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Current as of August 10, 2017

Nasdaq: IMGN

Forward-Looking Statements

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This presentation includes forward-looking statements based on management's current expectations. These statements include, but are not limited to, ImmunoGen's expectations related to: the occurrence, timing and outcome of potential pre-clinical, clinical and regulatory events related to the Company's and its collaboration partners' product programs; the presentation of preclinical and clinical data on the Company's and its collaboration partners' product candidates; and the financial guidance provided. For these statements, ImmunoGen claims the protection of the safe harbor for forward-looking statements provided by the Private Securities Litigation Reform Act of 1995. Various factors could cause ImmunoGen's actual results to differ materially from those discussed or implied in the forward-looking statements, and you are cautioned not to place undue reliance on these forward-looking statements, which are current only as of the date of these slides. Factors that could cause future results to differ materially from such expectations include, but are not limited to: the timing and outcome of ImmunoGen's and its collaboration partners' research and clinical development processes; the difficulties inherent in the development of novel pharmaceuticals, including uncertainties as to the timing, expense and results of preclinical studies, clinical trials and regulatory processes; ImmunoGen's ability to financially support its product programs; the Company's dependence on its collaborative partners; industry merger and acquisition activity; and other factors more fully described in ImmunoGen's transition report on Form 10-KT for the six-month transition period ended December 31, 2016 and other reports filed with the Securities and Exchange Commission.

ImmunoGen: Assets in Place to Build a Fully Integrated Company

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Leadership in antibody-drug conjugates (ADCs)

Phase 3 program with POC established: mirvetuximab soravtansine

Platform generating novel clinical candidates

Technology validated clinically and through partnerships

Improving cash position

Team with deep development and commercial expertise in oncology

Strategic Priorities to Deliver ADCs to Patients

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Execute speed-to-market strategy for mirvetuximab soravtansine

Commercialize by 2020 for platinum-resistant ovarian cancer

Sustain leadership in ADCs through continued platform innovation

Payloads, linkers, methods of conjugation

Accelerate portfolio of novel ADC assets

IMGN779, IMGN632

Expand reach and strengthen financials through partnerships

Generate revenue and access capabilities

NOVARTIS, Biotest, Lilly, CytomX Therapeutics, Takeda, Bayer, Roche, AMGEN, SANOFI, Debiopharm Group

Significant Progress Towards Our Goals

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Mirvetuximab Soravtansine

- Obtained FDA and EMA alignment with Phase 3 FORWARD I trial design to support full approval
- FORWARD I trial underway; activating 100+ trial sites globally
- Reported pooled analysis data at ASCO 2017 from Phase 1 ovarian cancer expansion cohorts
- Reported Phase 1b/2 FORWARD II combination study data at ASCO 2017
- Established collaborations, including Merck Keytruda® combination, Clovis Rubraca® IST and NCCN clinical studies
- Published findings in *Journal of Clinical Oncology, Cancer* and *Neoplasia*

Earlier-Stage Portfolio

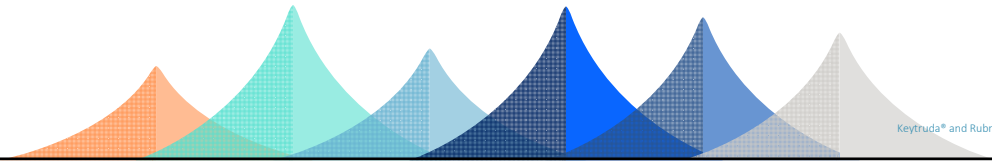
- Reported first clinical data with IMGN779
- Reported preclinical data, including oral presentation, for IMGN632 at ASH 2016

Partnerships

- CytomX advanced CX-2009 to Phase 1 testing

Operations

- Significantly strengthened cash position through sale of IMGN529 to Debiopharm and amended agreements with Sanofi



Differentiated Pipeline of Novel Proprietary Programs

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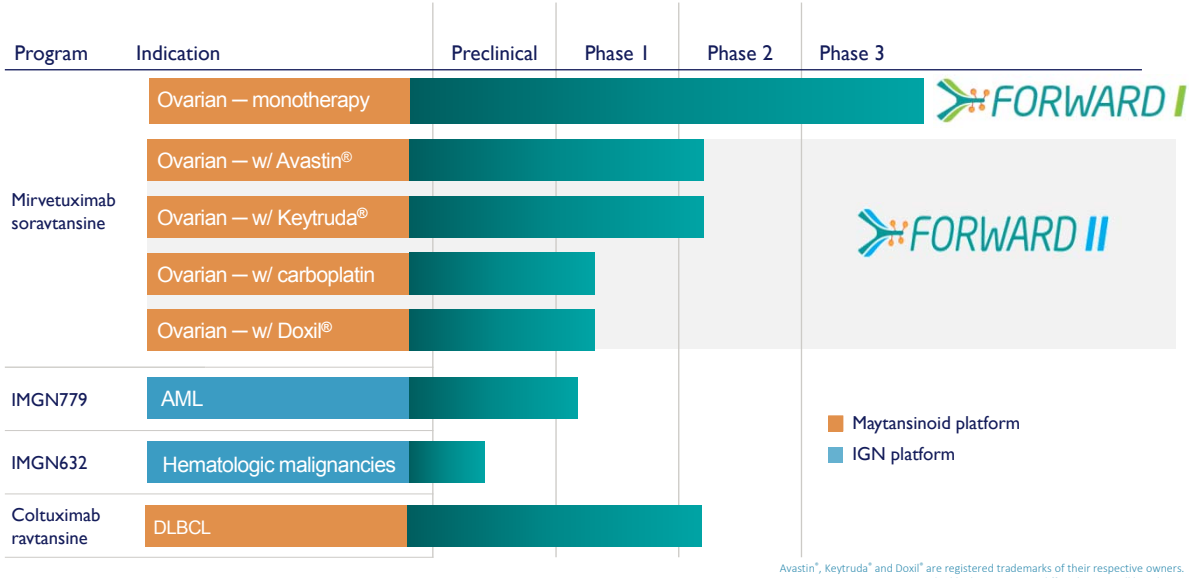

AML: acute myeloid leukemia, DLBCL: diffuse large B-cell lymphoma

Mirvetuximab Soravtansine:
Improving Outcomes in Ovarian Cancer

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Mirvetuximab: Improving Outcomes in Ovarian Cancer

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Differentiated Profile Established

- Distinct target and mechanism of action
- First ADC to enter pivotal development for treatment of ovarian cancer
- Demonstrated activity in platinum-resistant and platinum-sensitive disease
- Favorable safety profile supporting expanded use as combination agent

Potential Across Multiple Treatment Settings

- Displace single-agent chemotherapy and become preferred agent for combination therapy in ovarian cancer
- Potential to expand into additional folate receptor alpha (FRα)-positive solid tumors, including: non-small cell lung, endometrial, and triple negative breast cancer

Urgent Need to Improve the Care of Ovarian Cancer

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#1
LEADING CAUSE OF DEATH FROM GYNECOLOGIC CANCER IN US

5th
MOST COMMON CAUSE OF CANCER DEATH IN WOMEN

22,000
WOMEN DIAGNOSED ANNUALLY

- Initial treatment entails surgery followed by platinum-based chemotherapy
- Most patients progress despite platinum-based treatment
  - Platinum-sensitive: cancer growth >6 months after platinum treatment
    - 7,500-9,000 platinum-sensitive US and EU patients, respectively, in ≥ 2nd line[1]
  - Platinum-resistant: cancer growth within 6 months of platinum treatment
    - 19,000-24,000 platinum-resistant US and EU patients, respectively, in ≥ 2nd line[1]
- Single-agent therapies in platinum-resistant setting have limited response, short progression-free survival (PFS) and challenging side effects

	ORR	mPFS (mos)	Common AEs
Paclitaxel[2]	6.7-30.2%	3.4-3.9	Hair loss, neuropathy
Pegylated Liposomal Doxorubicin (PLD)[3]	7.8-12.3%	2.1-3.7	Hand foot syndrome
Topotecan[4]	0.0-19.3%	2.1-4.2	Low blood counts, fatigue

[1]Decision Resources Group Ovarian Cancer report (Jun 2017), [2,3,4]JCO, vol 33; 32 Nov 2015, Gyn Onc 133(2014) 624-631.
ORR: Objective Response Rate; mPFS: median Progression-Free Survival; AEs: Adverse Events

Consistent Activity with Mirvetuximab over Multiple Cohorts

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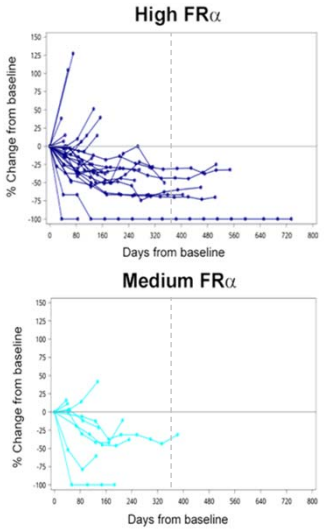
Clinical Benefit in Platinum-Resistant Ovarian Cancer Well Past One Year on Treatment

	ASCO 2016 Analysis[1]		ASCO 2017 Pooled Analysis[2]	
	All Patients (n = 46)	PROC 1-3 priors + med/high FRα expression (n = 16)	All Patients (n = 113)	PROC 1-3 priors + med/high FRα expression (n = 36)
cORR (95% CI)	26% (14, 41)	44% (20, 70)	30% (22, 39)	47% (30, 65)
mPFS months (95% CI)	4.8 (3.9, 5.7)	6.7 (3.9, 11.0)	4.3 (3.9, 5.4)	6.7 (4.1, 8.3)

FORWARD I

Study Population



[1]Moore et al ASCO 2016
[2]Moore et al ASCO 2017
cORR: confirmed Objective Response Rate

Favorable Safety Profile Demonstrated in Phase 1 Study

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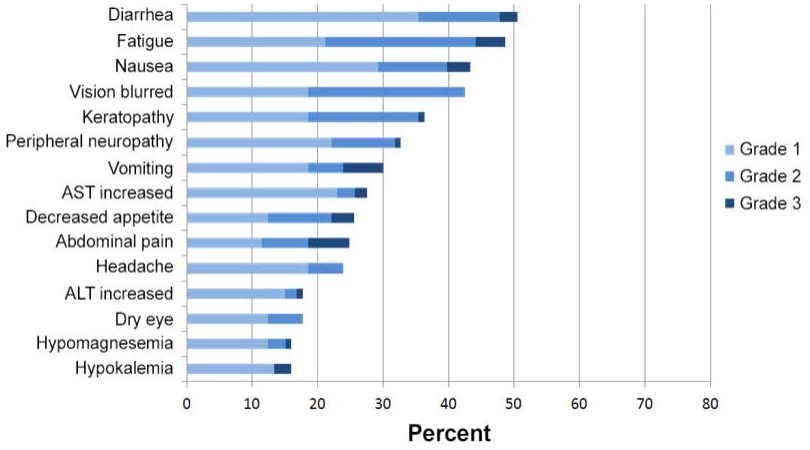

- Well tolerated across all ovarian cancer cohorts (n = 113)
- Adverse events generally low grade and manageable
- No grade ≥3 adverse event occurred in ≥10% of patients
- Consistent adverse event profile for FORWARD I eligible subset (n = 36) with the pooled population
- Drug-related AEs leading to discontinuation seen in 10 patients (9%)

Moore et al ASCO 2017

Comprehensive Strategy to Maximize Mirvetuximab Reach

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FORWARD I

- Establish initial position through single-agent monotherapy in ovarian cancer

FORWARD II

- Expand benefit through combinations in earlier lines of ovarian cancer

NCCN National Comprehensive Cancer Network®

CLOVIS ONCOLOGY

- Broaden use into additional FRα-positive solid tumors (NSCLC, endometrial and triple-negative breast cancer)

FORWARD I: Initial Point of Market Entry in Ovarian Cancer

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FORWARD I
for
PLATINUM-RESISTANT
OVARIAN CANCER

~12,000-14,000
FRα-positive (high/medium)
platinum-resistant US and
EU patients, respectively, in
≥ 2nd line[1]

ENROLLMENT: 333 patients with FRα-positive (high/medium) platinum-resistant ovarian cancer treated with up to 3 prior regimens

- >100 sites in U.S., Canada and Europe
- Conducted in partnership with GOG Foundation

Mirvetuximab soravtansine — 2:1 randomization — **Physician's choice single-agent chemotherapy***

PRIMARY ENDPOINT: Progression-Free Survival (PFS) for high FRα expressers only and for all patients

(FDA and EMA aligned with primary endpoint, statistical analysis plan and size of safety database)

*Pegylated liposomal doxorubicin (PLD), topotecan, weekly paclitaxel
[1]Decision Resources Group Ovarian Cancer report (Jun 2017)
FORWARD I ClinicalTrials.gov identifier: NCT02631876
GOG Foundation: www.gog.org

FORWARD II: Combinations to Expand Mirvetuximab Positioning

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FORWARD II
for
EARLIER-LINE TREATMENT
OF OVARIAN CANCER

Patients with recurrent
FRα-positive
ovarian cancer

+ Avastin®	*platinum-resistant*	*Dose escalation completed*	Avastin® naïve and pretreated expansion cohorts ongoing
+ Keytruda®	*platinum-resistant*	*Dose escalation completed*	Keytruda® expansion cohort ongoing
+ Doxil®	*platinum-resistant*	*Dose escalation completed; no expansion planned*	
+ carboplatin	*platinum-sensitive*	*Dose escalation completed*	Expansion under consideration

Preclinical synergy* supports broad populations, including FRα low expressers: ~80% of all ovarian cancer patients

Avastin®, Keytruda®, and Doxil® are registered trademarks of their respective owners
FORWARD II ClinicalTrials.gov identifier: NCT02606305
*Preclinical combination data published – Ponte et al, *Neoplasia* 2016

Current Treatments Indicate Need for Effective Combinations for Both Platinum-Resistant and Platinum-Sensitive Ovarian Cancer

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Platinum-Resistant Ovarian Cancer	
	AURELIA[1]
Regimen	Chemo/Bev
Median age	61
Patient population	Platinum resist 1-2 priors 60% - 1 prior 40% - 2 prior
Prior bevacizumab	7%
ORR	27%
mPFS (mo)	6.7 (95% 5.7, 7.9)

Platinum-Sensitive Ovarian Cancer		
	OCEANs[2]	GOG213[3]
Regimen	Carbo/Gem	Carbo/Tax
Median age	61	60
Patient population	plat sensitive, 1 prior	plat sensitive, 1 prior
Prior bevacizumab	0	10%
ORR	57%	56%
mPFS (mo)	8.4 (95% 8.3, 9.7)	10.4 (95% 9.7-11)

[1]Pujade-Lauraine, et al., JCO 32:1302 (2014)
[2]Aghajanian, et al., JCO 30:2039 (2012)
[3]Coleman, et al., Lancet Oncol 18:779 (2017)

Mirvetuximab: Encouraging Efficacy and Safety in Multiple Combinations

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PHASE 1B/2 STUDY*	COMBINATION AGENT			
	Avastin	Keytruda	Doxil	Carboplatin
Number enrolled	14 (platinum-resistant)	13 (platinum-resistant)	16 (platinum-resistant)	18 (platinum-sensitive)
Median number of prior therapies (range)	6 (2-8)	5 (2-7)	2 (1-6)	3 (1-5)
Grade 3 or greater adverse events in > 1 patient	Hypertension, small intestinal obstruction	None	Anemia, vomiting	Neutropenia, anemia, thrombocytopenia, hypokalemia
Dose limiting toxicity	1 pt with grade 2 neutropenia and thrombocytopenia	None	None	1 pt with grade 3 vasculitis
Objective response rate	29% (95% CI 8, 58)	NA	13% (95% CI 2, 38)	65% (95% CI 38, 86)
Median progression free survival (months)	9.5 (95% CI 3.5, 15.2)	NA	7.0 (95% CI 1.7, NE)	12.1 (95% CI 9.0, 15.0)

Full dose of each agent able to be combined

Favorable safety profile with adverse events in-line with known profiles of each agent

Most common low grade AEs: diarrhea, nausea, blurred vision, fatigue

*ASCO 2017 O'Malley D., et al.

Mirvetuximab Represents Compelling Treatment Opportunity

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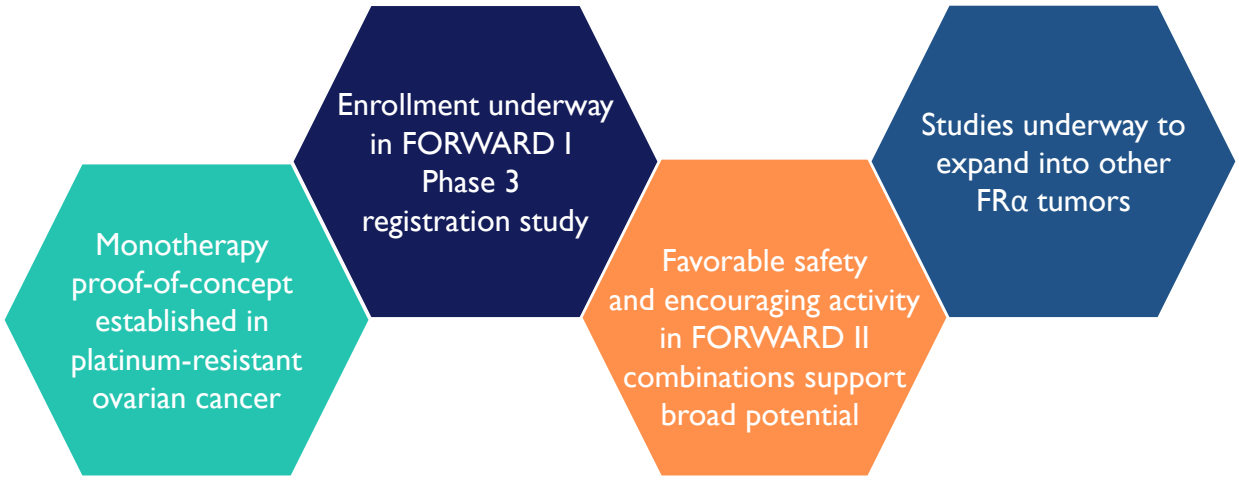

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Accelerating Pipeline of Earlier-Stage Antibody-Drug Conjugates

A New Class of DNA-Acting IGN Payloads

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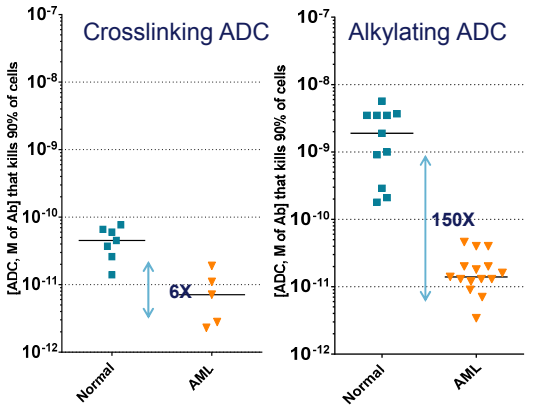
Designed for improved efficacy and tolerability

- Indolinobenzodiazepine backbone
  - Payload binds tightly to minor groove of DNA
  - High potency extends ADC technology to targets expressed at lower levels and to tumors resistant to tubulin disrupting agents
  - Monoimine chemistry alkylates one strand of target DNA
    - Retains anti-tumor potency of crosslinking drugs with less toxicity to normal cells
    - Allows for repeat administration with reduced cumulative toxicity compared to a cross-linking payload



IGN DNA Alkylator selectively kills AML blasts while sparing normal bone marrow progenitors

ASH 2016 Watkins, et al.

Accelerating IGN ADCs for Hematologic Malignancies

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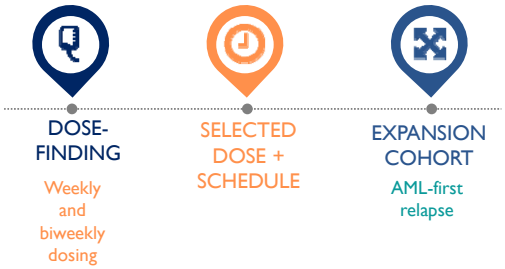
IMGN779: targeting CD33

- First ADC with IGN payload
- Enrolling AML patients in Phase 1
- Clinical data reported mid-2017, additional data in late 2017



IMGN632: targeting CD123

- Next generation IGN payload with 10X increase in potency
- Peptide linker and proprietary site-specific conjugation yields excellent plasma stability and efficient drug release at tumor site
- Data reported at 2016 ASH (oral ab #768):
  - Exceptional activity in preclinical AML models, including those resistant to standard of care therapies, with Therapeutic Index >100 fold
  - High *in vitro* potency against AML blasts from patients, including those with mutations/translocations which predict poor prognosis
- IND application and clinical testing expected in 2H2017

Most Comprehensive ADC Toolbox

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MODULAR APPROACH→ INTEGRATED SYSTEM

Targeting Vehicles

- MAbs
- Probodies
- Novel protein and chemical binders

Linkers

- Thioether
- Peptide
- Hindered disulfides
- Others in development

Payloads

- Tubulin-acting maytansinoids (e.g., DM1, DM4)
- DNA-acting IGNs (e.g., DGN462, DGN549) – alkylate DNA

Conjugate Chemistry and Screening

- Lysine and site-specific conjugation
- Microscale synthesis and screening methods
- Proprietary conjugate CMC capabilities

DRIVES CONTINUED ADC INNOVATION AND LEADERSHIP

Levering Partnerships to Expand Impact of Innovation

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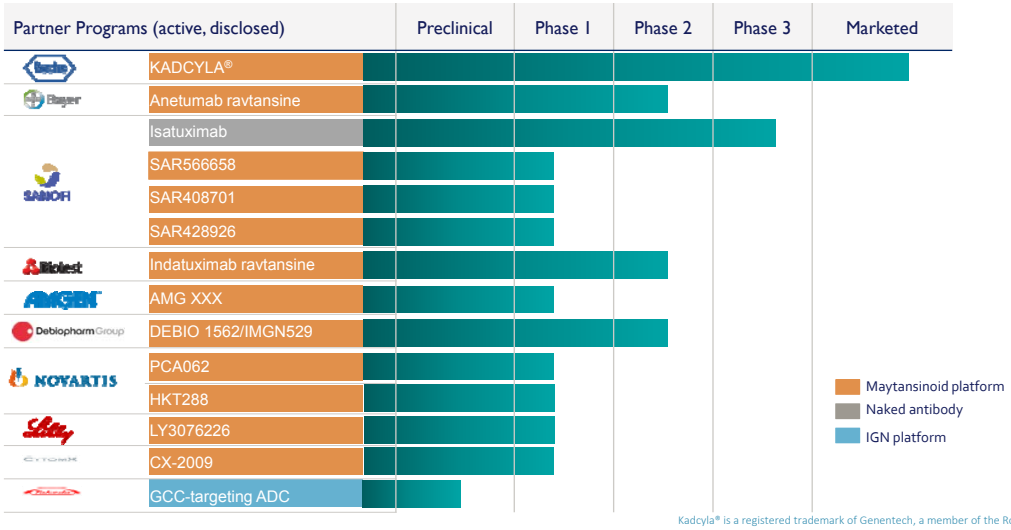
ADC Expertise Has Led to Extensive Collaborations



2017 Milestones Supporting Execution of Strategic Objectives

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EXECUTE SPEED-TO-MARKET STRATEGY FOR MIRVETUXIMAB SORAVTANSINE	• FORWARD I registration trial ✓ Initiated patient enrollment – Activating 100+ sites globally in 2017 • Clinical data presentations ✓ Biopsy cohort at SGO ✓ Pooled Phase I analyses supporting FORWARD I trial at ASCO ✓ FORWARD II combination data demonstrating safety and activity at ASCO – Publish eye drop cohort findings
DRIVE INNOVATION AND ACCELERATE PORTFOLIO OF EARLIER-STAGE ADCs	• IMGN779 ✓ Early clinical data – safety at EHA – Expanded clinical data (4Q17) • IMGN632 – IND/Phase I initiation (2H17) ✓ Presentations on platform innovations and novel ADC targets at AACR
EXPAND INNOVATION AND MAINTAIN FINANCIAL STRENGTH THROUGH PARTNERSHIPS	• Partner progress • New collaboration

ImmunoGen: Positioned for Sustainable Growth

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- Phase 3 registration trial underway with mirvetuximab
- Comprehensive, validated ADC technology portfolio
- Robust pipeline of differentiated ADCs
- Financial strength and discipline
- Experienced team


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