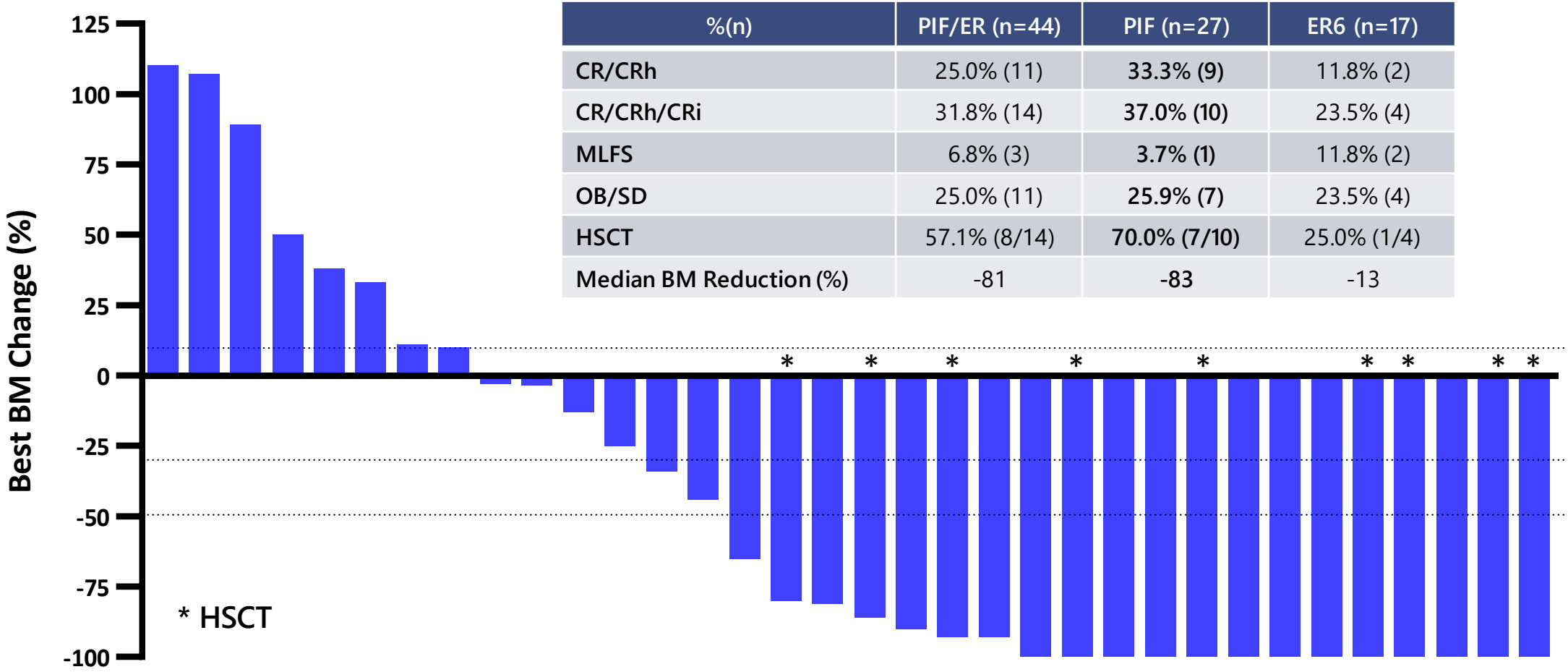
(1) G7 countries: Canada, France, Germany, Italy, Japan, United Kingdom and United States

Adapted from Aldoss, et al., ASH 2020

Active in Primary Induction Failure & Early Relapsed AML Patients

Historical CR/CRh rates in PIF/ER6 range from 5-12%, with median expected overall survival ~3.5 mos.

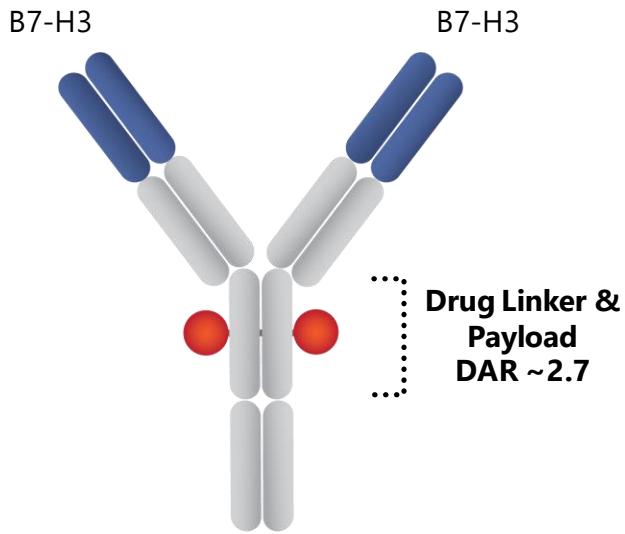
%(n)	PIF/ER (n=44)	PIF (n=27)	ER6 (n=17)
CR/CRh	25.0% (11)	**33.3% (9)**	11.8% (2)
CR/CRh/CRi	31.8% (14)	**37.0% (10)**	23.5% (4)
MLFS	6.8% (3)	**3.7% (1)**	11.8% (2)
OB/SD	25.0% (11)	**25.9% (7)**	23.5% (4)
HSCT	57.1% (8/14)	**70.0% (7/10)**	25.0% (1/4)
Median BM Reduction (%)	-81	**-83**	-13



Data cut-off: Nov. 10, 2020; Aldoss, et al., ASH 2020

MGC018: Antibody-Drug Conjugate with Duocarmycin-based Linker Payload

Leveraging high B7-H3 expression in solid tumors



Function/ MoA	• ADC that delivers potent duocarmycin payload to dividing and non-dividing B7-H3-expressing cells • Cleavable peptide linker facilitates bystander effect • Not subject to multi-drug resistance (MDR)
Clinical Study	• Ongoing Phase 1/2 study in advanced solid tumors: – Metastatic castration-resistant prostate cancer (mCRPC) – Triple negative breast cancer (TNBC) – Non-small cell lung cancer (NSCLC) – Squamous cell carcinoma of head and neck (SCCHN) – Melanoma
Anticipated Upcoming Milestones	• Clinical update at ESMO (3Q)

Duocarmycin payload and cleavable peptide linker technology was licensed from Byondis.
MGC018 is investigational and has not yet been approved for marketing by any regulatory authority

High Penetrance in Broad Set of Solid Tumors

Majority express high levels of B7-H3, with limited expression in normal tissue

MGC018 Expansion Cohorts

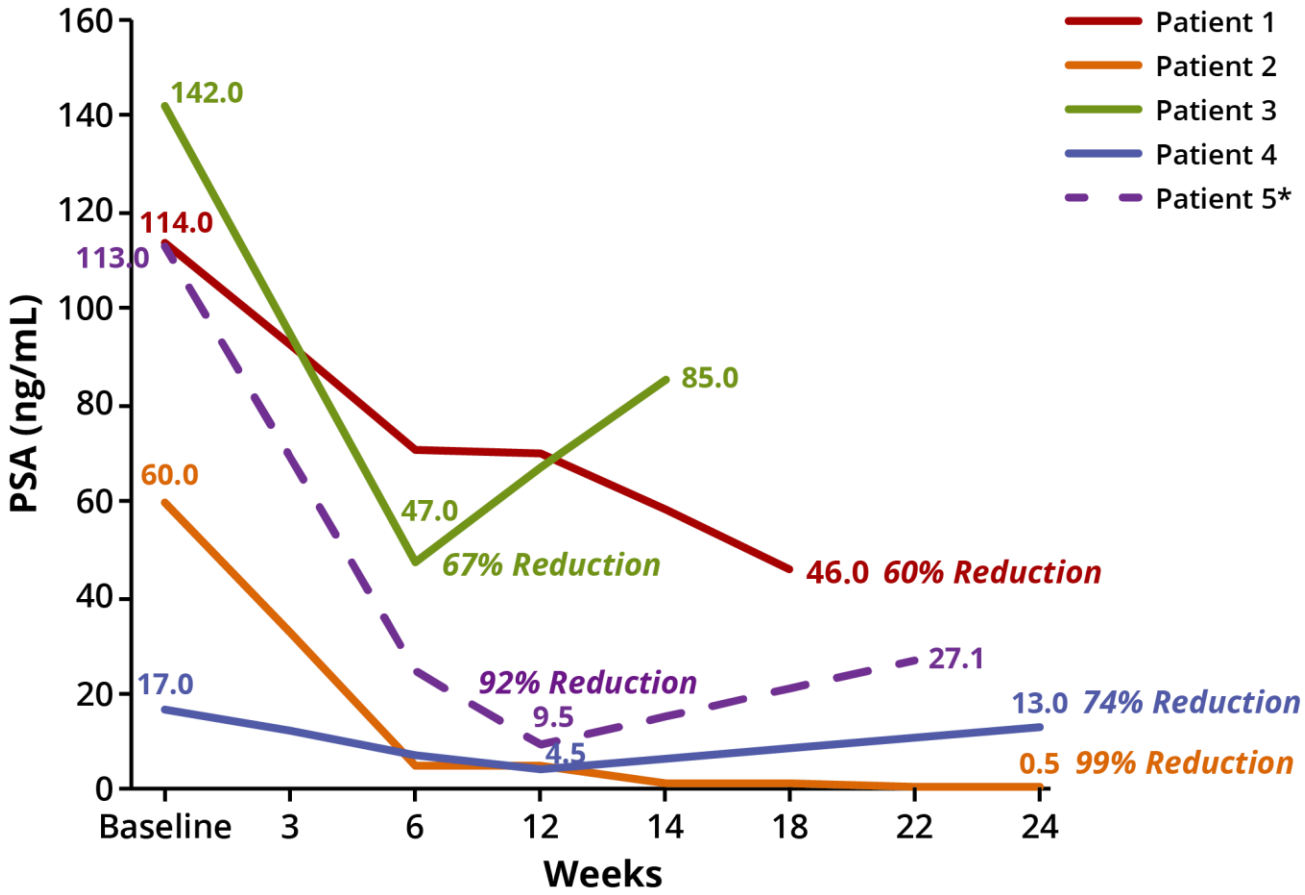
Potential Indications:	IHC Summary of >1,530 Tumor Tissue Samples Screened			
	B7-H3 Positive[(a)]		2+ or Above	
Head and Neck	**19/19**	**100%**	**19/19**	**100%**
Kidney Cancer	77/78	**99%**	75/78	**96%**
Glioblastoma	65/66	**98%**	63/66	**95%**
Bladder	86/88	**98%**	78/88	**89%**
Thyroid Cancer	34/35	**97%**	33/35	**94%**
Mesothelioma	45/47	**96%**	34/47	**72%**
Anal Cancer	34/37	**92%**	33/37	**89%**
Triple Negative Breast Cancer	**120/131**	**92%**	**114/131**	**87%**
Melanoma	**132/146**	**90%**	**94/146**	**64%**
Prostate Cancer	**88/99**	**89%**	**51/99**	**52%**
Pancreatic Cancer	69/78	**88%**	45/78	**58%**
Non Small Cell Lung Cancer	**323/371**	**87%**	**297/371**	**80%**
Breast Cancer	189/249	**76%**	156/249	**63%**
Ovarian Cancer	59/79	**75%**	36/79	**46%**

(a) B7-H3 positivity reflects any grade staining via fixed tumor microarray; B7-H3 is expressed on tumor as well as tumor vasculature.

Dose Escalation: Update on PSA Responders from ASCO 2020

Heavily pre-treated mCRPC patients without progression for ≥6 months

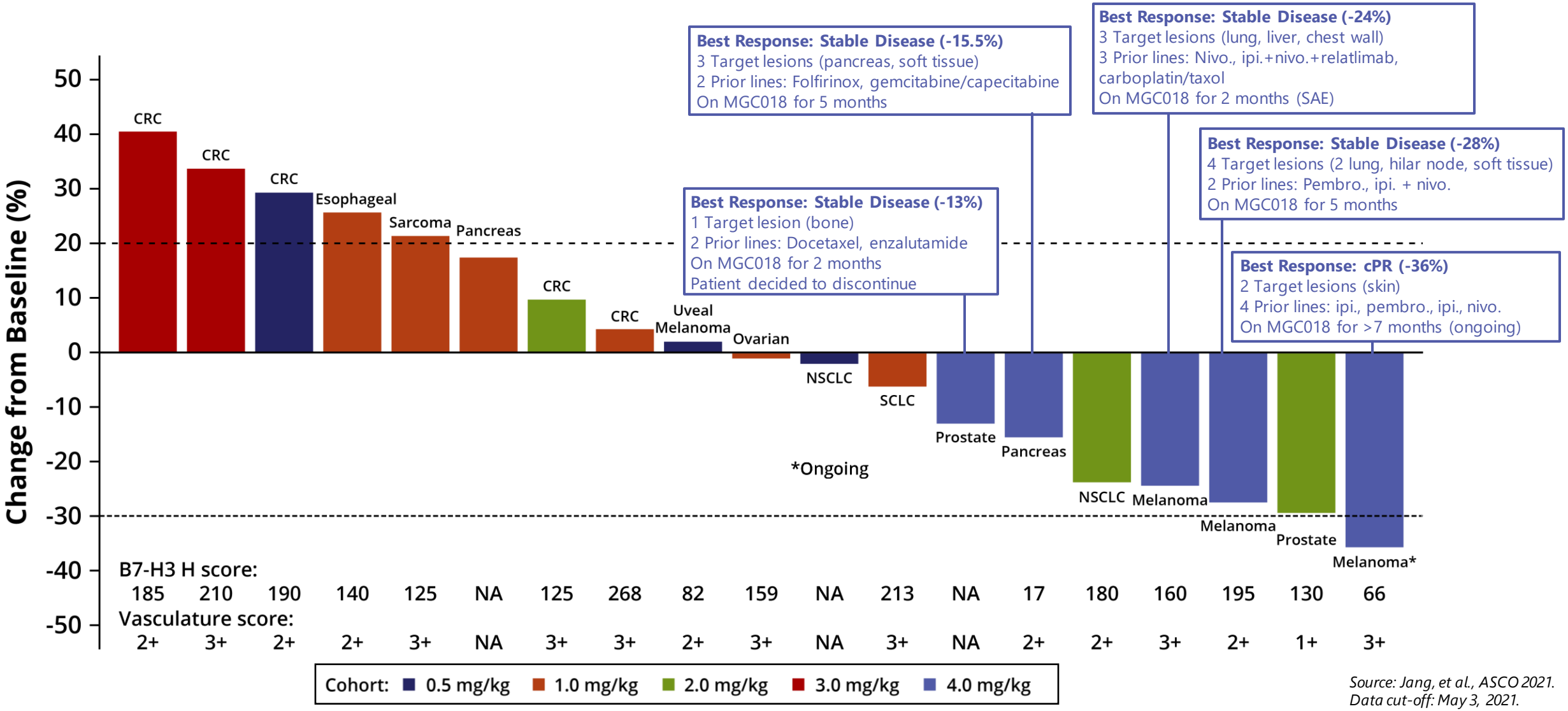
Patient (Dose)	Duration of Therapy	MGC018 Best Response	MGC018 PSA Reduc-tion	MGC018 Time to Progression	Reason for MGC018 Discontinuation
Patient #1 2 mg/kg	4 mos.	SD (–29%)	–60%	Unknown (>4 mos.)	Patient decision due to numerous clinic visits
Patient #2 3 mg/kg *Bone only*	6 mos.	SD	–99%	6 mos.	New skull lesions on CT scan obtained for head injury; skull lesions not seen on baseline bone scan (no head CT)
Patient #3 3 mg/kg *Bone only*	3 mos.	SD	–67%	Not yet progressed (7 mos.)	Palmar plantar erythrodysesthesia
Patient #4 3 mg/kg *Bone only*	5 mos.	SD	–74%	Not yet progressed (7 mos.)	Pericardial effusion
Patient #5 3 mg/kg *Bone only*	3 mos.	SD	–92%	Initiated subsequent therapy (6 mos.)	Increasing PSA



* Patient 5 data scaled (1/10) for charting purposes.

Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

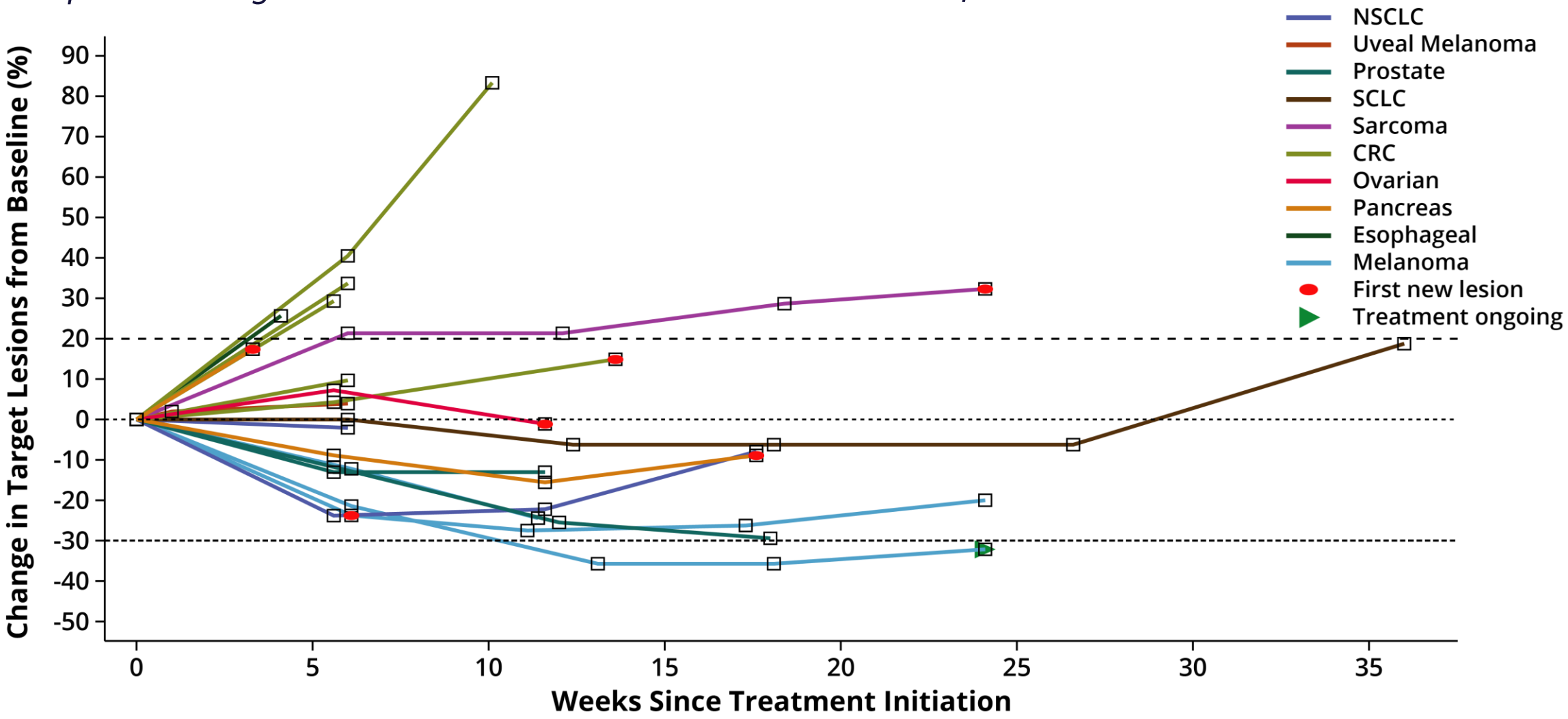
Dose Escalation: Best Percent Change of Target Lesions



Source: Jang, et al., ASCO 2021.
Data cut-off: May 3, 2021.

Dose Escalation: Percent Change of Target Lesions

MGC018 provided target lesion reductions and disease stabilization for several months



Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

Activity in Metastatic Melanoma Patients

Enrolled in MGC018 dose escalation cohort at 4.0 mg/kg

Patient	Prior Radiation/ Surgery	B7-H3 H Score (Vasculature Score)	Line of Therapy	Treatment	Duration of Therapy	Reason for MGC018 Discontinuation	Best Response in Target Lesions
Patient #1 3 target lesions (lung, liver, chest wall) Non-target pelvic nodes and perirectal/lung lesions	Radiation and Surgery	160 (3+)	1 2 2 2 3 **4**	Nivolumab Ipilimumab Nivolumab Relatlimab Carboplatin/Taxol **MGC018**	10/18 – 07/19 08/19 – 09/19 08/19 – 02/20 11/19 – 02/20 04/20 (1 dose) **05/20 – 07/20**	**SAE hematuria/ thrombocytopenia** ***(Hx of radiation cystitis)***	**-24%**
Patient #2 4 target lesions (2 lung, hilar node, soft tissue) Non-target bilateral lung lesion	Surgery	195 (2+)	1 2 **3**	Pembrolizumab Ipilim. + Nivo. **MGC018**	03/20 – 07/20 07/20 – 08/20 **10/20 – 03/21**	**PD**	**-28%**
Patient #3 2 target lesions (skin) Non-target multiple lower extremity lesions	Radiation and Surgery	66 (3+)	1 2 3 4 **5**	Ipilimumab Pembrolizumab Ipilimumab Nivolumab **MGC018**	02/15 – 05/15 08/15 – 10/17 06/18 – 08/18 10/18 – 09/20 **10/20 – Ongoing**	**N/A, ongoing**	**cPR (-36%)**

PD = progressive disease; cPR = confirmed partial response; N/A = not applicable.

Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

Dose Escalation: Grade ≥ 3 Related Adverse Events

Cytopenias were most common

System Organ Class Preferred Term	0.5 mg/kg (N=3)	1.0 mg/kg (N=6)	2.0 mg/kg (N=7)	3.0 mg/kg (N=7)	4.0 mg/kg (N=6)	All (N=29)
AT LEAST ONE EVENT	2 (66.7%)	2 (33.3%)	6 (85.7%)	4 (57.1%)	5 (83.3%)	19 (65.5%)
Blood and lymphatic system disorders	0	0	2 (28.6)	2 (28.6)	2 (33.3)	6 (20.7)
Neutropenia	0	0	2 (28.6)	2 (28.6)	2 (33.3)	6 (20.7)
Lymphopenia	0	0	1 (14.3)	1 (14.3)	1 (16.7)	3 (10.3)
General disorders and administration site conditions	0	0	0	0	2 (33.3)	2 (6.9)
Fatigue	0	0	0	0	2 (33.3)	2 (6.9)
Investigations	1 (33.3)	2 (33.3)	3 (57.1)	2 (28.6)	2 (33.3)	10 (34.5)
Lymphocyte count decreased	0	1 (16.7)	2 (28.6)	1 (14.3)	0	4 (13.8)
Neutrophil count decreased	0	1 (16.7)	1 (14.3)	0	0	2 (6.9)
Platelet count decreased	0	0	1 (14.3)	1 (14.3)	0	2 (6.9)
Lipase increased	1 (33.3)	0	0	0	1 (16.7)	2 (6.9)
White blood cell count decreased	0	1 (16.7)	0	0	1 (16.7)	2 (6.9)
Metabolism and nutrition disorders	0	0	2 (28.6)	0	0	2 (6.9)
Hypophosphataemia	0	0	2 (28.6)	0	0	2 (6.9)
Skin and subcutaneous tissue disorders	0	0	3 (42.9)	1 (14.3)	0	4 (13.8)
Palmar-plantar erythrodysaesthesia syndrome	0	0	1 (14.3)	1 (14.3)	0	2 (6.9)
Rash maculo-papular	0	0	2 (28.6)	0	0	2 (6.9)

Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

Dose Escalation: Treatment-Emergent Adverse Events

Manageable safety profile

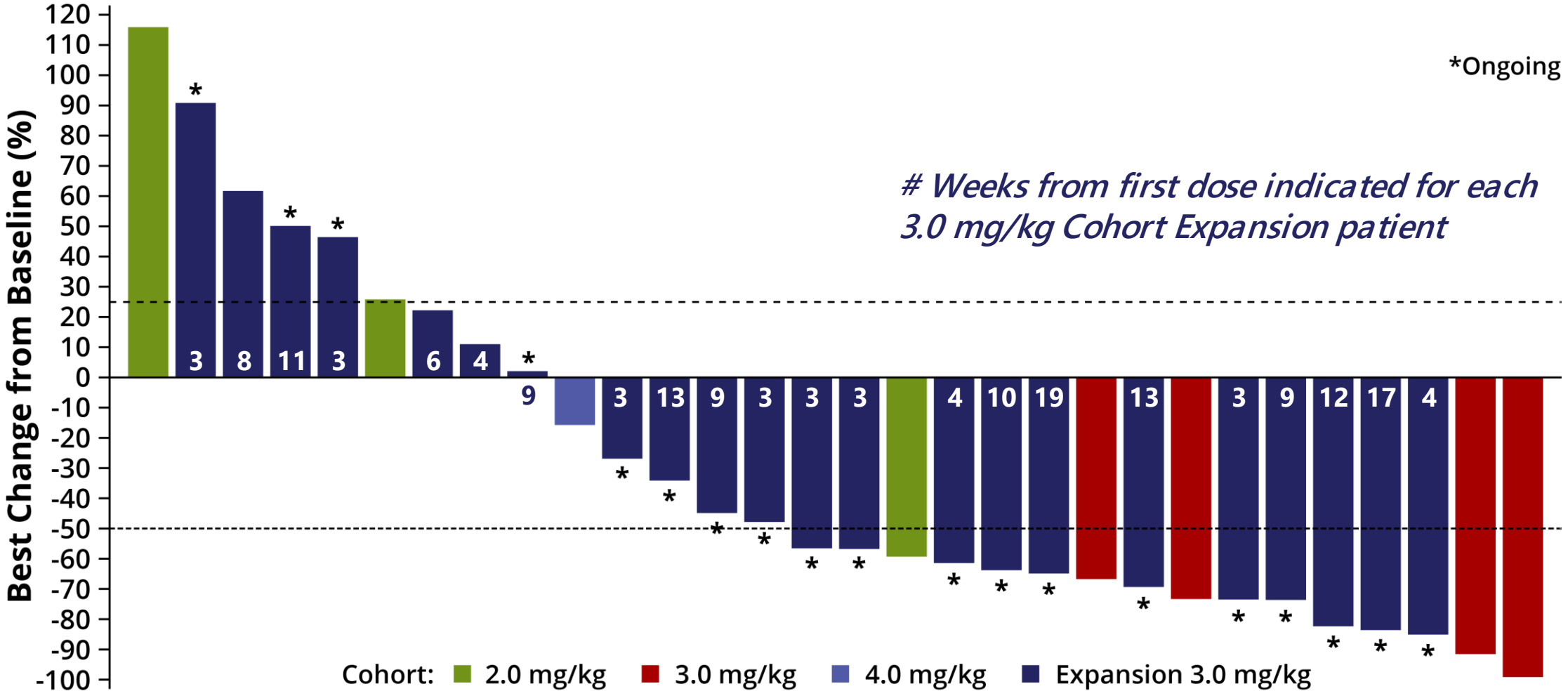
Patients Experiencing at Least One Adverse Event	0.5 mg/kg (N=3)	1.0 mg/kg (N=6)	2.0 mg/kg (N=7)	3.0 mg/kg* (N=7)	4.0 mg/kg (N=6)	All (N=29)
Adverse Event	3 (100%)	6 (100%)	7 (100%)	7 (100%)	6 (100%)	29 (100%)
Treatment-Related Adverse Event[1]	3 (100)	5 (83.3)	6 (85.7)	7 (100)	6 (100)	27 (93.1)
Adverse Event ≥ Grade 3[2]	3 (100)	4 (66.7)	7 (100)	5 (71.4)	5 (83.3)	24 (82.8)
Treatment-Related Adverse Event ≥ Grade 3[2]	2 (66.7)	2 (33.3)	6 (85.7)	4 (57.1)	5 (83.8)	19 (65.5)
Serious Adverse Event	1 (33.3)	1 (16.7)	3 (42.9)	2 (28.6)	2 (33.3)	9 (31.0)
Dose-limiting Toxicity	0	0	1 (14.3)[3]	0	1 (16.7)[4]	2 (6.9)
Event that Resulted in Study Discontinuation	1 (33.3)	2 (33.3)	3 (42.9)	4 (57.1)	2 (33.3)	10 (34.5)
Event that Resulted in MGC018 Withdrawal	1 (33.3)	1 (16.7)	3 (42.9)	4 (57.1)	2 (33.3)	11 (37.9)
Event that Resulted in MGC018 Dose Reduction	0	0	1 (14.3)	2 (28.6)	2 (33.3)	5 (17.2)
Event that Resulted in MGC018 Interruption	1 (33.3)	0	1 (14.3)	5 (71.4)	5 (83.3)	12 (41.4)
Fatal Adverse Event (pneumonitis/pneumonia)	1 (33.3)	0	0	0	0	1 (3.4)
Adverse Event of Special Interest (AESI) – Infusion Reaction	0	0	2 (28.6)	5 (71.4)	2 (33.3)	9 (31.0)

*(1) Includes events with causality assessments of 'Possible', 'Probable' or 'Definite'. (2) Based on CTCAE criteria version 4.0.3. (3) Grade 4 neutropenia resolved to baseline. (4) G3 fatigue > 72 hours. *Amendment during 3.0 mg/kg dose level applied to allow dose modification.*

Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

Best Percent Change in PSA: Dose Escalation *and* Cohort Expansion

>50% PSA Reduction in 11/22 (50%) mCRPC expansion patients; 16/31 (52%) in escalation + expansion

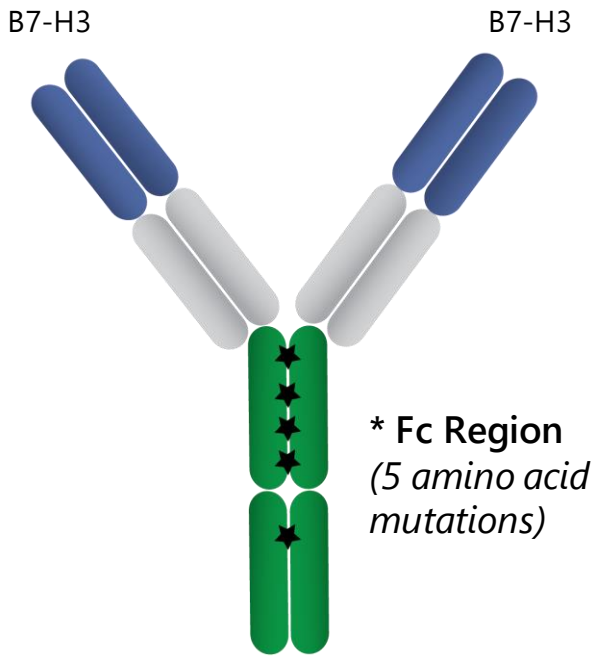


Patients who received at least one dose and had at least one post-baseline PSA evaluation.

Source: Jang, et al., ASCO 2021. Data cut-off: May 3, 2021.

Enoblituzumab: Fc-Engineered Anti-B7-H3 Monoclonal Antibody

Leveraging high B7-H3 expression in solid tumors

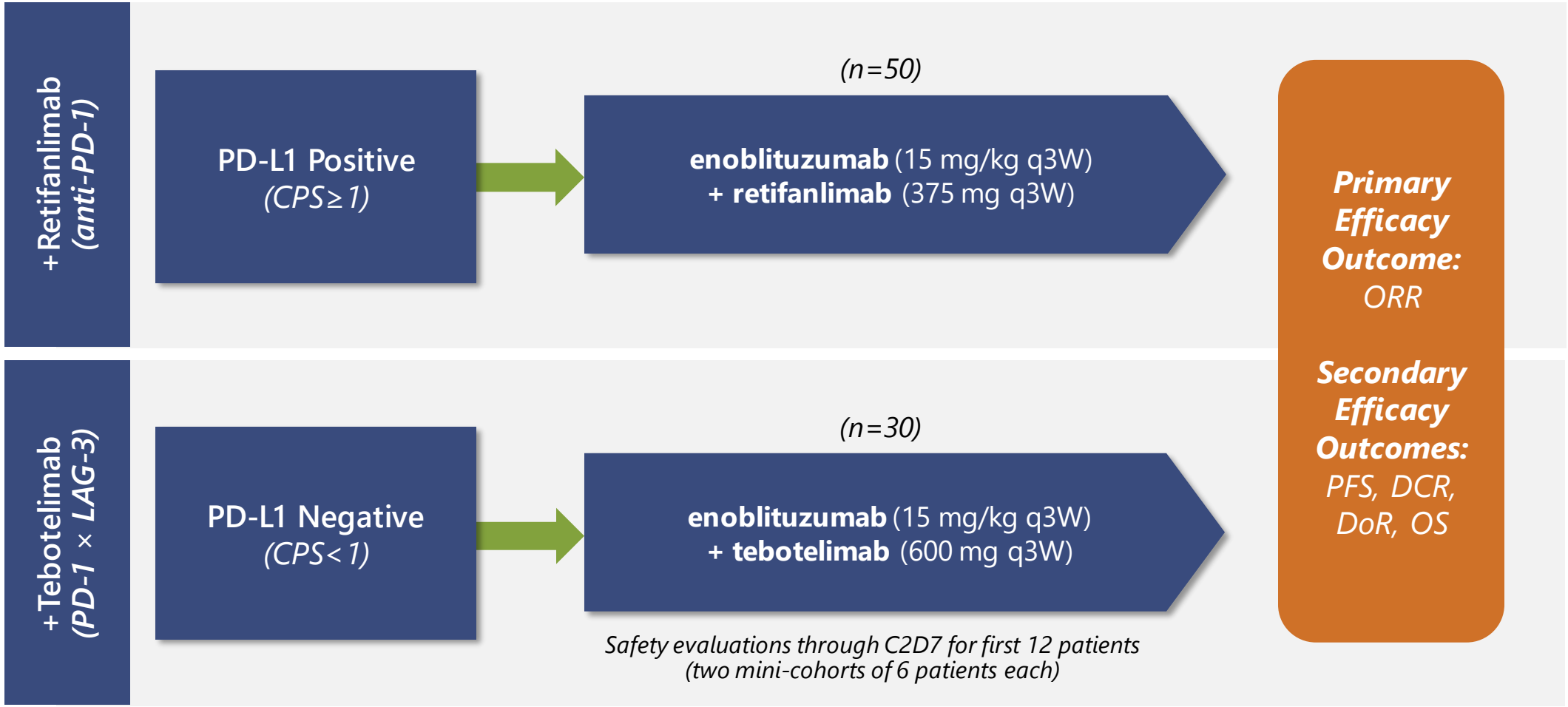


Function/ MoA	• Fc-mediated tumor cell killing • Potential enhancement of adaptive immune responses
Clinical Study	• Initiated Phase 2 study in combination with retifanlimab and tebotelimab in SCCHN in 1Q21 • Proof-of-concept established in prior combination study with anti-PD-1 (SITC 2018) – SCCHN: 6/18 (33.3%) ORR, irrespective of HPV status – NSCLC: 5/14 (35.7%) ORR in PD-L1 neg. (CPS<1) patients

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

Enoblituzumab Proof-of-Concept Study in SCCHN

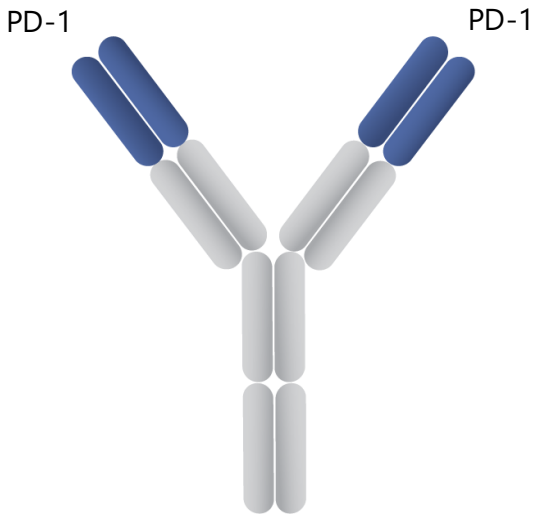
1st line treatment of patients w/ recurrent or metastatic squamous cell carcinoma of head and neck



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

Retifanlimab: Anti-PD-1 Antibody

Global collaboration with Incyte



Function/ MoA	• Humanized, hinge-stabilized IgG4 mAb • Inhibits PD-1
Clinical Studies	• Five registration-directed studies ongoing or planned across a broad range of tumor types
Global Incyte Transaction	• Up to $750M in potential milestones ($60M achieved to date) • Tiered royalties of 15-24% on future retifanlimab sales • Rights to develop pipeline assets with retifanlimab
Status	• July 23, 2021: Incyte announced receipt of CRL for BLA for treatment of anal cancer and that it will discuss next steps with FDA

Retifanlimab (formerly MGA012, also known as INCMGA0012) is investigational and has not yet been approved for marketing by any regulatory authority

Comprehensive Development Plans

Multiple potentially registration-enabling clinical studies

Incyte

Dual Strategy

Niche Indications (monotherapy)

PODIUM
PD1 Clinical Program in Multiple Malignancies

- **Anal Cancer** (POD1UM-303)
- **Merkel Cell Carcinoma**
- **MSI High Endometrial Cancer**

Lung Cancer

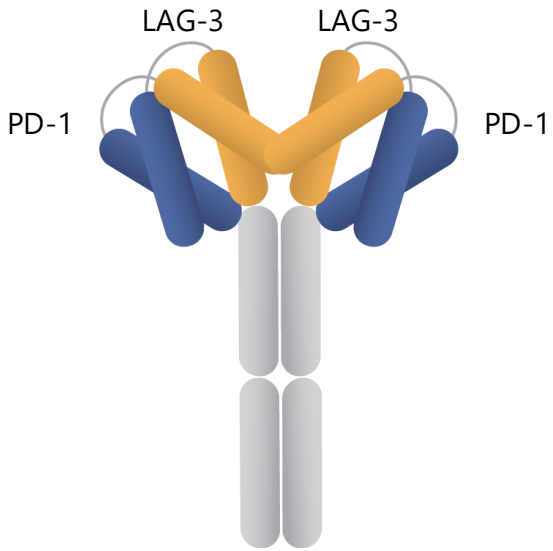
- **1L NSCLC: retifanlimab + platinum-based chemo** (POD1UM-304)

MACROGENICS

Combinatorial Development

- **Gastric Cancer: margetuximab + retifanlimab ± chemo** (MAHOGANY)
- **SCCHN: enoblituzumab + retifanlimab**

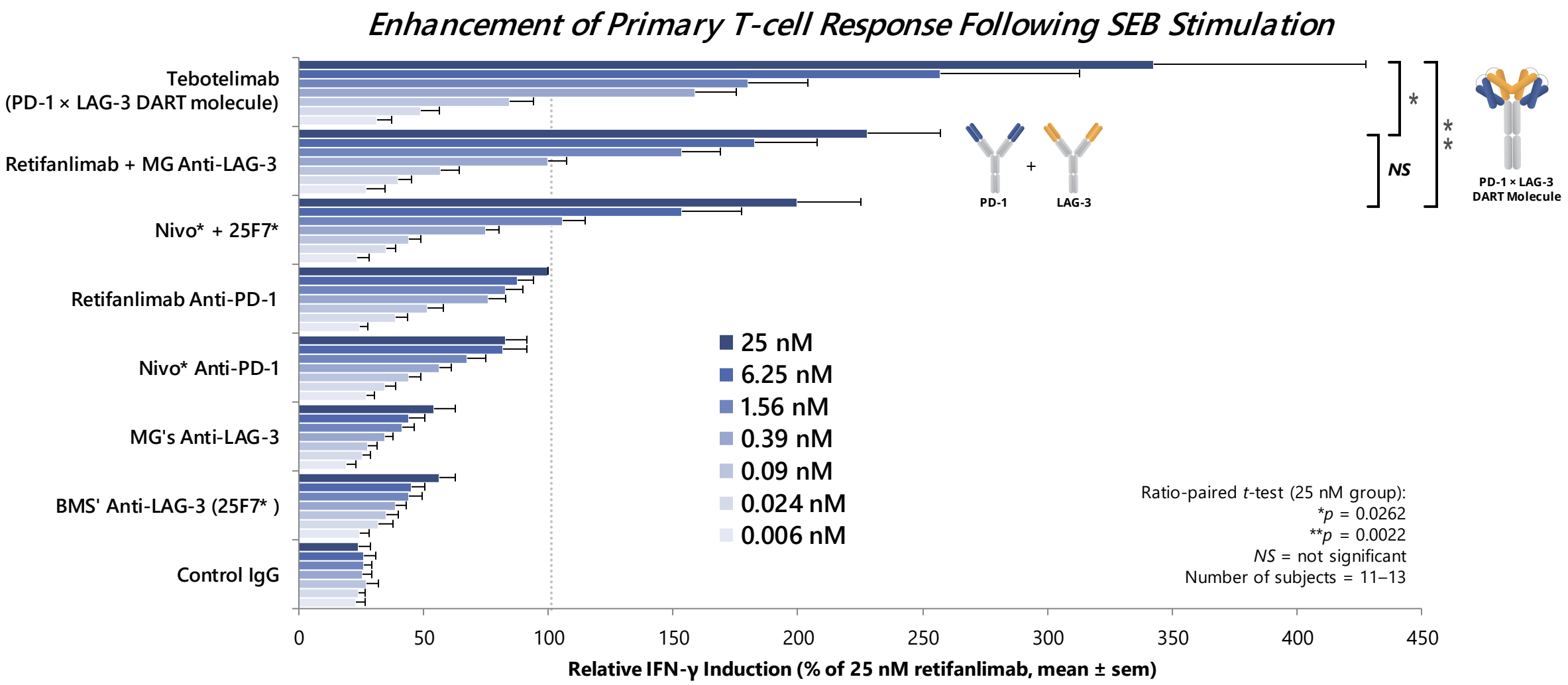
Tebotelimab: First PD-1 × LAG-3 Bispecific Molecule in Clinical Trials



Function/ MoA	• Simultaneous and/or independent blockade of two checkpoint molecules • Reactivation of exhausted T cells
Clinical Studies	• Ph. 1 dose expansion in: – Enrollment completed in nine tumor types (solid and liquid); checkpoint-naïve and checkpoint-experienced – Multiple combination studies ongoing or planned (including with margetuximab and with enoblituzumab)
Anticipated Upcoming Milestones	• Update re: plans for next stage of development (2021)

Tebotelimab (formerly MGD013) is investigational and has not yet been approved for marketing by any regulatory authority

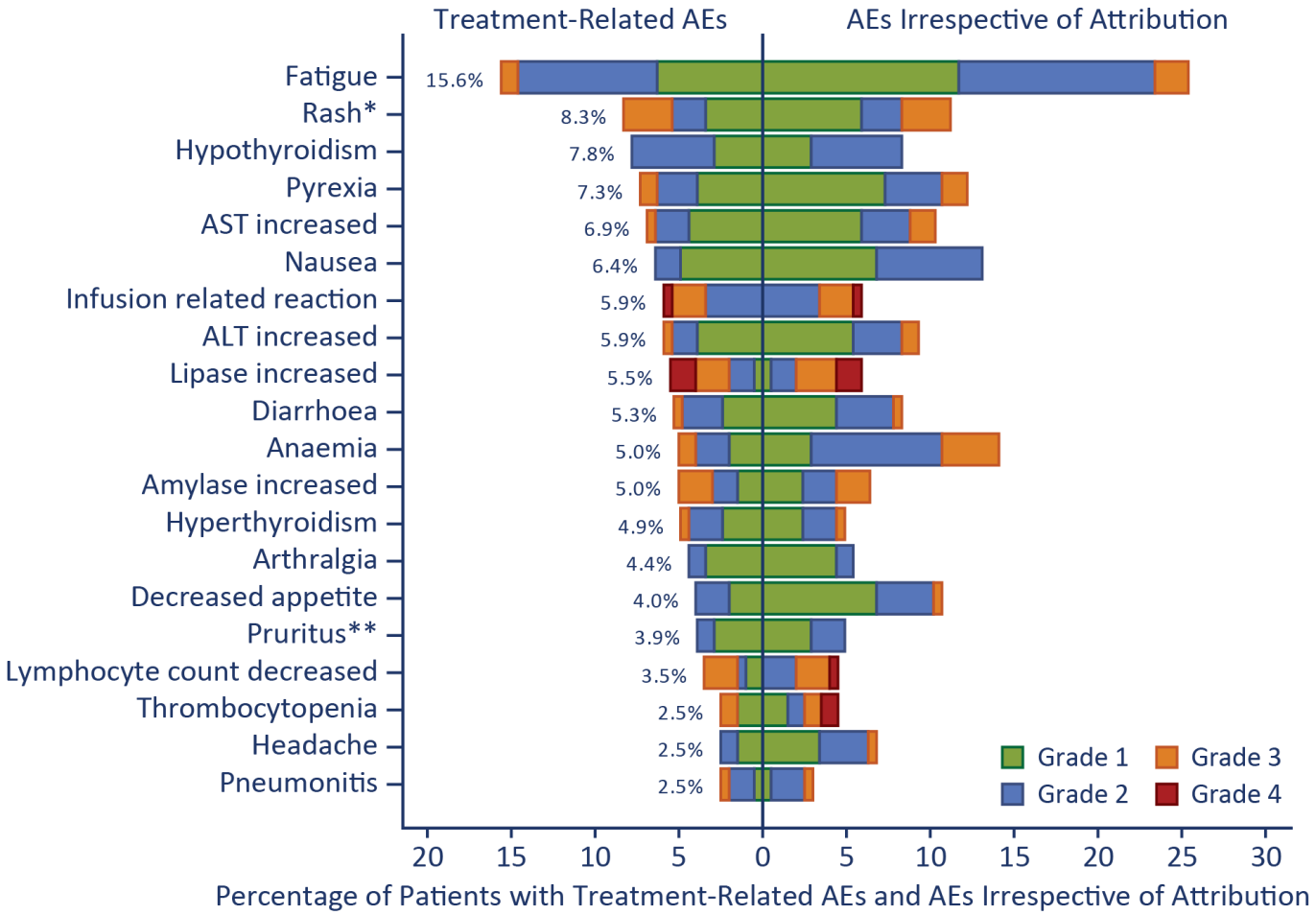
DART Molecule Demonstrates Synergistic T-cell Activation in Vitro



** Replicas of nivolumab and 25F7 mAb based on published sequences.*
Note: IFNγ release by 25 nM retifanlimab = 3276±744 pg/ml.

Safety Profile Consistent with PD-1 Antibody Monotherapy

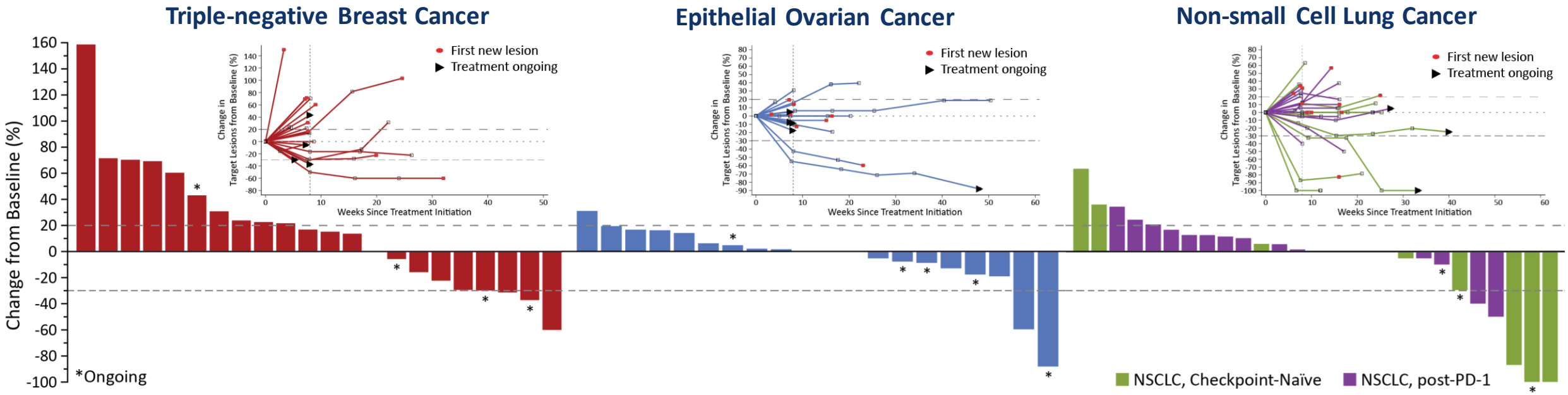
Overall AE Totals	No. (%) of Patients	
	All Grades (N=205)	≥ Grade 3 (N=205)
AE (irrespective of causality)	178 (86.8)	86 (42.0)
Treatment-related AE	118 (57.6)	37 (18.0)[a]
SAE (irrespective of causality)	63 (30.7)	47 (22.9)
Treatment-related SAE	18 (8.8)	11 (5.4)
AE leading to discontinuation	18 (8.8)	16 (7.8)
AESIs in ≥ 2 Patients		
Rash	17 (8.3)	6 (2.9)
Hypothyroidism	16 (7.8)	0 (0.0)
IRR or CRS	13 (6.3)	5 (2.4)
Diarrhea	11 (5.4)	1 (0.5)
Lipase increased	11 (5.4)	7 (3.4)
Hyperthyroidism	10 (4.9)	1 (0.5)
Arthralgia	9 (4.4)	0 (0.0)
Pneumonitis	4 (2.0)	1 (0.5)
Myalgia	4 (2.0)	0 (0.0)
Peripheral neuropathy	3 (1.5)	1 (0.5)
Hepatitis	3 (1.5)	2 (1.0)
Adrenal insufficiency	2 (1.0)	0 (0.0)



* Includes MedDRA Preferred Terms of Rash and Maculopapular Rash. ** Includes MedDRA Preferred Terms of Pruritus and Generalized Pruritus.
Grade 4 drug-related AEs include: lipase increased (n=3), neutrophil count decreased, and IRR (n=1, each). No Grade 5 TRAEs have been reported.
AESI = adverse events of special interest. Data cutoff: April, 25, 2020.

Luke, et al., ASCO 2020

Monotherapy: Anti-tumor Activity Observed in Multiple Tumor Types



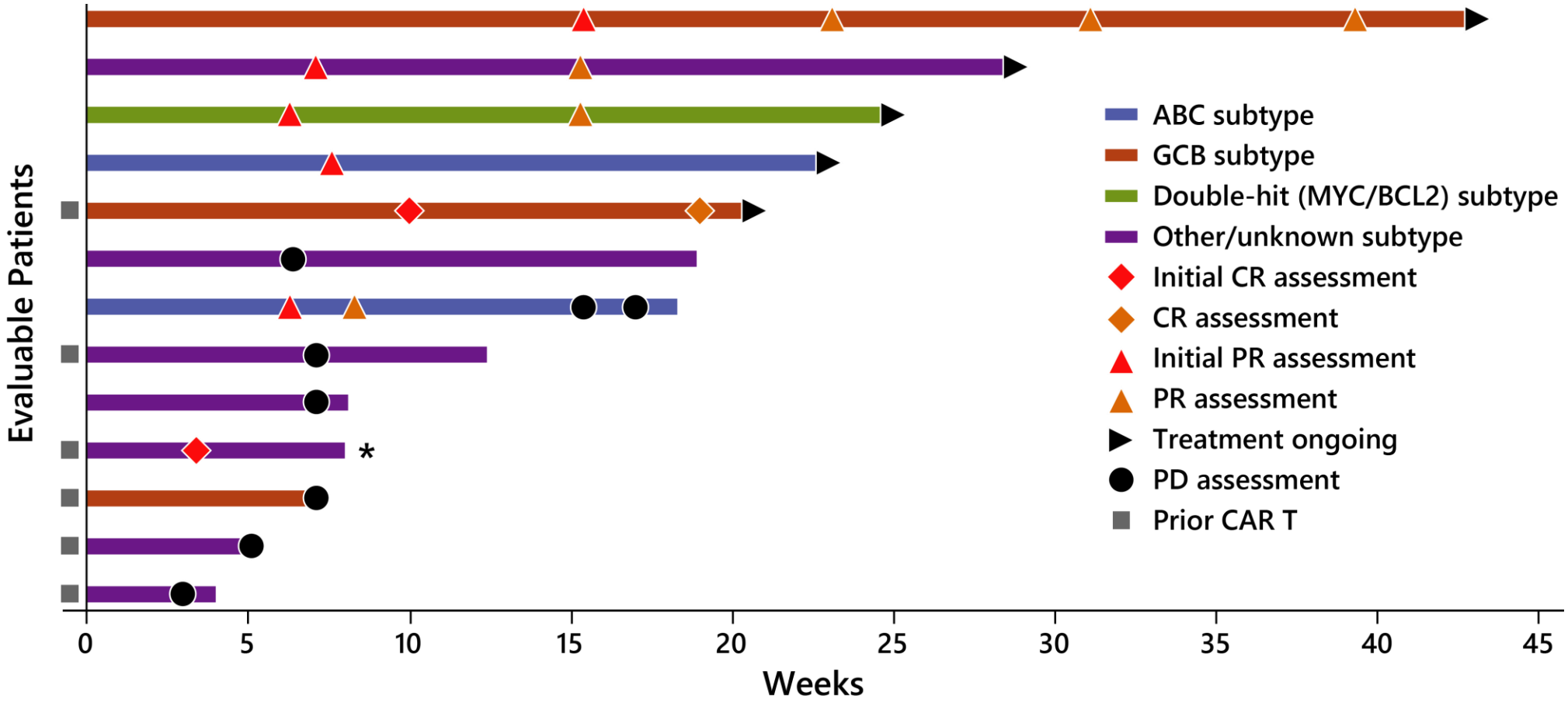
	TNBC	EOC	NSCLC, CPI-Naïve	NSCLC, post-PD-1
Evaluable Patients	23	23	14	15
ORR (Confirmed)	4.3% (1/23)	8.7% (2/23)	14.3% (2/14)	0% (0/15)
ORR (Confirmed + Unconfirmed)	17.4% (4/23)	8.7% (2/23)	21.4% (3/14)	13.3% (2/15)
SD	34.8% (8/23)	43.5% (10/23)	50.0% (7/14)	53.3% (8/15)
DCR	39.1% (9/23)	52.2% (12/23)	64.3% (9/14)	53.3% (8/15)

Data cutoff: April, 25, 2020

Luke, et al., ASCO 2020

Encouraging Evidence of Antitumor Activity in DLBCL

- *Preliminary ORR of 53.8%: 71.4% (5/7) for CAR T naïve, 33.3% (2/6) for CAR T experienced patients*
- *Preliminary duration of response of up to168 days, with 6 of 7 ongoing responses at cut-off date*

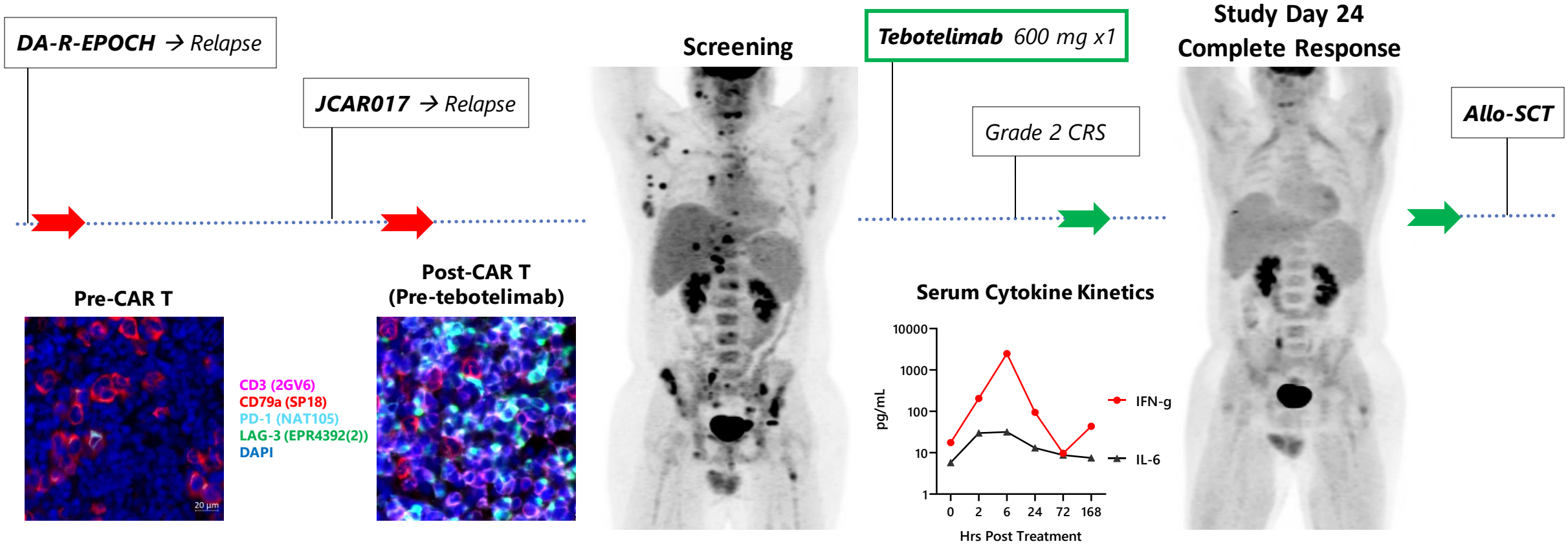


***** Allogeneic stem cell transplant (allo-SCT) performed after CR and end of treatment. Patient remains in remission ~16 months post-allo-SCT.

Data cut-off: Oct. 23, 2020; Wang, et al., ASH 2020

Complete Response after Single Tebotelimab Administration

28-year-old male with DLBCL progressive disease after CAR T cell therapy



- Dynamic changes observed in the TME after CAR T therapy, with increased expression of LAG-3, PD-1, PD-L1, and MHC-II evident
- Malignant cells CD19-negative, consistent with antigen loss relapse

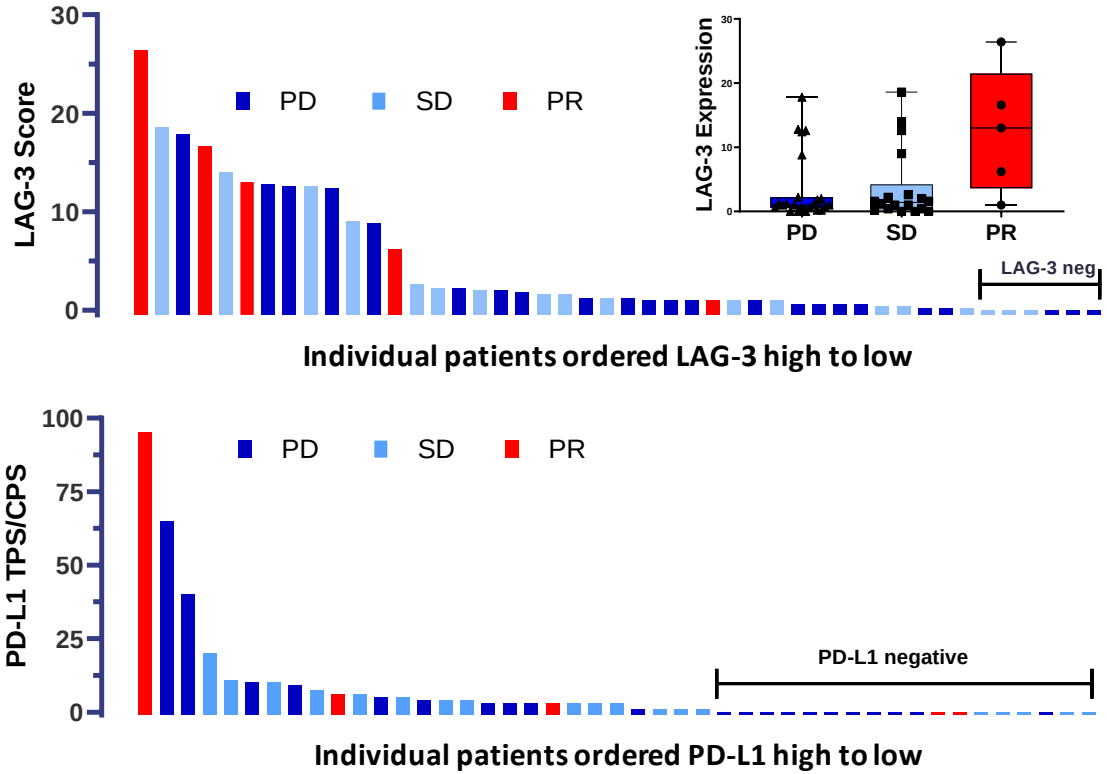
- After Grade 2 CRS, early scan demonstrated Complete Response at Day 24
- JCAR017's EGFR epitope not detected pre- or post-tebotelimab
- The patient remains in remission approximately 18 months post-tebotelimab and 16 months post-allo-SCT

Data cut-off: Oct. 23, 2020; Wang, et al., ASH 2020

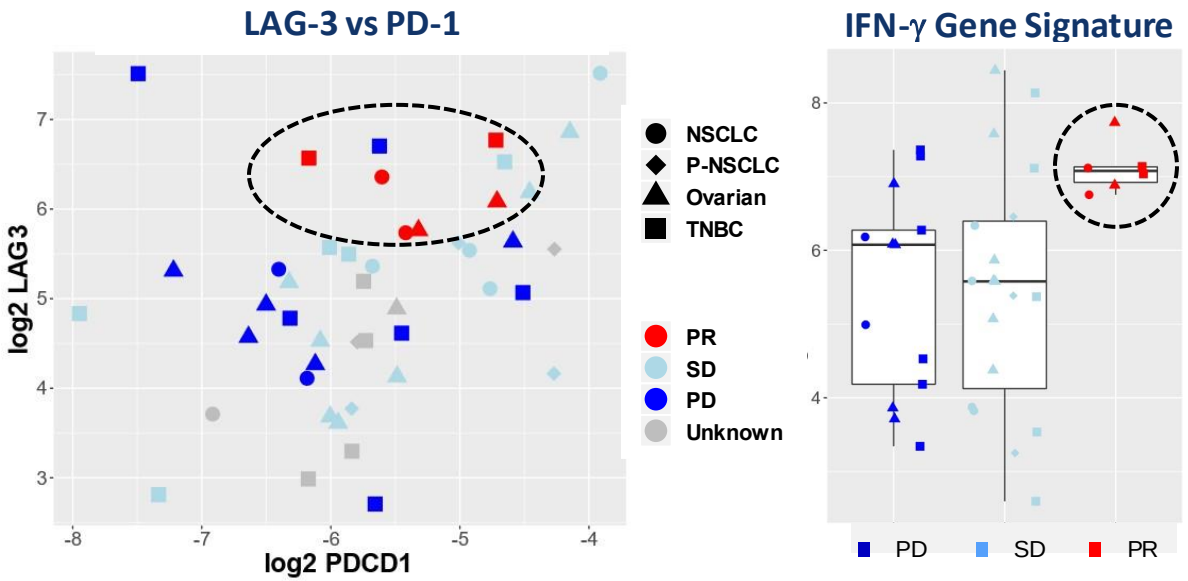
Monotherapy Objective Responses Associated with LAG-3 Expression

Inflammatory interferon-γ signature elevated in patients with clinical response

Retrospective IHC Analyses



Transcript Profiling (Baseline Tumor Biopsy)



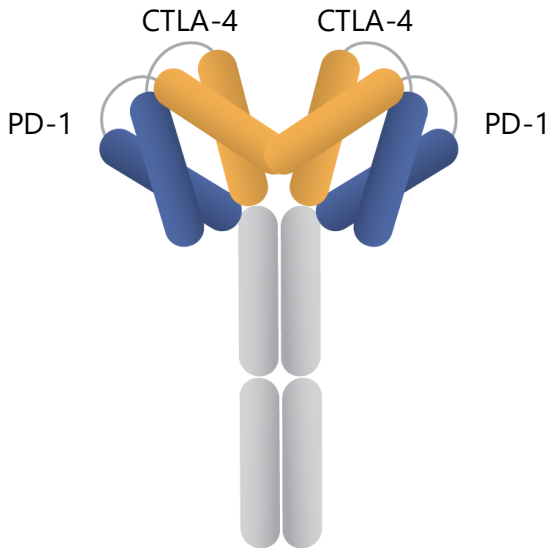
Objective responses associated with high baseline LAG-3/PD-1 expression and IFN-g gene signature (CXCL9, CXCL10, CXC11, STAT1)

Archival biopsies from TNBC, EOC, and NSCLC expansion cohorts analyzed for LAG-3 (N=46) or PD-L1 (N=45) by IHC. LAG-3 score was determined as per Chen et al., e15086 ASCO 2020. PD-L1 expression was determined per Agilent PD-L1 (22C3) pharmDx kit

The NanoString PanCancer IO 360™ assay was used to interrogate gene expression, including the abundance of 14 immune cell types and 32 immuno-oncology signatures from archival biopsies from EOC (N=14) NSCLC (N=25) and TNBC (N=13) expansion cohorts.

Luke, et al., ASCO 2020

MGD019 (PD-1 × CTLA-4): Bispecific w/Two Validated Checkpoint Targets

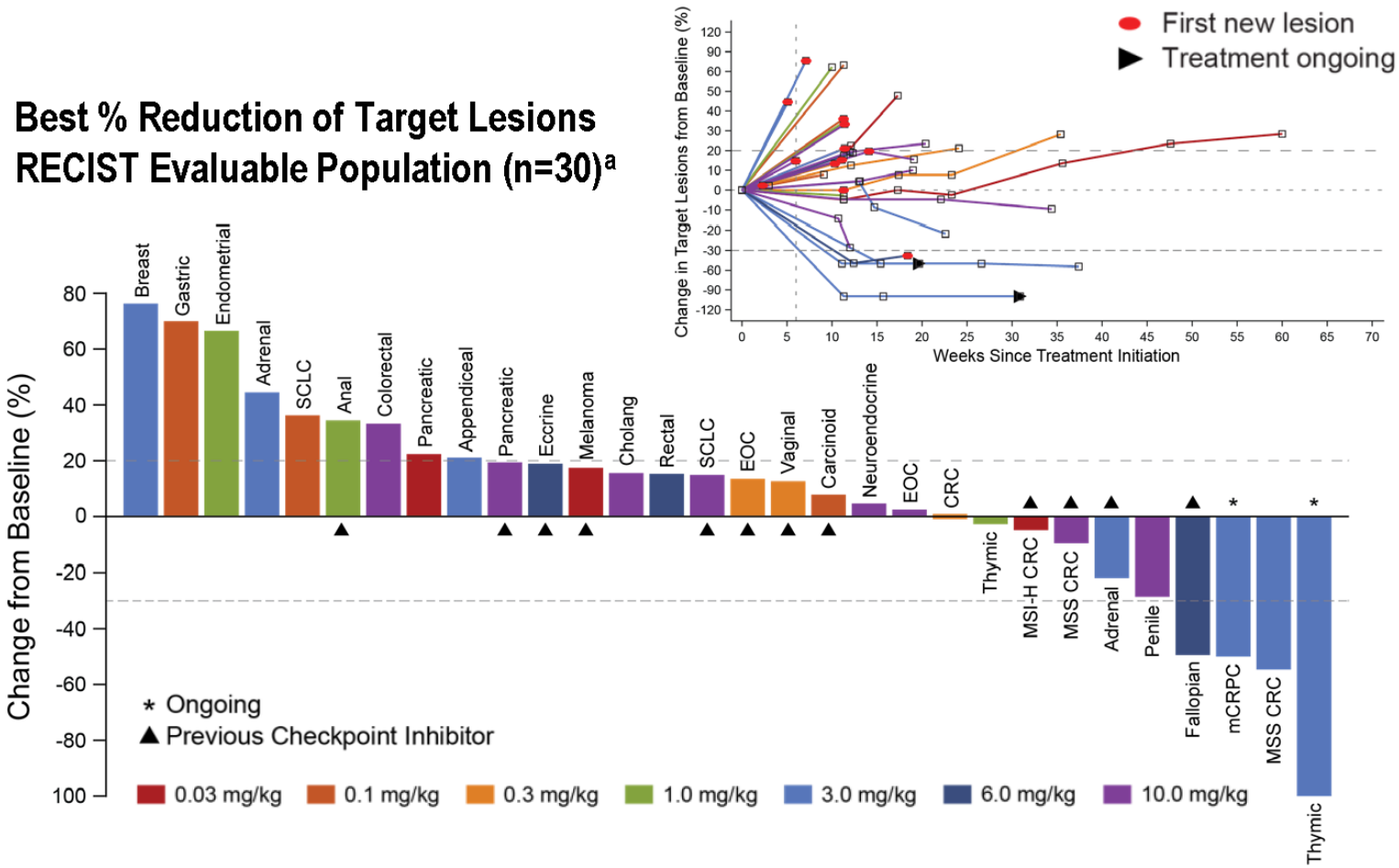


Function/ MoA	• Simultaneous and/or independent blockade of two validated checkpoint inhibitor molecules
Clinical Studies	• Ongoing Phase 1 dose expansion cohorts: – Microsatellite stable colorectal cancer (MSS CRC) – Non-small cell lung cancer (NSCLC) – Metastatic castration-resistant prostate cancer (mCRPC) – Melanoma

MGD019 is investigational and has not yet been approved for marketing by any regulatory authority

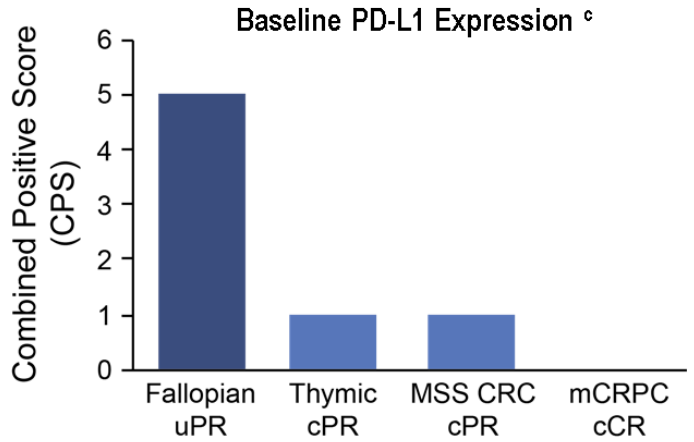
Preliminary Activity in Dose Escalation

Best % Reduction of Target Lesions
RECIST Evaluable Population (n=30)[a]



Objective Responses (n=4):

- Microsatellite stable CRC – cPR
- Metastatic type AB thymoma – cPR
- Serous fallopian tube carcinoma[b] – uPR
- mCRPC – cCR
- 10 patients with SD as best response



Preliminary Results[d]:

- *All Dose Levels*: ORR 13.3%; DCR 43.3%
- *Doses ≥ 3 mg/kg*: ORR 22.2%; DCR 50.0%

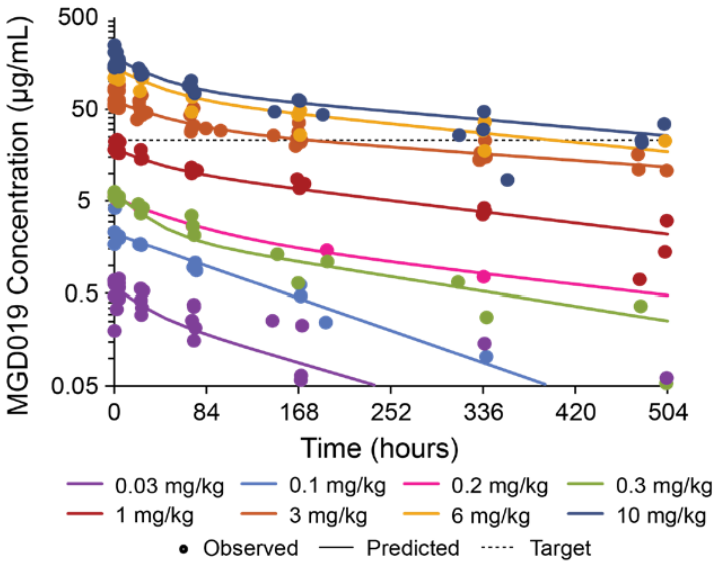
Sharma, et al., ESMO 2020

[a] Based on patients with baseline and post-treatment tumor measurements. [b] Previously refractory to anti-PD-L1 therapy in combination with anti-CD47 mAb. [c] PD-L1 expression determined per Agilent PD-L1 (22C3) pharmDx kit; CPS = number of PD-L1 + cells (tumor and immune)/total number of viable tumor cells x 100. [d] Includes the unconfirmed PR. Data cutoff: July 21, 2020

Pharmacokinetics and Receptor Occupancy

Linear PK (1.0 –10.0 mg/kg dose range) and sustained receptor occupancy (≥ 1.0 mg/kg Q3W)

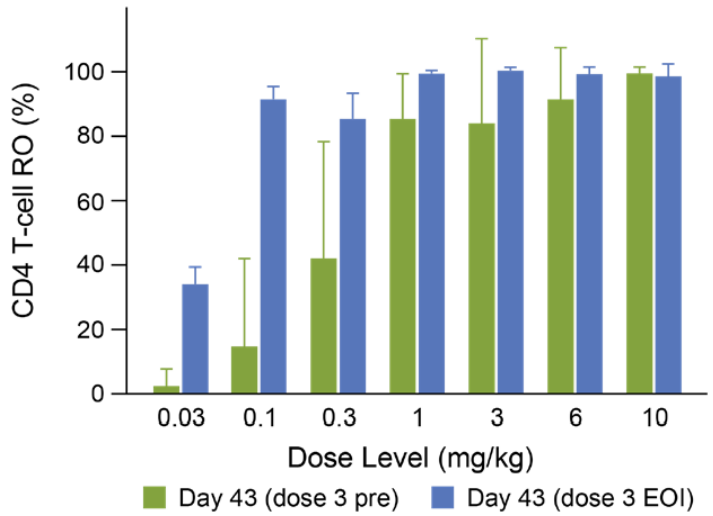
First Dose PK



Estimated $t_{1/2}$ = 298 hours (~12 days)

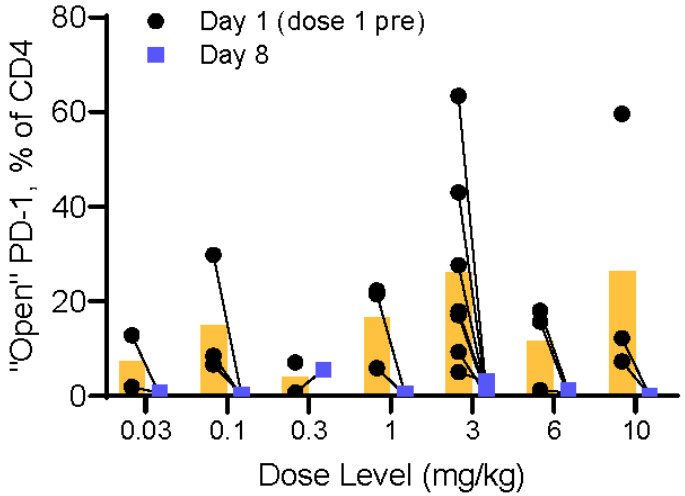
First-dose PK profiles of 0.03 to 10 mg/kg. Symbols and solid lines represent observed data and model fitted median curves, respectively. "Target" refers to published serum trough concentration of pembrolizumab at 2 mg/kg Q3W (23.6 µg/mL) [CDER, KEYTRUDA (pembrolizumab) Clinical Pharmacology and Biopharmaceutics Review(s). 2014]

Receptor (PD-1) Occupancy



MGD019 peripheral PD-1 receptor occupancy for CD4+ T cells collected 21 days after second infusion (green) compared to measured immediately after third infusion (blue).

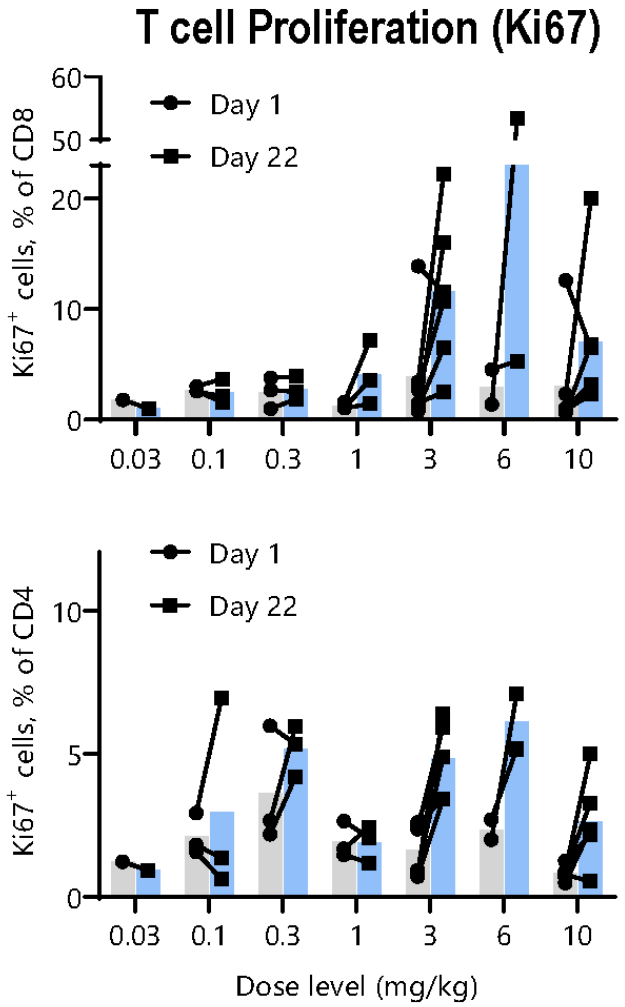
PD-1 Blockade



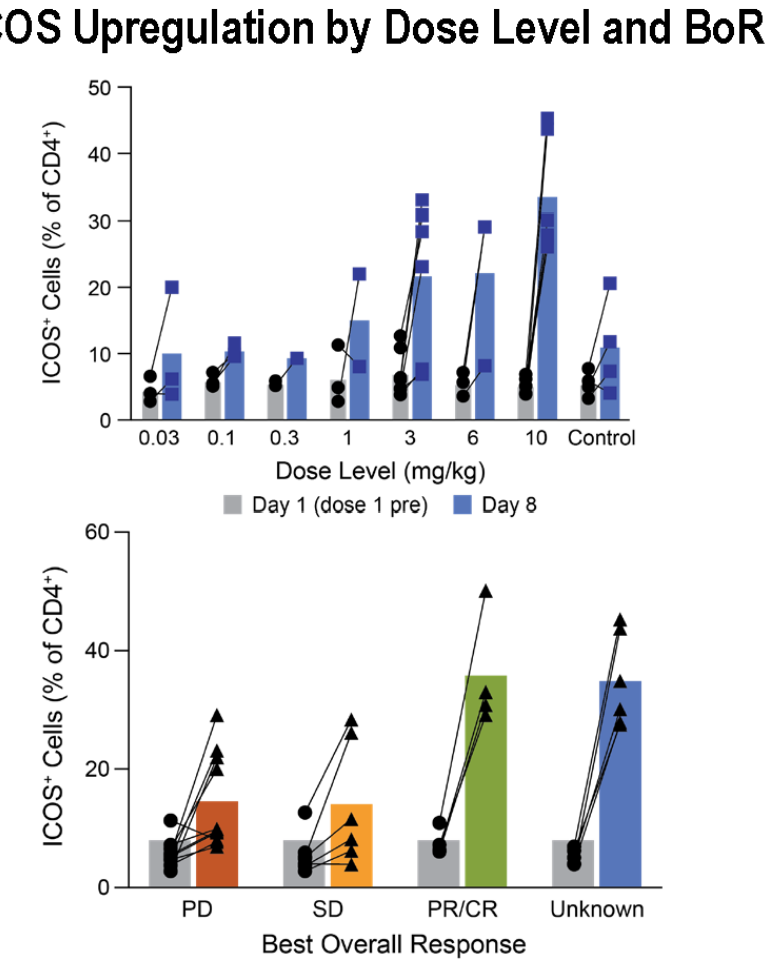
MGD019 blocks binding of competing anti-PD-1 mAb (J105) to peripheral CD4+ T cells of patients. Connected symbols represent individual patients before and after (day 8) MGD019 administration.

Sharma, et al., ESMO 2020

Dose-dependent ICOS Upregulation and T-Cell Proliferation in Treated Patients



MGD019 increases fraction of Ki67+ T cells in patients' PBMCs.



Dose-dependent ICOS upregulation on peripheral CD4 T-cells attributable to CTLA-4 arm based on cross-comparison with other MacroGenics' PD-1 based molecules.

Sharma, et al., ESMO 2020

Key Anticipated 2021 Program Milestones

Margetuximab
(Anti-HER2 mAb)

Breast Cancer
- ❑ OS final analysis (3Q)*

Gastric/GEJ Cancer
- ❑ Initial data MAHOGANY Module A (ESMO/3Q)

Flotetuzumab
(CD123 × CD3 DART molecule)

- ❑ Clinical update (late 2021)

MGC018
(Anti-B7-H3 ADC)

- ❑ Clinical update (ESMO/3Q)

Retifanlimab
(Anti-PD-1 mAb)

- ❑ CRL for BLA announced 7/23/21
- ❑ Next steps TBD (per INCY)

Incyte

Tebotelimab
(PD-1 × LAG-3 DART molecule)

- ❑ Update regarding plans for next stage of dev't (2H21)

MGD019
(PD-1 × CTLA-4 DART molecule)

- ❑ Ongoing cohort expansion

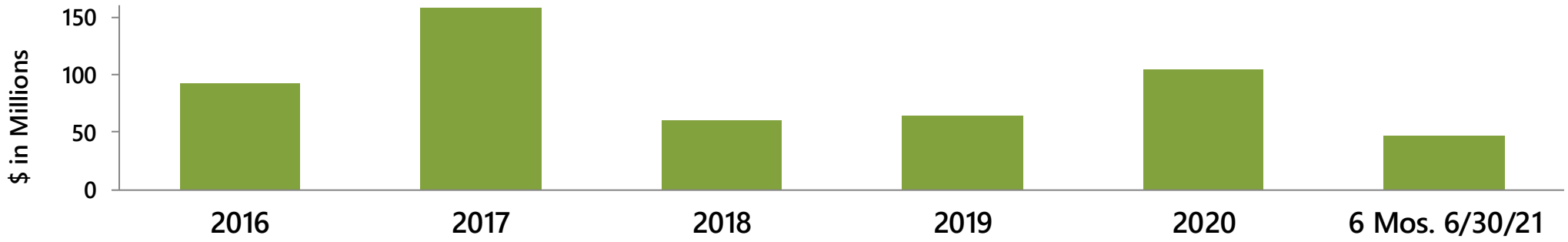
**Based on current OS event rate accrual, subject to change*

Financial Overview

- $297M Cash, cash equivalents and marketable securities as of June 30, 2021 (a)
  - Cash runway through 2023 via anticipated and potential collaboration payments
- Historical financial details:

$ in Millions	2016	2017	2018	2019	2020	6 Mos. Ended June 30, 2020	6 Mos. Ended June 30, 2021
Total Revenues	$92	$158	$60	$64	$105	$34	$48
R&D Expense	122	147	191	195	193	106	109
Total Operating Expenses	152	180	231	241	236	127	139
Cash & Investments	285	305	233	216	273	233	297(a)

- Total revenues *(primarily from collaborative and government agreements)* >$675M since 2013 IPO:



(a) Does not include $55M in consideration ($25M upfront payment + $30M equity investment) received from Zai Lab in July 2021 (related to execution of collab. agreement announced June 16, 2021).

Thank You!

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