MACROGENICS®

Corporate Overview

The information in this slide deck is current as of February 27, 2018, unless otherwise noted. The information in this slide deck 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.

Legal Notices

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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, 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: 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 regulatory approvals, other matters that could affect the availability or commercial potential of the Company's product candidates and other risks described in the Company's filings with the Securities and Exchange Commission. In addition, the forward-looking statements included in this press release 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.

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Committed to Developing Life-changing Medicines

Cutting-edge Therapeutics

Seven immuno-oncology clinical candidates

Innovative combinatorial approaches

Innate and adaptive immune system engagement

Proprietary Antibody-based Platforms

DART® and TRIDENT™ multi-specific mAb technologies

Fc Optimization to enhance mAb potency

Applicability across broad therapeutic domains

Resourced for Success

Well capitalized: $305M pro forma cash @ 12/31/17

Multiple alliances with leading biopharmas

Commercial scale GMP manufacturing facility

330 Employees @ 2/28/18 (Rockville, MD & SF Bay Area)

Our Growing Immuno-Oncology Pipeline

Retain major market commercial rights for 8 of 9 development candidates

	Program (Target)	Indication	Pre-IND	Phase 1	Phase 2	Phase 3	Collaborator	Our Commercial Rights
	Margetuximab (HER2)	Breast (HER2+) "SOPHIA"					Green Cross	Worldwide, excl. South Korea
		Gastric (+anti-PD-1)						
	Flotetuzumab (CD123 x CD3)	AML/MDS					Servier	North Amer., Japan, Korea, India
		AML (+MGA012)			***Planned***			
PD-1	**MGA012** (PD-1)	Solid Tumors					Incyte[b]	—
PD-1	**MGD013** (PD-1 x LAG-3)	Solid Tumors/Heme Mal.					—	Worldwide
PD-1	**MGD019** (PD-1 x CTLA-4)	Solid Tumors					—	Worldwide
B7-H3	**Enoblituzumab** (B7-H3)	Solid Tumors (+anti-PD-1)					—	Worldwide
B7-H3	**MGD009** (B7-H3 x CD3)	Solid Tumors					—	Worldwide
B7-H3		Solid Tumors (+MGA012)						
B7-H3	**MGC018** (B7-H3)[a]	Solid Tumors					—	Worldwide
	MGD007 (gpA33 x CD3)	Colorectal					*Servier option*	Worldwide
		Colorectal (+MGA012)			***Planned***			

"MGD" = DART | "MGA" = Antibody | "MGC" = ADC

(a) ADC based on duocarmycin payload with cleavable peptide linker licensed from Synthon Biopharmaceuticals.
(b) MacroGenics retains rights to develop its pipeline assets in combination with MGA012 and to manufacture a portion of global clinical and commercial supply needs of MGA012.

Significant Value-creating Opportunities in 2018

B7-H3 Franchise

- Unique target with attractive expression profile
- Three clinical molecules with complementary MOAs

MGD013 (PD-1 x LAG-3)

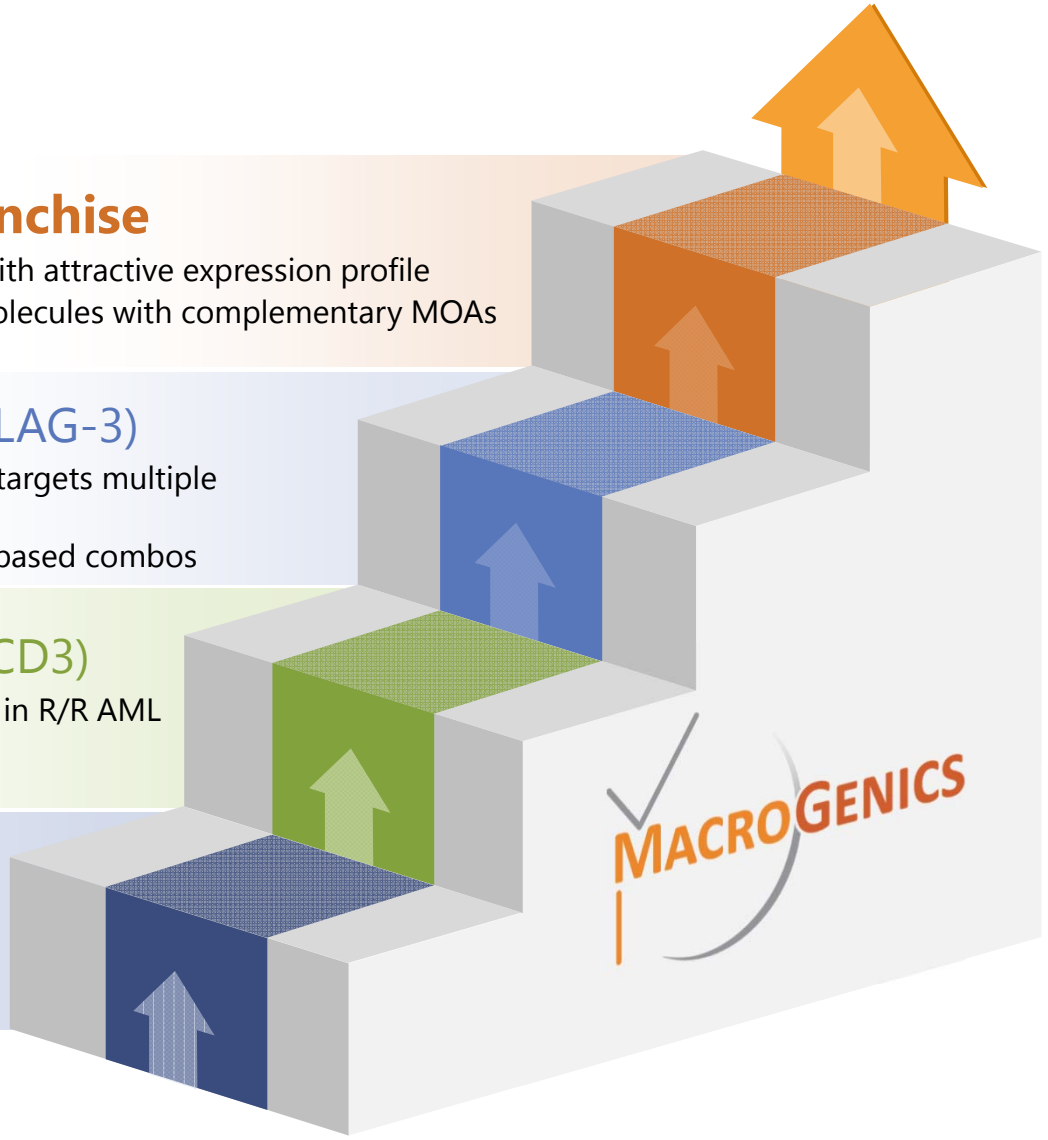
- First clinical bispecific that targets multiple checkpoints
- Growing interest in LAG-3 based combos

Flotetuzumab (CD123 x CD3)

- Encouraging Ph. 1 single agent activity in R/R AML
- Registration path to be defined

Margetuximab (HER2)

- Ph. 3 SOPHIA mBC study (vs. trastuzumab) futility passed; fully enroll by YE2018
- Encouraging Ph. 2 gastric data (w/anti-PD-1)



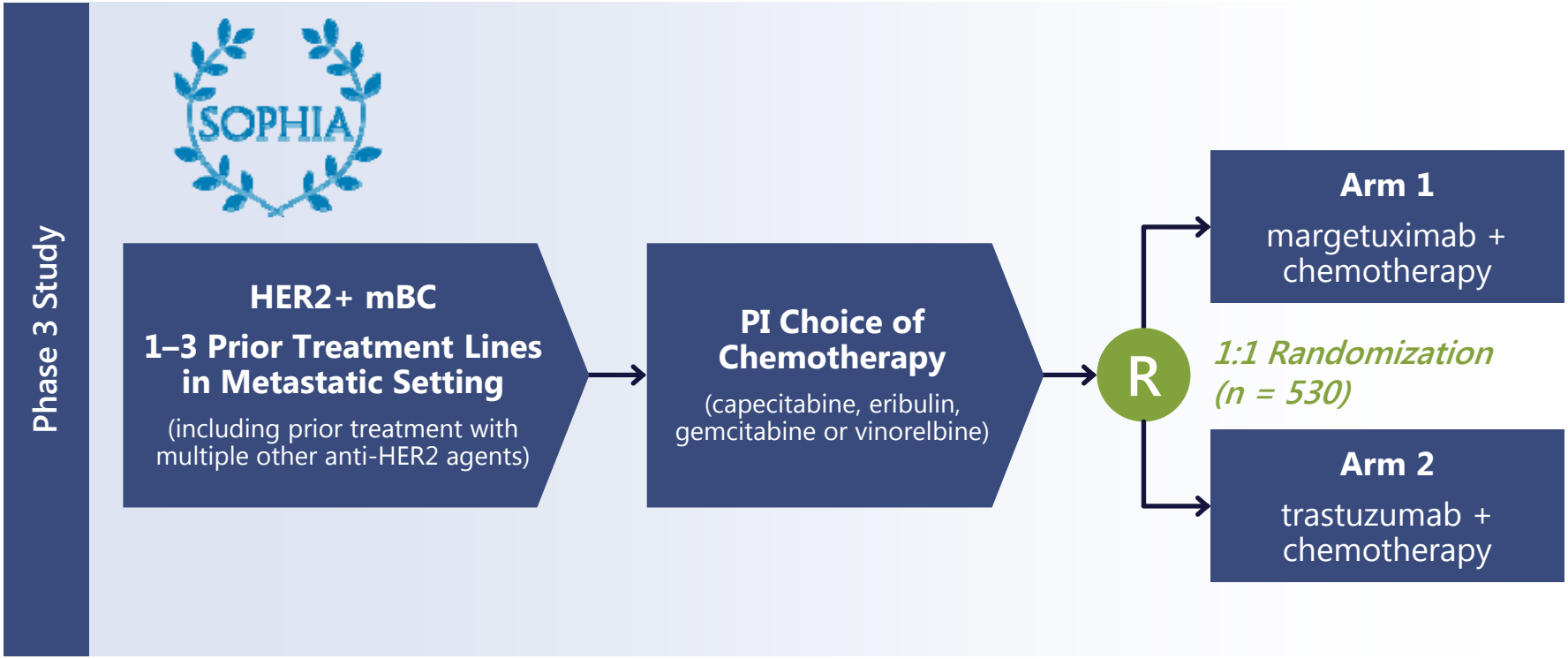
Margetuximab: Potential Best-in-Class Anti-HER2 mAb

Leveraging immune modulation through Fc optimization

Candidate	• Fc-optimized anti-HER2 mAb 
Function/MoA	• Inhibits HER2 signaling (consistent with trastuzumab) • Fc optimization: enhances Fc-mediated activities, including ADCC – **Increases** binding to activating **FcγR, CD16A,** including low-affinity allele – **Decreases** binding to inhibitory **FcγR, CD32B** • Designed to be FcγR allele-independent
Lead Indications	• Ph. 3 SOPHIA study (HER2+ metastatic breast cancer) • Ph. 1b/2 combo study with PD-1 (HER2+ gastric cancer)
Partner	• MacroGenics has global rights (ex-South Korea)

Phase 3 Study to Establish Superiority to Trastuzumab

Jan. 2018 futility analysis passed ✓; Enrollment completion expected 4Q18



# of Global sites: ~200

<u>Sequential primary endpoints: Progression-Free Survival & Overall Survival:</u>

PFS (N=257, HR=0.67, α=0.05, power=90%)

OS (N=385, HR=0.75, α=0.05, power=80%)

3rd/4th Line HER2+ mBC Represents Attractive Entry Point

	1st Line	2nd Line	3rd/4th Line
Annual # of Patients[a]	~25,000	~19,000	~15,000
Standard of Care	trastuzumab + pertuzumab + taxane (docetaxel)	T-DM1 (ado-trastuzumab emtansine)	No consensus (lapatinib+capecitabine; trastuzumab+different chemo)
Median OS	56.5 months[b]	30.9 months[c]	15.8 months[d]
Median PFS	18.5 months[b]	9.6 months[c]	3.3 months[e]
ORR	80.2%[b]	43.6%[c]	8.6%

(a) Top 7 Pharma Markets (US, EU5, Japan) – Source *inVentiv Health*
(b Baselga, et al. – *CLEOPATRA Study Group*; Perjeta package insert
(c) Verma, et al. - *EMILIA Study Group*; Kadcyla package insert
(d) Krop, et al., *The Lancet* (June 2017) – TH3RESA Study Group
(e) Krop, et al., *The Lancet* (May 2014) – TH3RESA Study Group

Phase 1b/2 Study in Adv./Metastatic Gastric Cancer

Enrolling add'l 25 gastric cancer patients, based on interim data at ASCO GI

MERCK
Clinical Supply Agreement

Dose Escalation ✓

(n=3-6 per margetuximab dose)

margetuximab 10 – 15 mg/kg q3w + pembrolizumab 200 mg q3w

Dose Expansion

(margetuximab 15 mg/kg q3W + pembrolizumab 200 mg q3W)

- **Gastric (n=25) ✓**
- **Gastroesophageal Junc. (n=26) ✓**
- **Gastric IHC 3+ (n=25)**

Treatment	• Potential for chemotherapy-free regimen • Margetuximab and pembro administered Day 1 of every 3 week cycle
Inclusion/Exclusion Criteria	• Received ≥ 1 prior line of chemotherapy treatment • No prior immunotherapy
Endpoints	• Primary: safety, tolerability and efficacy (as evaluated by ORR) of combo • Secondary: PFS, PFS-6, OS-6/OS, Immunogenicity

HER2+ Gastric Cancer Therapeutic Landscape

Comparative benchmark data

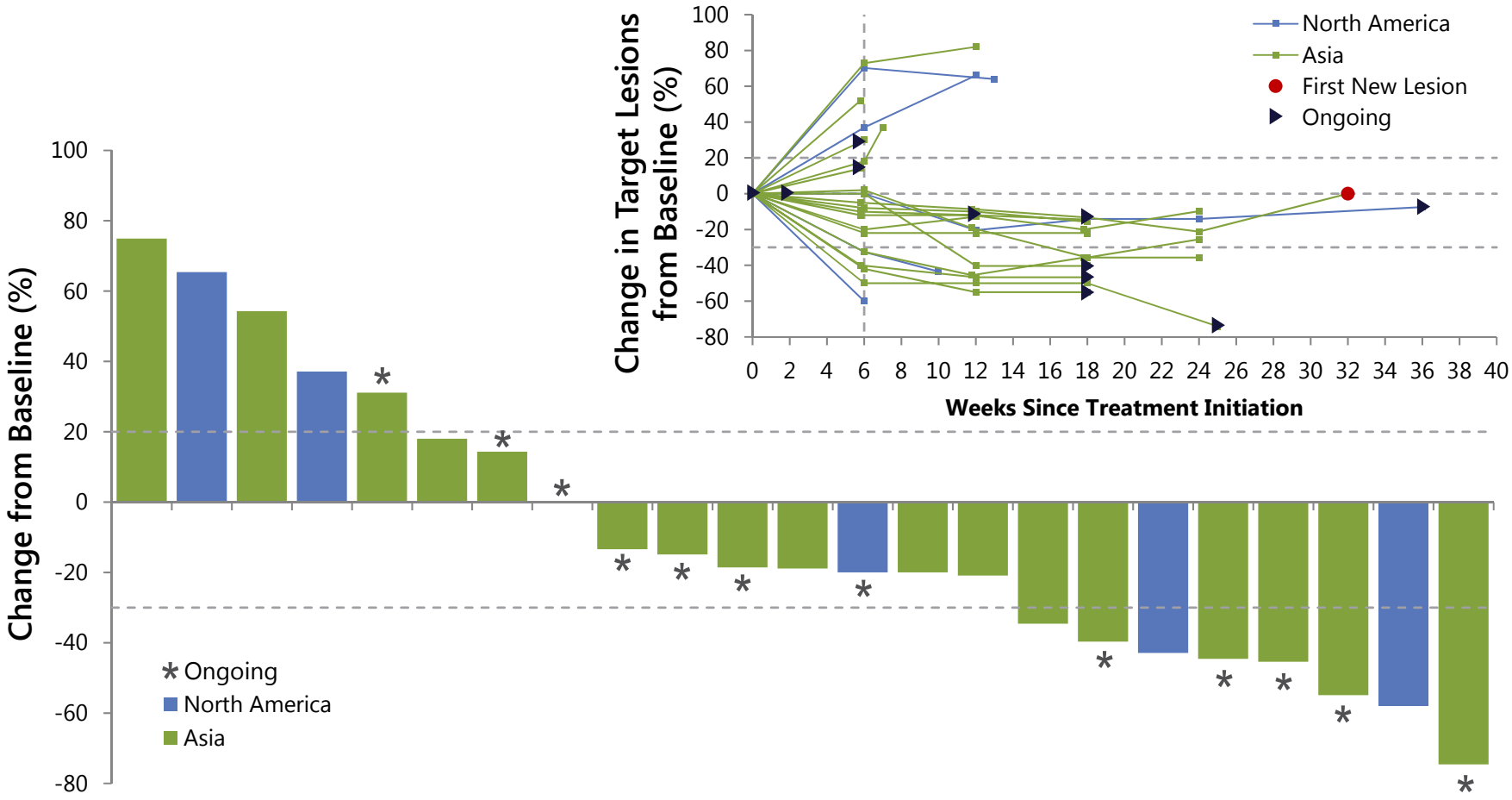
	1st Line	2nd Line				3rd Line
	SOC	SOC		Ongoing	Failed	SOC[g]
Agent (Study)	Trastuzumab + Chemo[a] (TOGA)	Ram. + Taxane[b] (RAINBOW)	Ram.[c] (REGARD)	**Marge.+ Pembro.[d]** (Ongoing Ph.2)	✖ T-DM1[e] (GATSBY)	✖ Pembro.[f] (KEYNOTE-61)	*Anti-PD-1:* Nivo.[h]/ Pembro.[i]
ORR	47%	28%	8%	**32%**	20.6%	Not disclosed	11.2 – 13.3% PD-L1+ = 15.5%[i] PD-L1– = 5.5%[i]
Median PFS	6.7 mos.	4.4 mos.	2.1 mos.	**5.5 mos.**	2.7 mos.	Not disclosed	1.6 – 2 mos.
Median OS	13.1 mos.	9.6 mos.	5.2 mos.	**Not reached**	7.9 mos.	FAILED	5.3 – 5.6 mos.
≥ Grade 3 TRAEs	68% *(Black Box Warn.)*	Overall: N/A 41% Neutropenia 15% Hypertension 12% Fatigue *(Black Box Warn.)*	Overall: N/A 8% Hypertension *(Black Box Warn.)*	**11.9%**	60% *(Black Box Warn.)*	Similar to other trials	10 – 18%
Gastric/GEJ Patient Mix	80/20%	80/20%	75/25%	100% *(gastric cohort)*	66/34%	N/A	90/10% *(excl. 'unknown')*

SOC = Standard of Care

(a) Data from Herceptin package insert; Bang, et al., *Lancet*, 2010; Black box warning: cardiomyopathy, infusion reactions, embryo-fetal toxicity and pulmonary toxicity.
(b) Data from Cyramza package insert; Wilkes et al., *Lancet Oncology*, 2014; Black box warning: hemorrhage, GI perforation, impaired wound healing.
(c) Data from Cyramza package insert; Fuchs, et al., *Lancet* 2014.
(d) Data presented at ASCO GI 2018. 11.9% of all patients in dose escalation (n=67, including GEJ) had ≥ Grade 3 treatment-related AEs. mPFS, mos. and ORR for gastric cancer pts only (n=25).
(e) Data from Thuss-Patience, et al., Lancet *Oncology*, 2017; Black box warning: hepatotoxicity, cardiac toxicity, embryo-fetal toxicity.
(f) Merck press release, December 14, 2017.
(g) Note: Avelumab (anti-PD-L1) failed 3L JAVELIN Gastric300 study (Merck KGaA and Pfizer press release, November 28, 2017).
(h) ATTRACTION-2 poster ASCO-GI 2017; Kang, el al., *Lancet*, 2017.
(i) Keytruda package insert; KEYNOTE-059, ESMO 2017.

Promising Activity in Gastric Cancer Subpopulation

35% ORR in HER2 3+ gastric cancer (78% DCR)[(a)]



(a) Data presented at ASCO GI, January 2018. Data cut-off as of December 4, 2017.

MGA012 Global Collaboration with Incyte

Significantly expands and accelerates MGA012 (anti-PD-1) development efforts

- Incyte gains exclusive, worldwide development and commercialization rights to MGA012 in all indications

- MacroGenics receives:
  - Upfront cash payment of $150M
  - Up to $750M in milestone payments ($420M development and regulatory, $330M commercial)
  - Tiered royalties of 15 – 24% on future sales of MGA012
  - Right to develop its pipeline assets in combination with MGA012
  - Right to manufacture portion of global MGA012 clinical and commercial supply

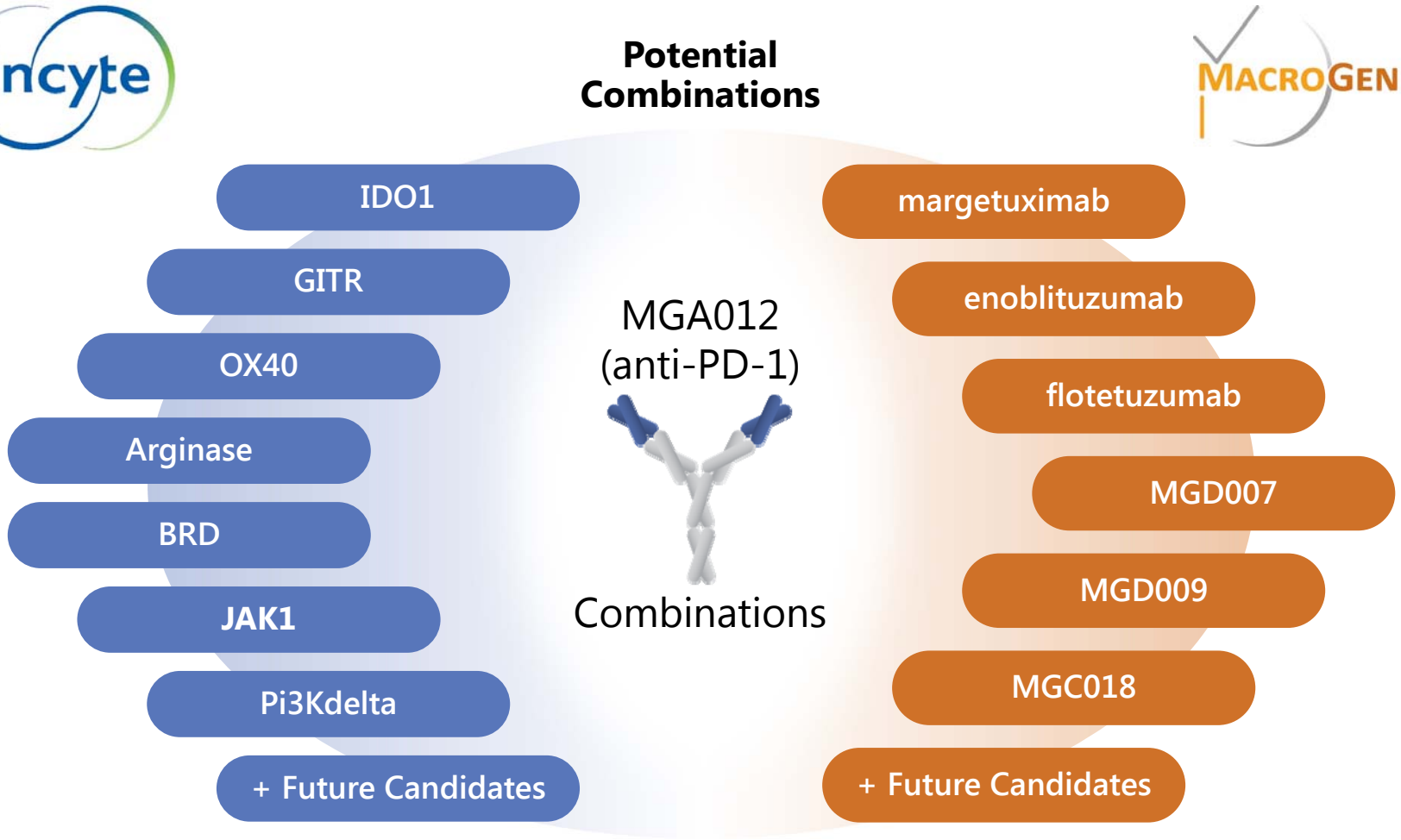
MGA012: Anti-PD-1 mAb

Backbone foundation for combination studies

Candidate	• Humanized proprietary anti-PD-1 mAb – Hinge stabilized humanized IgG4
Rationale	• Basis for combination immunotherapy with proprietary assets • Innovative development collaboration structure
Indications	• Multiple solid tumors
Development	• Dose escalation data presented at SITC 2017 – Acceptable safety profile – Evidence of anti-tumor activity • Combo study with MGD009 initiated
Partner	• Incyte has global rights, including responsibility for monotherapy trial(s)

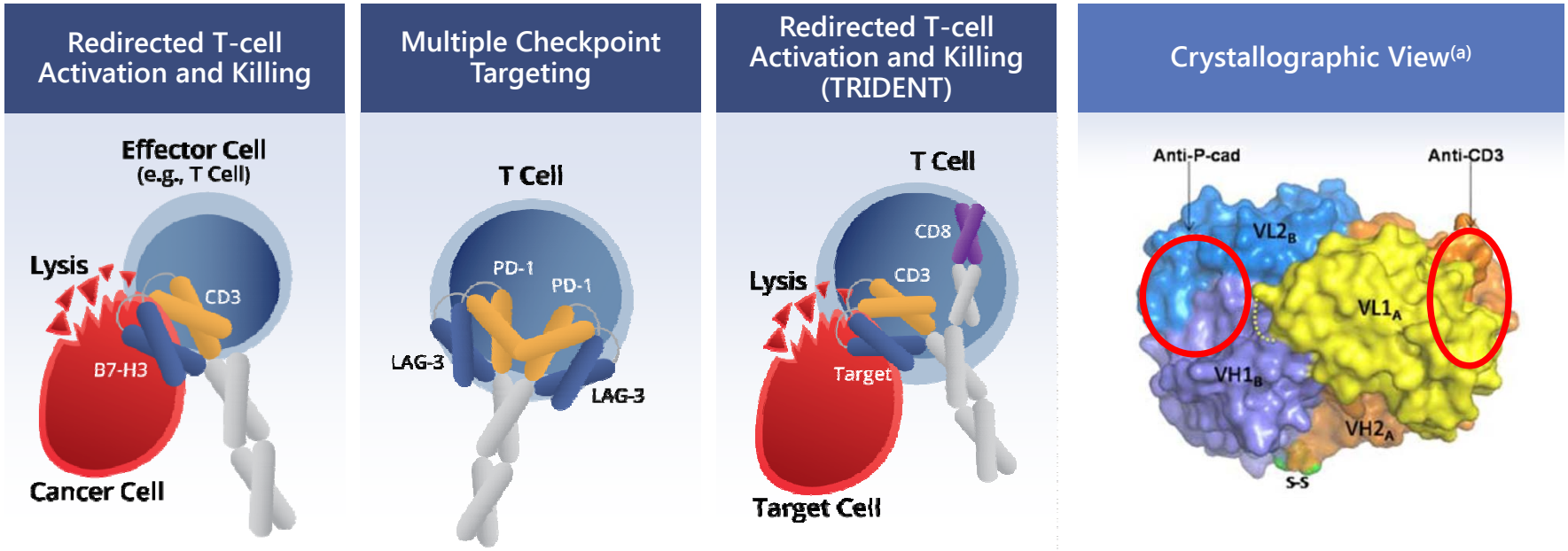
Broad MGA012 Combination Opportunities

Each may individually combine their proprietary agents w/MGA012



DART and TRIDENT: Leading Multi-specific Platforms

- Robust, flexible platforms
  - Multiple applications across different disease areas
  - Predictable manufacturability
  - Long-term stability
  - Ability to tailor half-life and valency
- Multiple DART molecules in clinical testing
- Validating partnerships with large biopharma



(a) Crystallography of Pfizer's P-Cadherin x CD3 DART molecule. The two antigen binding sites (shown by red dot circles) are separated from each other by approximately 30 Å and are facing away from each other at an angle of approximately 90°. Source: Root, et al., Antibodies 2016, 5, 6; March 4, 2016.

Multiple Oncology DART Molecules in Ph. 1 Development

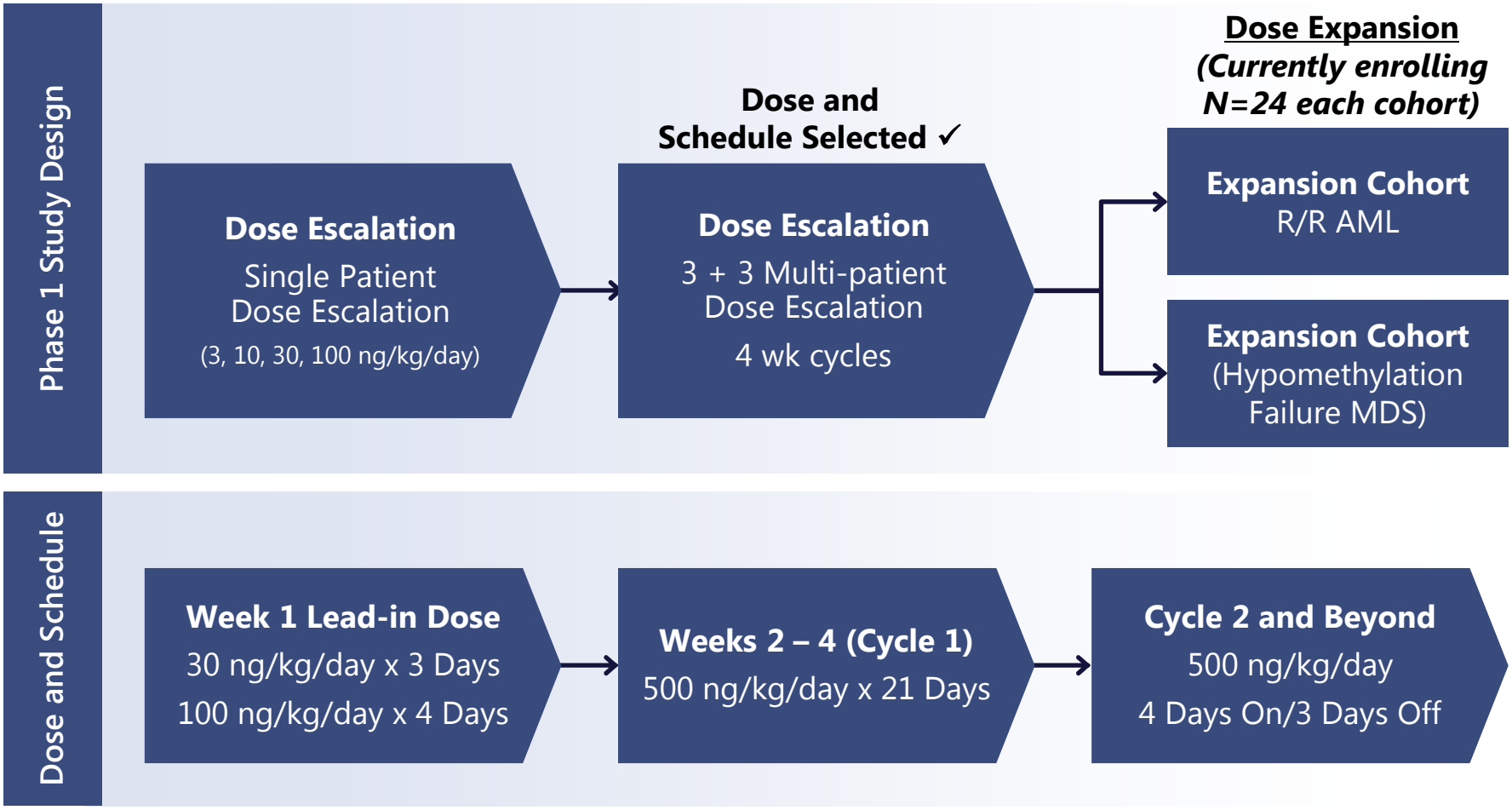
Features	flotetuzumab	MGD007	MGD009	PF-06671008	MGD013
Targets	CD123 x CD3 *(S80880)*	gpA33 x CD3	B7-H3 x CD3	P-cadherin x CD3	PD-1 x LAG-3
Structure					
MoA	Redirected T-Cell Killing				Checkpoint Co-blockade
Current Dosing	Continuous IV	Intermittent dosing (qW or longer)			
Indications	AML, MDS	Colorectal cancer	Solid tumors	Solid tumors	Solid tumors, heme malig.
MacroGenics' Commercial Rights	North America, Japan, Korea, India	North America, Japan, Korea, India	Worldwide	Royalties/ Milestones	Worldwide
Collaborator	Servier	Servier *(Option)*	—	Pfizer	—
Data Presentation	ASH 2013, *STM* 2015, ESMO 2017, ASH 2017	AACR 2014	Keystone Symposia 2016	AACR 2015	AACR 2016, SITC 2017

Flotetuzumab: CD123 x CD3 DART Molecule

Candidate	• Humanized CD123 x CD3 DART molecule 
Function/MoA	• Redirected T-cell killing against targeted leukemia cells – Elimination of leukemic stem cells – Sparing of normal hematopoietic stem cells – Capable of engaging any T-cell without HLA-restriction
Indications	• Lead: AML and MDS • Other hematologic neoplasms including B-cell ALL
Development	• Phase 1 study ongoing in US and EU • Data presented at ESMO and ASH 2017 – Preliminary anti-leukemic activity – Durable responses – Acceptable tolerability
Partner	• MacroGenics retains full rights in North America, Japan, Korea & India • Servier has exclusive rights in all other territories

Flotetuzumab: Phase 1 Study Design

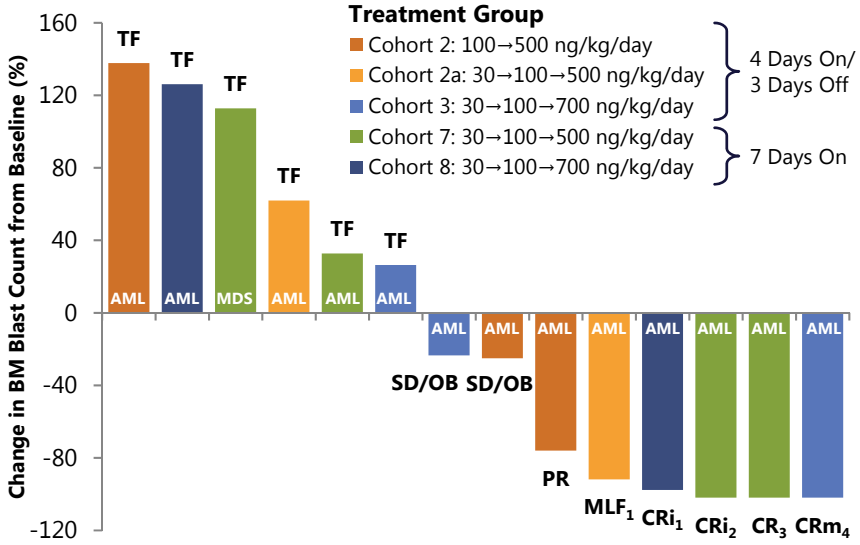
Interim data presented at ASH 2017



Anti-Leukemic Activity at Threshold Dose ≥ 500 ng/kg/day†

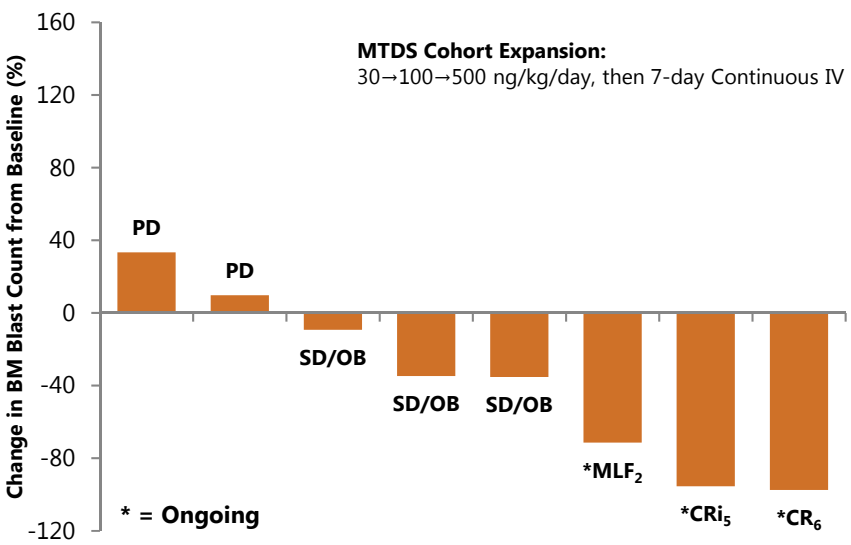
Evaluable patients who received ≥ one cycle of flotetuzumab and had post-treatment bone marrow biopsy

Dose Escalation – ESMO 2017



- Rapid responses after single cycle of therapy in majority of patients that respond (cycles ≤ 2)
- Anti-leukemic activity observed in 8/14 pts (57%)
- CR/CRi/MLF/PR rate: 6/14 pts (43%)
- CR rate: 4/14 (28%) (CR/CRi)

Ongoing Dose Expansion – ASH 2017



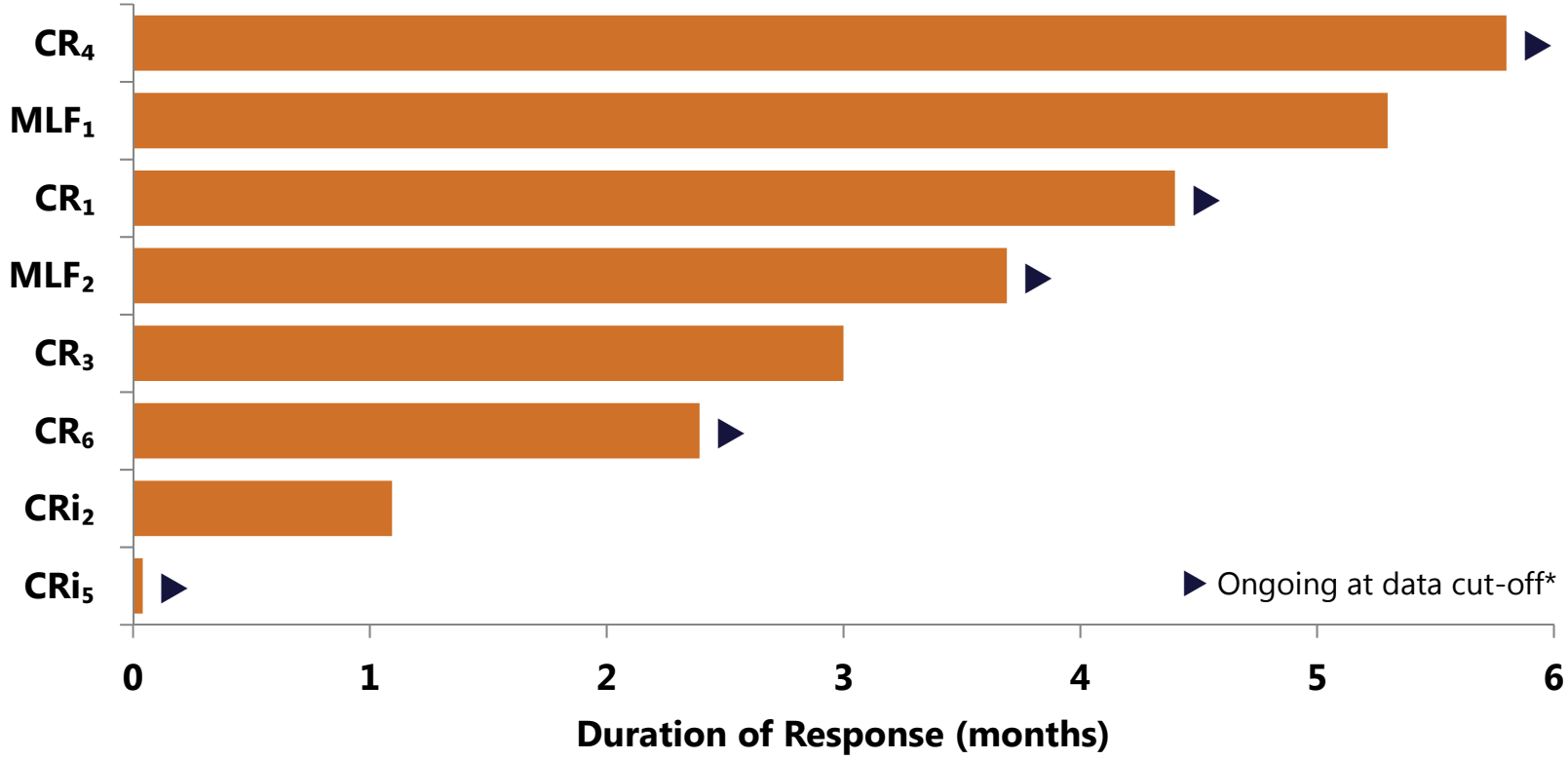
- Six of eight relapse/refractory AML patients (75%) have evidence of anti-leukemic activity
- Three patients achieved CR/CRi/MLF and were still ongoing as of data cut-off

CR = Complete Response; CRm = molecular CR; CRi = Complete Response with incomplete hematological improvement; MLF = Morphologic Leukemia-free state; PR = Partial Response; SD/OB = Stable Disease/Other Anti-Leukemic Benefit; TF = Treatment Failure (ENL)
† ESMO 2017 data cut-off: August 1, 2017; ASH data cut-off: December 4, 2017.

Flotetuzumab Phase 1 Duration of Response*

Data presented at ASH 2017

- Durable responses in patients that achieve MLF, CRi, CR
- Duration of response ranges from 1.0 to 5.8 months, with 5 patients still ongoing*

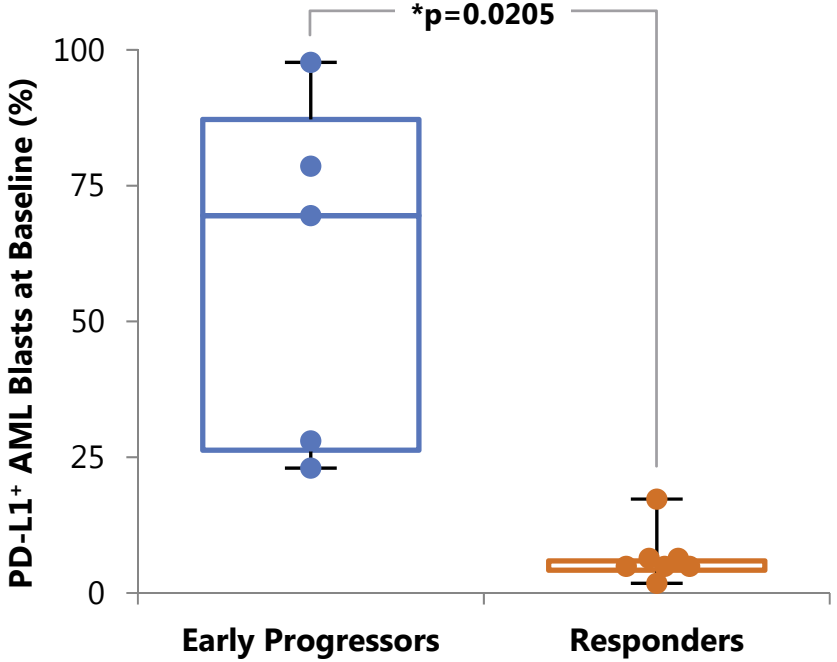


CR = Complete Response; CRi = Complete Response with incomplete hematological improvement; MLF = Morphologic Leukemia-free state
* Data cut-off date: November 30, 2017.

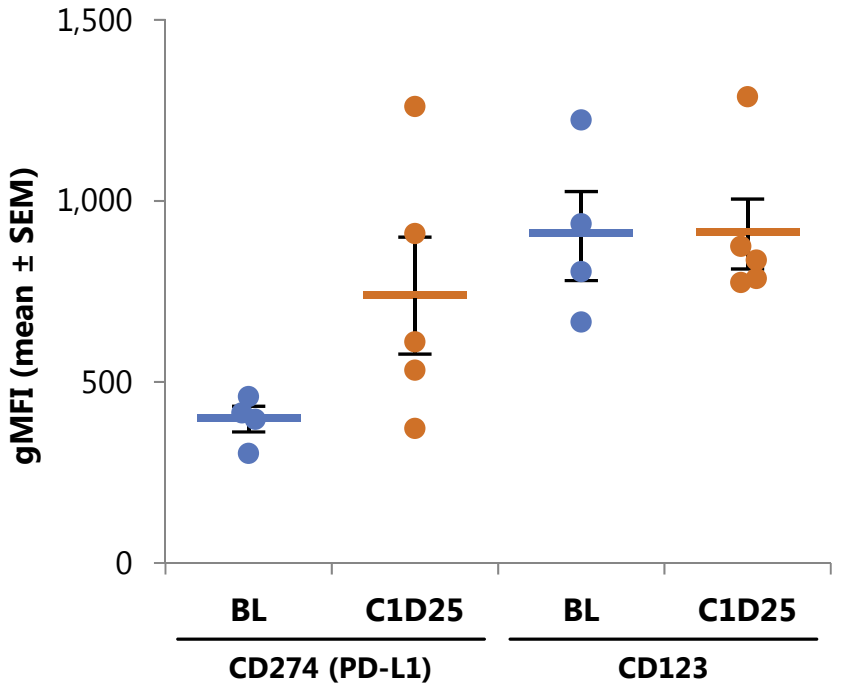
PD-1/PD-L1 Expression in R/R AML Patients*

Flotetuzumab + MGA012 (anti-PD-1) combo rationale

↑PD-L1 at Baseline Associated with ↓Flotetuzumab Activity



Patients on Flotetuzumab with Residual Disease: ↑PD-L1+ AML Blasts w/Stable CD123 Expression



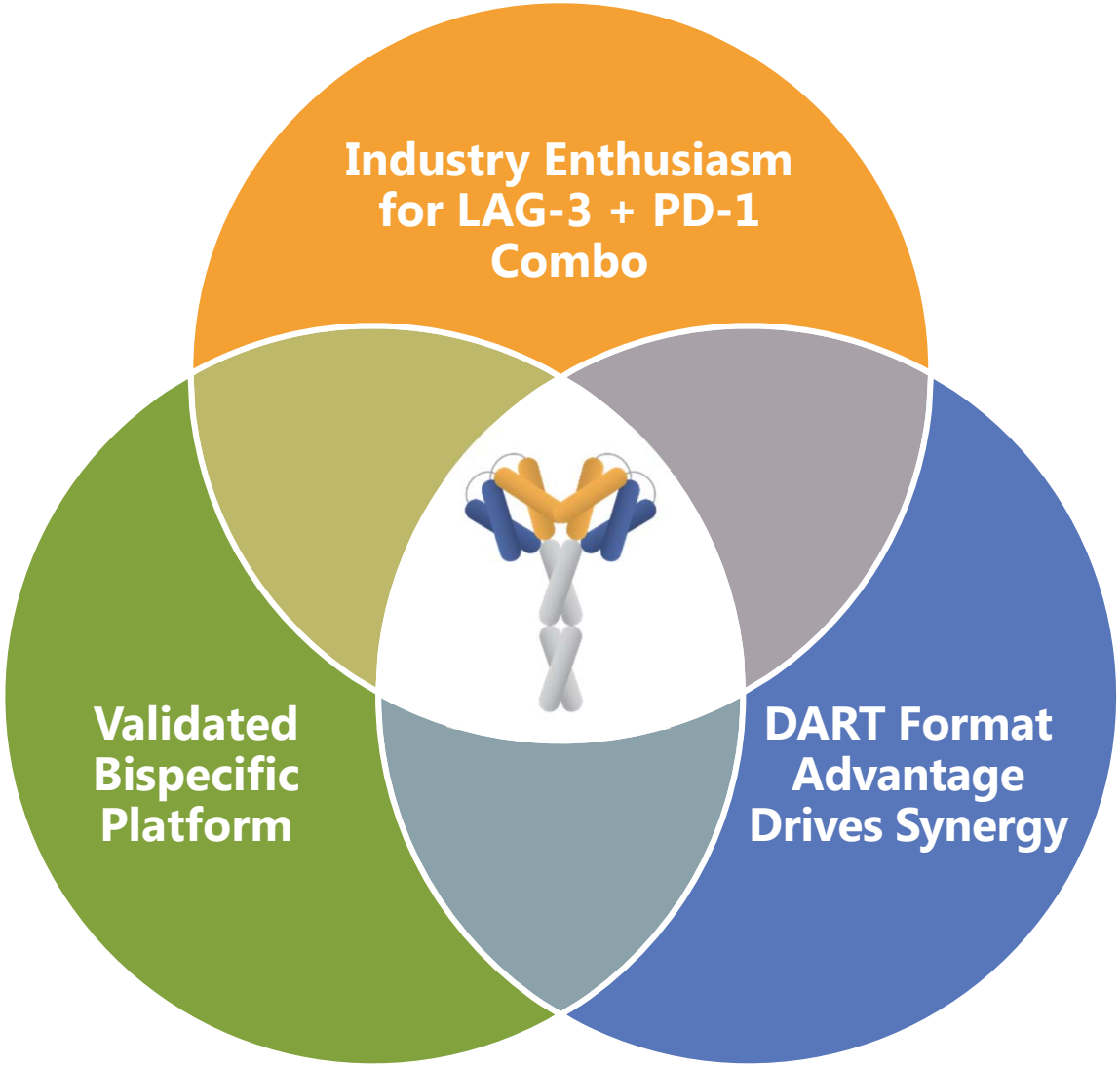
Flotetuzumab + MGA012 combo study to commence 1H2018

* From poster presentation at ASH 2017.

MGD013: First Bispecific Checkpoint Molecule in Clinic

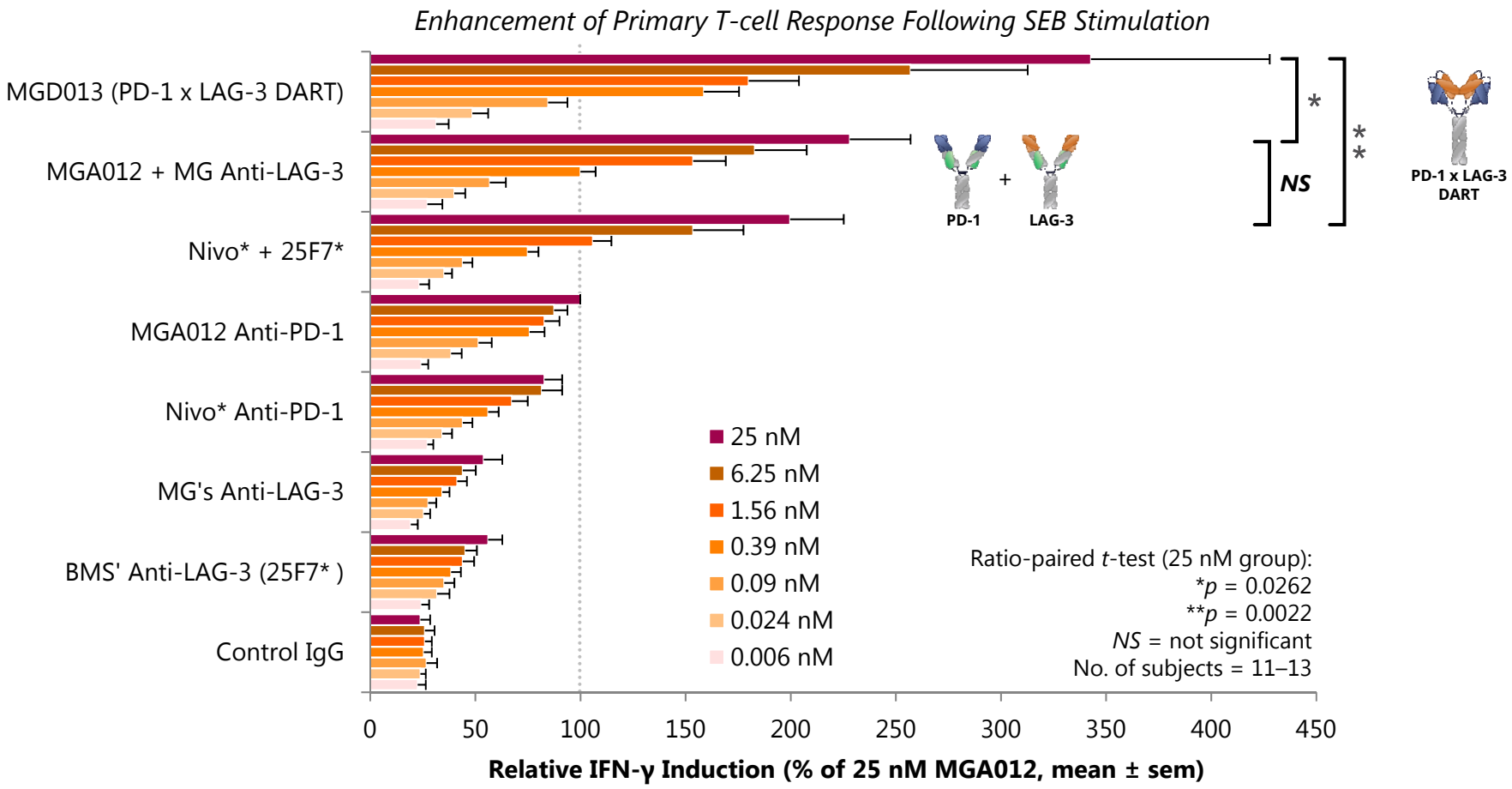
Candidate	• Humanized, proprietary PD-1 x LAG-3 DART molecule – Hinge-stabilized human IgG4 – Benchmarks favorably against leading mAbs
Rationale	• Reactivation of exhausted T cells
Patient Population	• Patients with solid or liquid tumors: – Progressed on prior checkpoint inhibitor – Not targeted by PD-1/LAG-3 monoclonal antibody combination – PD-1 monotherapy or PD-1/LAG-3 combinations demonstrate activity
Function/MoA	• Reactivation of exhausted T cells
Indications	• Multiple solid tumors and hematological malignancies
Development	• Phase 1 study ongoing (dose escalation)
Partner	• MacroGenics retains global rights

MGD013: Significant Opportunity



MGD013: Synergistic T-cell Activation

DART enhances T-cell activation vs. anti-PD-1 + anti-LAG-3 mAbs



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

Comprehensive B7-H3 Franchise

MacroGenics retains global rights

	Enoblituzumab	MGD009	MGC018
Candidate	• Fc-optimized mAb 	• B7-H3 x CD3 DART (Fc-bearing) 	• B7-H3 Antibody-Drug Conjugate 
Intended MoA	• Fc-mediated tumor cell killing • Potential enhance-ment of adaptive immune responses	• Recruitment and expansion of T cells • Potent redirection of T cells to kill tumor cells	• Direct tumor killing • Leverage Synthon's linker/payload
Current Development Status	• Combo studies • Monotherapy	• Phase 1 dose escalation • Combo study with MGA012 initiated	• 2018 IND planned

Rationale for Targeting B7-H3 in Cancer

Tumor Cells

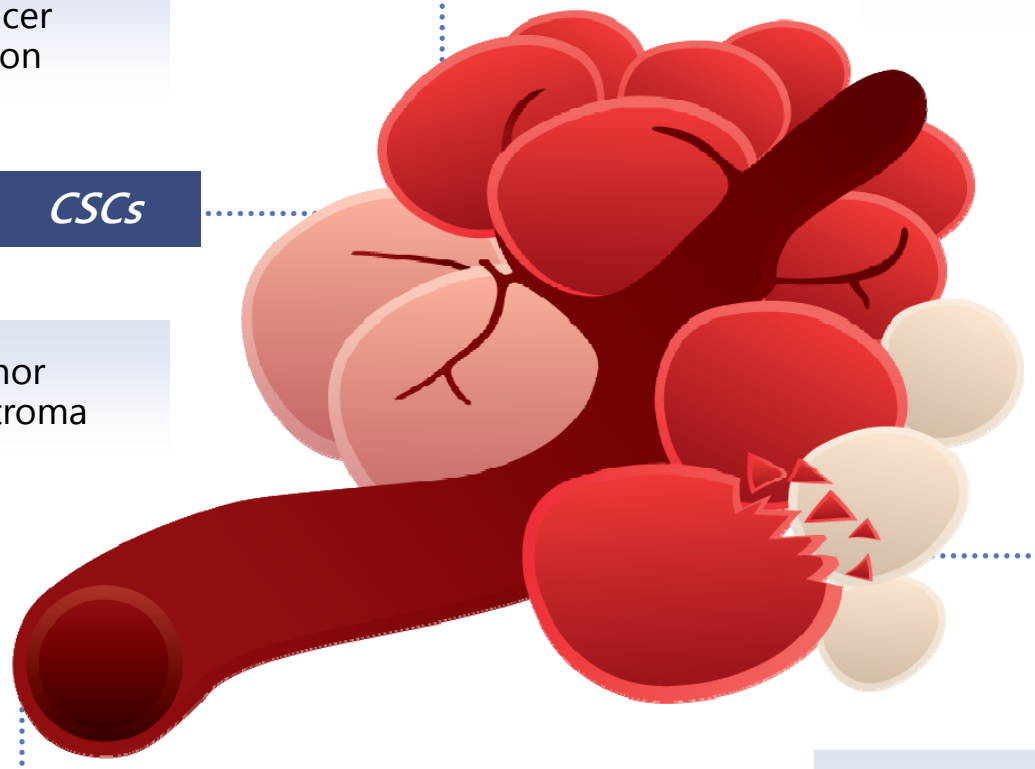
Direct expression by primary and metastatic tumors

Expression on cancer stem cell population

CSCs

Role in mediating migration, invasion, resistance and tumor metabolism

Expression on tumor vasculature and stroma



T Cells

Tumor Vasculature

Role in T cell immune modulation

Confirmed High Penetrance in Broad Set of Solid Tumors

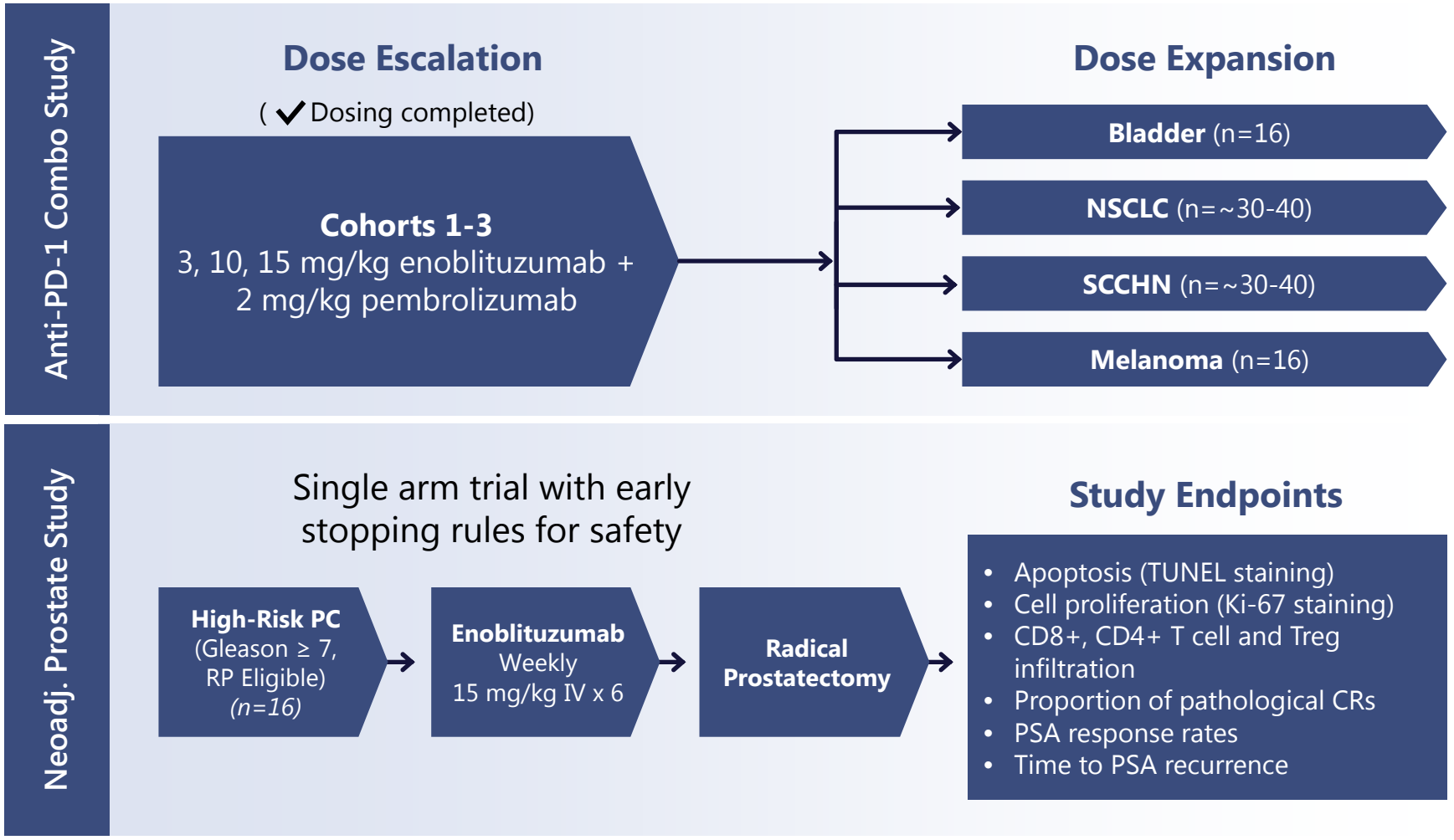
Minimal/no expression on normal tissues

Fixed Tumor MicroArray	IHC Summary of Samples Screened			
	B7-H3 Positive		2+ or Above	
Potential Indications:				
Head and Neck	19/19	**100%**	19/19	**100%**
Kidney Cancer	77/78	**99%**	75/78	**96%**
Glioblastoma	65/66	**98%**	63/66	**95%**
Thyroid Cancer	34/35	**97%**	33/35	**94%**
Mesothelioma	41/44	**93%**	39/44	**89%**
Melanoma	132/146	**90%**	94/146	**64%**
Prostate Cancer	88/99	**89%**	51/99	**52%**
Pancreas Cancer	69/78	**88%**	45/78	**58%**
Bladder	134/156	**86%**	123/156	**79%**
Lung Cancer	324/379	**85%**	300/379	**79%**
Breast Cancer	189/249	**76%**	156/249	**63%**
Ovarian Cancer	59/79	**75%**	36/79	**46%**

Target expression on both tumor cells and tumor vasculature

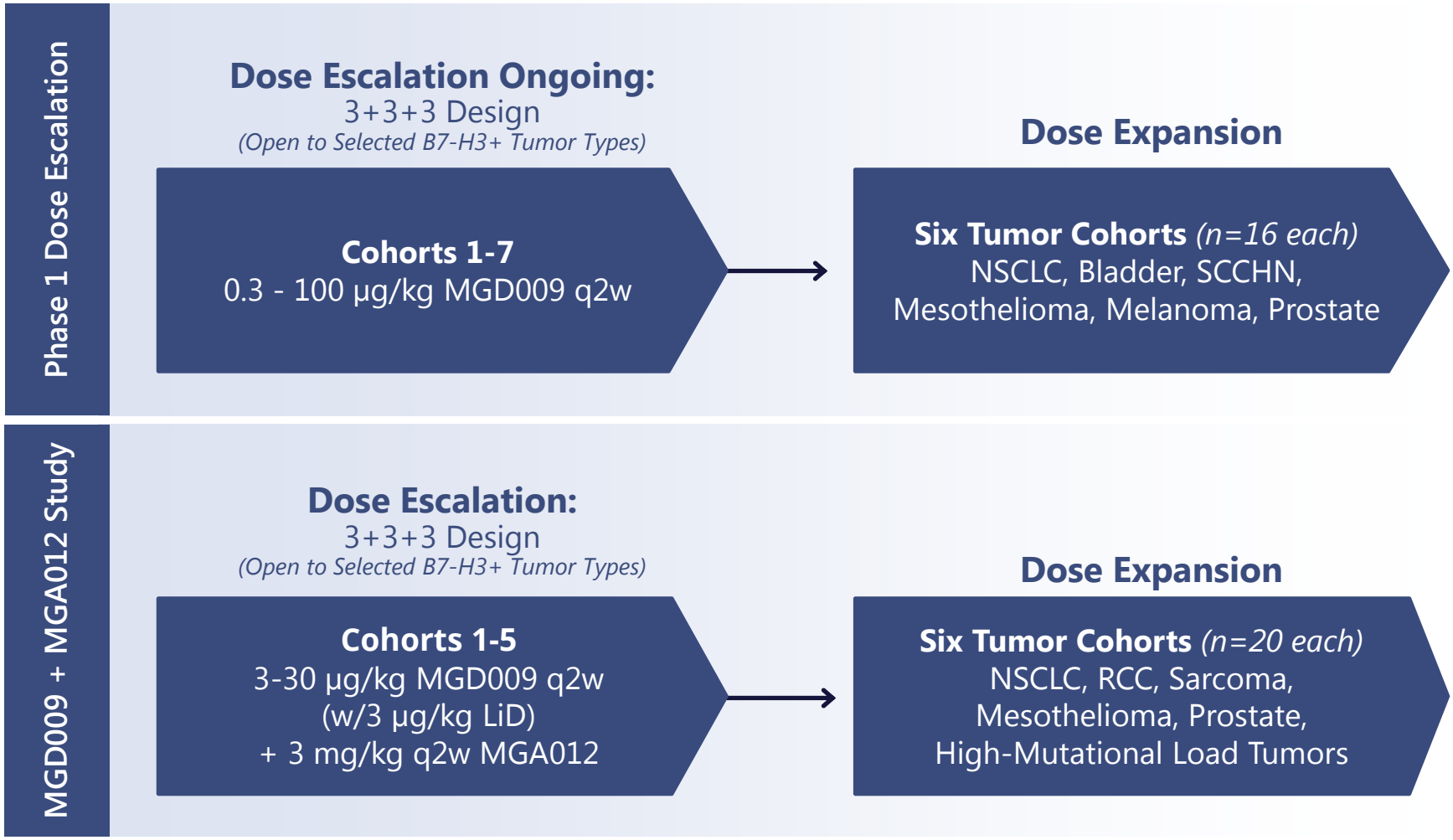
Enoblituzumab Studies in B7-H3^{+} Tumors

Anticipate clinical updates in 2018



MGD009 Studies in B7-H3^{+} Tumors

Includes first combination study of DART + MGA012 (anti-PD-1 mAb)



Anticipated Pipeline Progress Through 2018

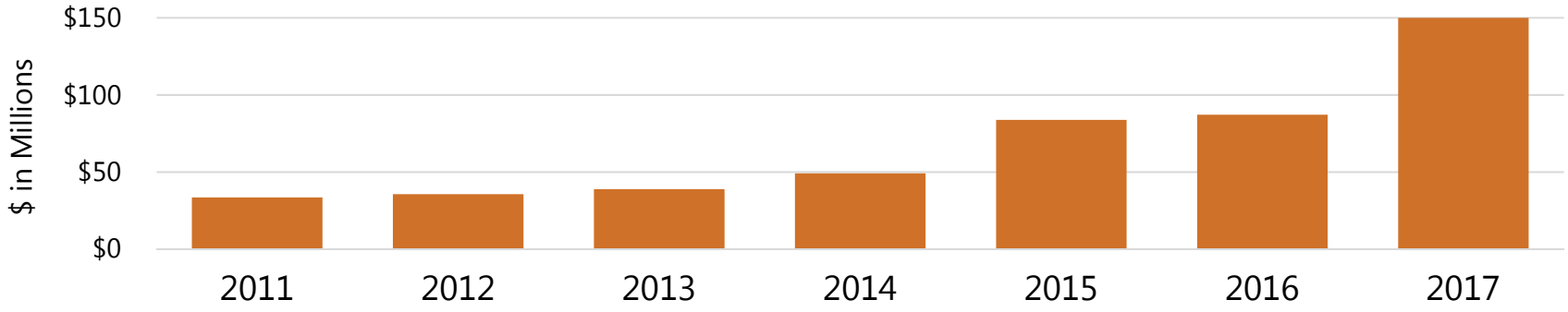
	Program	2017 Achievements	2018
	margetuximab *(HER2 mAb)*	✓ Complete Ph. 1b/2 gastric enrollment (60 pts.)	✓ Reported Ph. 1b/2 gastric data (ASCO GI) ✓ Completed SOPHIA futility ("Go") ☐ Complete SOPHIA enrollment (4Q)
	flotetuzumab *(CD123 x CD3 DART)*	✓ Provided clinical update at ESMO (oral) ✓ Present updated clinical data at ASH (oral) ✓ Established rationale for combining w/MGA012 ✓ Established dose/schedule, initiated dose expan.	☐ Initiate combo study with MGA012 (2Q) ☐ Present full expansion cohort data (2H)
PD-1	**MGA012** *(PD-1 mAb)*	✓ Announced strategic collaboration w/Incyte ✓ Presented dose escalation data at SITC	*TBA - Incyte leads development*
PD-1	**MGD013** *(PD-1 x LAG-3 DART)*	✓ Commenced enrollment of Ph. 1 study	☐ Establish dose/schedule (2H) ☐ Initiate dose expansion cohorts (2H)
PD-1	**MGD019** *(PD-1 x CTLA-4 DART)*	✓ Completed GLP tox study ✓ Presented preclinical data at SITC	☐ Submit IND (2H)
B7-H3	**enoblituzumab** *(B7-H3 mAb)*	✓ Advanced expansion cohorts	☐ Report PD-1 combo data ☐ Update on neoadj. prostate study
B7-H3	**MGD009** *(B7-H3 x CD3 DART)*	✓ Advanced dose escalation	✓ Commenced combo with MGA012 ☐ Establish monotherapy dose/schedule ☐ Initiate dose expansion cohorts
B7-H3	**MGC018** *(B7-H3 ADC)*	✓ Completed GLP tox study	☐ Initiate Phase 1 study (2H)
	MGD007 *(gpA33 x CD3 DART)*	✓ Complete enrollment of dosing cohorts	☐ Present clinical data ☐ Commence combo with MGA012

Financial Overview

- $305M Cash, cash equivalents and investments as of 12/31/17
- Historical financial details:

$ in Millions	2013	2014	2015	2016	2017
R&D Expense	$47	$70	$98	$122	$147
Total Operating Expenses	58	86	121	152	180
Cash & Investments	117	158	339	285	305
Net Cash Gain (Burn)[(a)]	(17)	(36)	(23)	(56)	(15)

- Historical non-dilutive funding received from collaboration partners[(b)]:



(a) Before any equity issuance (any premium on equity issued is included).
(b) Includes upfront, milestone, maintenance and opt-in payments and R&D reimbursement as well as premium paid on equity sold.

Thank You!

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