Merus closing in on cancer

Corporate Presentation

March 2023

Disclaimer

This presentation (including any oral commentary that accompanies this presentation) contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this presentation that do not relate to matters of historical fact should be considered forward-looking statements, including without limitation statements regarding the impact our Biclonics[®] and Triclonics[®] platforms can have on cancer, our product candidates' potential to treat certain types of tumors, the timing of regulatory filings and the timing and anticipated data readouts, updates or results from our clinical trials and our collaborations, and anticipated cash runway. These forward-looking statements are based on management's current expectations. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results. performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the following: we have incurred significant losses, are not currently profitable and may never become profitable; our need for additional funding, which may not be available and which may require us to restrict out operations or require us to relinquish rights to our technologies or antibody candidates; potential delays in regulatory approval and impacts of the COVID-19 pandemic, which would impact our ability to commercialize our product candidates and affect our ability to generate revenue; the unproven approach to therapeutic intervention of our Biclonics[®], and Triclonics[®] technology; our limited operating history; economic, political, regulatory and other risks involved with international operations; the lengthy and expensive process of clinical drug development, which has an uncertain outcome; the unpredictable nature of our early stage development efforts for marketable drugs; potential adverse public reaction to the use of cancer therapies; potential delays in enrollment of patients, which could affect the receipt of necessary regulatory approvals; failure to obtain marketing approval internationally; failure to compete successfully against other drug companies; potential competition from other drug companies if we fail to obtain orphan drug designation or maintain orphan drug exclusivity for our products; our reliance on third parties to conduct our clinical trials and perform clinical development and the potential for those third parties to not perform satisfactorily; our reliance on third parties to manufacture our product candidates, which may delay, prevent or impair our development and commercialization efforts; protection of our proprietary technology; our patents being found invalid or unenforceable; potential lawsuits for infringement of third-party intellectual property; our ability to attract and retain key personnel; managing our growth could result in difficulties.

These and other important factors discussed under the caption "Risk Factors" in our Annual Report on Form 10-K for the period ended December 31, 2022 filed on February 28, 2023 with the Securities and Exchange Commission, or SEC, and our other reports filed with the SEC, could cause actual results to differ materially from those indicated by the forward-looking statements made in this presentation. Any such forward-looking statements represent management's estimates as of the date of this presentation. While we may elect to update such forward-looking statements at some point in the future, we disclaim any obligation to do so, even if subsequent events cause our views to change.

Merus Overview



Oncology-focused Company Developing Multispecific Antibody Therapies Bispecific and trispecific cancer therapeutic candidates in the human IgG format



Established Clinical Pipeline with Multiple Near-Term Trial Updates

Robust clinical data from registration-directed trial of Zeno in NRG1 fusion (NRG1+) cancer¹, early encouraging clinical data on petosemtamab in head and neck cancer²; MCLA-129 in solid tumors³



Leading Multispecific Antibody (Multiclonics®) Platforms

Common light chain format permits broad, high throughput evaluation of Biclonics[®] and Triclonics[®], to develop clinical stage assets with potential for meaningful clinical activity in patients



Near-Term Planned Trial Updates and Strong Cash Position into 2H 2025⁴

Upcoming clinical milestones and program updates planned over the next 12-18 months: Zeno registration-directed program, petosemtamab clinical update 1H23, and MCLA-129 in 2H23



Strategic Collaborations to Unlock Platform Value

Multiple strategic collaborations and license agreements, leading to multiple Biclonics[®] candidates in clinical development for potential future milestone and royalty opportunities

¹ Schram et al., ASCO 2022, efficacy data cutoff April 12, 2022 and safety data cutoff January 12, 2022

² Hollebecque et al., AACR-NCI-EORTC 2021, data cutoff August 9, 2021

³ Ou et al., EORTC-NCI-AACR 2022, data cutoff August 15, 2022

⁴ See February 28, 2023 10-K noting our belief that our cash, cash equivalents and marketable securities, will fund our operations into second half 2025



Merus Clinical Pipeline

PROGRAM	BISPECIFIC TARGETS	INDICATION(S)	PRECLINICAL	PHASE 1	PHASE 1/2	STATUS
Zenocutuzumab (Zeno) (MCLA-128)	HER2 x HER3	NRG1+ cancer with afatinib in NRG1+ NSCLC with androgen deprivation therapy (ADT) in castration-resistant prostate cancer (CRPC) Other cancers				 Phase 1/2 registration- directed trial ongoing in NRG1+ cancer Clinical update on Zeno monotherapy in NRG1+ cancer planned 2023 Initial clinical data update in CRPC planned 2H23
Petosemtamab (MCLA-158)	EGFR x LGR5	Solid tumors				Phase 1/2 trial ongoingClinical update planned 1H23
MCLA-129	EGFR x c-MET	Solid tumors with a 3rd gen EGFR TKI in NSCLC	(China)			Phase 1/2 trial ongoingClinical update planned 2H23
MCLA-145	CD137 x PD-L1	Solid tumors with a PD1 inhibitor in solid tumors				 Phase 1 trial ongoing
ONO-4685 ¹	PD-1 x CD3	Relapsed/Refractory T Cell Lymphoma; Psoriasis	000			• Phase 1 trial ongoing
INCA32459 ¹	LAG3 x PD-1	Not disclosed	Incyte			 Phase 1 trial ongoing²



Potential first in class and best in class for NRG1 fusion (NRG1+) cancer

Zenocutuzumab

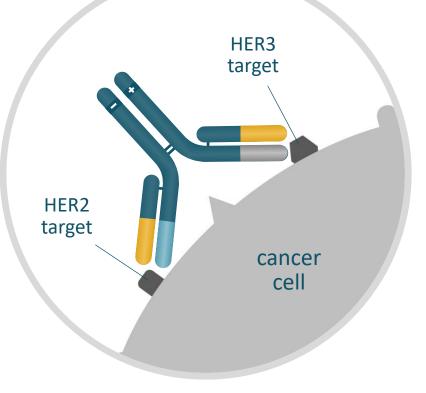
MCLA-128 or Zeno HER2 x HER3 bispecific

NRG1 fusions

- Translocations of the Neuregulin-1 (NRG1) gene, also called Heregulin, the ligand for the HER3 receptor. Rare events in solid tumors reported to typically occur in the absence of other cancer driver mutations¹
- Reported as associated with poor prognosis¹, lower response rates to standard therapy², and shorter overall survival in lung cancer^{1,3}

Zeno

- Biclonics[®] antibody binds to HER2 and blocks HER3; 100-fold more potent *in vitro* than anti-HER3 mAbs tested
- Granted orphan and fast track designation by FDA for pancreatic cancer, and NRG1+ cancer post standard of care, respectively
- Enrollment in eNRGy trial continues to support potential BLA⁴ filings in NRG1+ NSCLC⁴ and/or PDAC⁴, with potential subsequent tissue agnostic filing
- Additional clinical trials ongoing in CRPC with ADT and in NRG1+ NSCLC with afatinib⁴





Zeno DOCK & BLOCK[®] Mechanism Potently Blocks NRG1 fusions

Zeno

Common light chain bispecific Biclonics® antibody

DOCKS

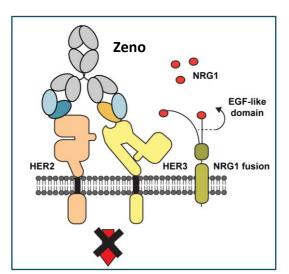
onto the more abundant HER2 protein leads to high local concentration on the cell surface

BLOCKS

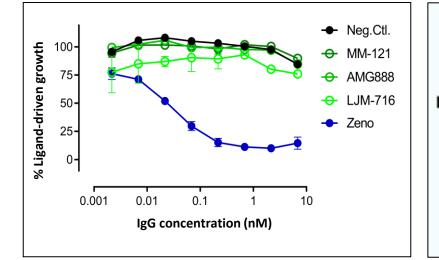
NRG1 fusion interaction with HER3 HER3 from interacting with HER2 Growth signals in cells

INDUCES

enhanced ADCC (Antibody-Dependent Cellular Cytotoxicity)



Unique-Targeting of NRG1+ Cancer





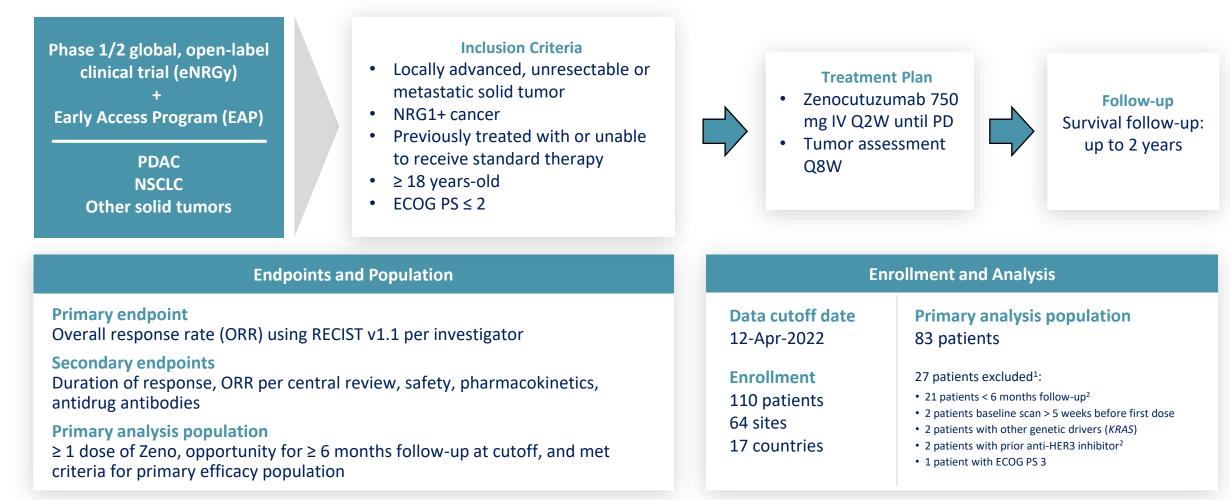
Merus

Growth of N87 cells with 12.5 nM HRG and a titration of the indicated antibodies.

Shown to Potently Inhibit Growth and NRG1:HER3 Signalling Preclinically



Zeno in NRG1+ Cancer: Global Phase 1/2 Clinical Trial



Schram et al., ASCO 2022, efficacy data cutoff April 12, 2022 and safety data cutoff January 12, 2022

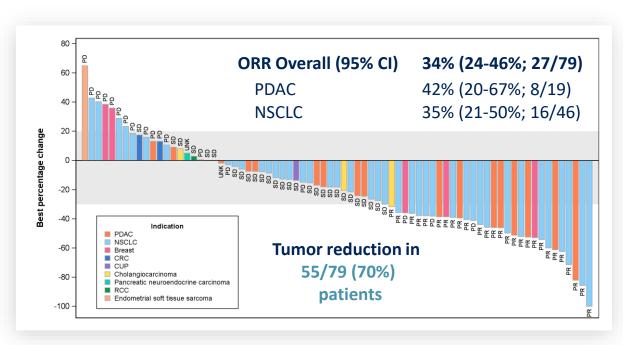
^{1.} Per protocol/SAP ^{2.} One patient had 2 reasons for exclusion



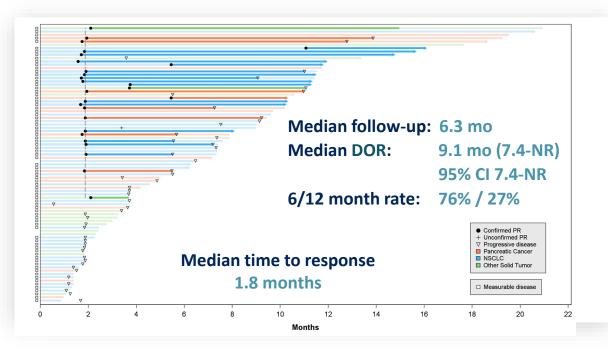


Robust Clinical Efficacy in NRG1+ Cancer

Overall response rate 34%; Median DOR > 9 months



Note: The waterfall plot shows data for 75 of 79 patients. Change in tumor size could not be measured for 4 patients, 3 due to absence of post baseline assessment (early progression) and one due to incomplete assessment. NSCLC, Non-Small Cell Lung Cancer; PDAC, Pancreatic Ductal Adenocarcinoma



Arrows indicate treatment was ongoing at the cutoff date



Zeno: Continued Progress in NRG1+ Cancer and Beyond

Potential First & Best in Class for NRG1+ Cancer

Meaningful, durable response rate

- ORR 34% (95% CI: 24-46%; n=79)
- Median DOR 9.1 months (95% CI: 7.4-NR)
- Antitumor activity observed across multiple tumor types

Well tolerated safety profile

- Most adverse events were low grade
- Very low rate of discontinuations due to toxicity

Broad Zeno Clinical Development Program

Registration-directed clinical program

- Enrollment continues; as of year-end 2022 more than 150 patients treated in the eNRGy trial and EAP
- Initial tumor-specific approach planned in NRG1+ NSCLC and/ or PDAC with potential agnostic BLA to follow
- In NRG1+ NSCLC, combination therapy with afatinib currently recruiting

Beyond NRG1+ cancer

- Castration-resistant prostate cancer cohort with ADT ongoing
- Additional indications being considered

NRG1 Fusions More Common in Specific Types of Lung and Pancreatic Cancer

	Overall	Enrichment				
	Non-Small Cell Lung Cancer (0.3%-1.7%) ^{1,2}	IMA (27%-31%) ³ (Invasive mucinous lung adenocarcinoma)				
	Pancreatic cancer $(0.5\%-1.8\%)^{2,4}$	KRAS wild-type (up to 6%) ⁵ pancreatic cancer				
	Other (<1%, eg, breast, cholangiocarcinoma, colorectal cancers) ²					
NGS Testing Rates ⁶						
	Lung Cancer: 59%					
20 labs cover ~80% of market						
• ~ 36% includes NRG1 fusion testing (n=12)						
Pancreatic Cancer: 37%						
• 20 labs cover ~87% of market						

• ~47% includes NRG1 fusion testing (n=12)

9 1. Drilon A et al. Cancer Discov. 2018;8(6):686-695. 2. Jonna S et al. Clin Cancer Res. 2019;25(16):4966-49723. 3. Laskin J et al. Ann Oncol. 2020;31(12):1693-1703. 4. Knepper TC et al. J Clin Oncol. 2022;40(16 suppl):4155. 5. Jones MR et al. Clin Cancer Res. 2019;25(15):4674-4681 6. Data from Diaceutics Data from Diaceutics Data from Diaceutics Data from Diaceutics Lab mapping (Nov. 2022 assessment) © 2022 Diaceutics PLC or its affiliates. All rights reserved.

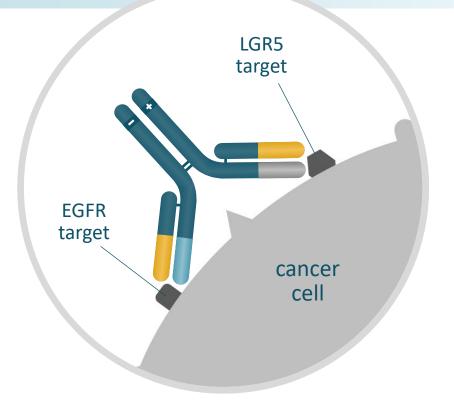


Potential first in class EGFR x LGR5 Biclonics[®] designed to potently block dysregulated signaling and growth in solid tumors

- Binds to EGFR and LGR5, a cancer-stem cell antigen
- Blocks growth in WNT-dysregulated tumor models including Ras^{mut}
- Modifications to enhance ADCC
- Phase 1/2 trial ongoing; clinical update planned 1H23; regulatory path update planned for 1H23
- Early evidence of clinical activity in advanced Head & Neck Squamous Cell Carcinoma (HNSCC) reported at AACR-NCI-EORTC 2021¹

MCLA-158

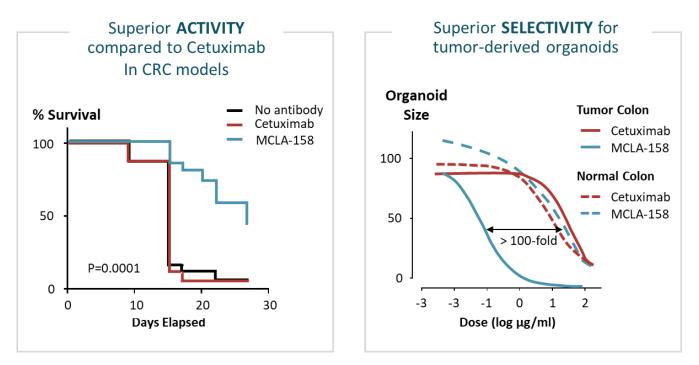
Petosemtamab EGFR x LGR5 bispecific





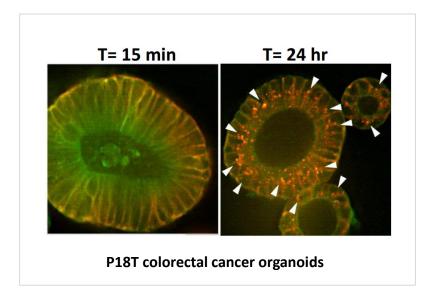
Petosemtamab — Novel Target and Innovative MoA

Superior Growth Inhibition and Selectivity of Tumor Versus Healthy Tissue¹



- Activity observed in xenograft models resistant to treatment with cetuximab
- Petosemtamab discriminated between organoids from tumor and healthy tissue

Induces EGFR internalization and degradation²



• After 24h exposure, MCLA-158 (red) is localized intracellularly and overall EGFR expression (green) is strongly reduced





Updated data from AACR-NCI-EORTC 2021

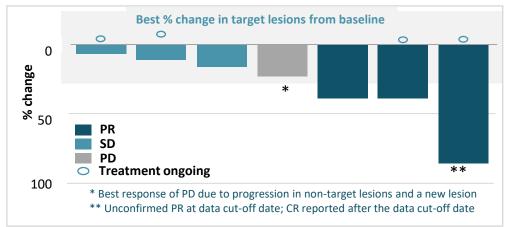
Phase 1 Cohort Expansion in Head and Neck Squamous Cell Carcinoma

- Petosemtamab Enrollment and Interim Analysis
- Cohort expansion at RP2D
 - HNSCC (interim data presented at ENA)
 - Gastric/Esophageal (not yet presented)
- Data cutoff date: 09-Aug-2021
- Enrollment: 10 patients, 7 evaluable for efficacy
 - Three patients recently enrolled excluded from interim analysis (first dose <8 weeks from data cutoff date)

HNSCC Patient Characteristics (N=10)				
Age (years), median (range)	65 (50-77)			
Male / female	9 (90%) / 1 (10%)			
ECOG PS 0 / 1	4 (40%) / 6 (60%)			
Squamous cell carcinoma histology	10 (100%)			
EGFR IHC score 2+ / 3+ (n=5)	1 (20%) / 4 (80%)			
N lines prior therapy, median (range)	2 (1-3)			
Platinum-based chemotherapy	10 (100%)			
• PD-(L)1 inhibitor	9 (90%)			
Cetuximab	0%			

Early Clinical Activity in HNSCC

- Three of 7 patients achieved partial response
- All 7 patients experienced tumor shrinkage



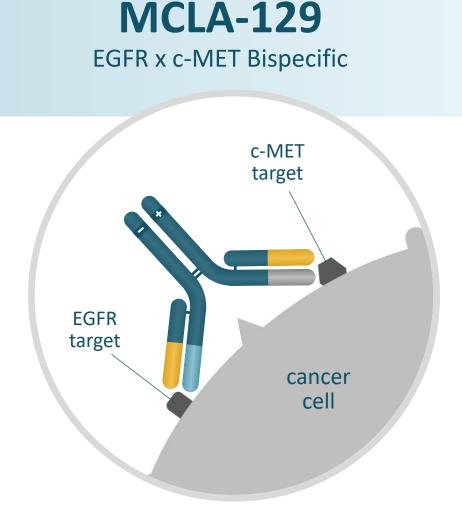
Clinical response in 67-year-old male patient





Designed to target lung cancer and other solid tumors expressing EGFR and c-MET

- Targets both EGFR and c-MET on cancer cells
- Modifications to enhance ADCC
- Significant opportunity in lung cancer and other solid tumors
- Phase 1/2 trial ongoing; 2H22 clinical update provided at the EORTC-NCI-AACR 2022
- Expansion cohorts ongoing, including in combination with a third generation EGFR TKI
- Initial clinical data update from the expansion cohorts and further clinical development strategy update planned for 2H23







Dose Escalation Phase of MCLA-129 in NSCLC and Other Solid Tumors*

Study Design

	DOSE ESCALATION
Metastatic o	r locally advanced
mutation or o	C w/ EGFR mutation and/or c-MET amplification; HNSCC or ESCC narker selection
100me q2w (n=3) 300me	22W (n=3) 600me 02W (n=3) 1000me 02W (n=1) 1500me 02W (n=1) 1500me 02W (n=1) 1500me 02W (n=1) 1500me 02W (n=1)
Expans	sion Cohorts Ongoing
•	sion Cohorts Ongoing with EGFR exon20 insertion
Cohort A: NSCLC	00

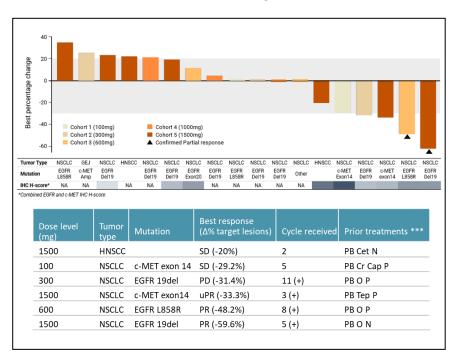
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Cohort D + 3rd gen EGFR TKI: NSCLC 1L (EGFR sensitizing mutations)
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Cohort E + 3rd gen EGRF TKI: NSCLC post-Osimertinib

Safety

	Irrespective of causality		Suspected related		
Preferred term	All grades n(%)	Grade 3-4 n(%)	All grades n(%)	Grade 3-4 n(%)	
Any event	19 (95%)	9 (45%)	19 (95%)	4 (20%)	
Infusion related reaction**	18 (90%)	1 (5%)	18 (90%)	1 (5%)	
Dyspnea	11 (55%)	1 (5%)	9 (45%)	1 (5%)	
Flushing	9 (45%)	-	9 (45%)	-	
Nausea	9 (45%)	-	8 (40%)	-	
Fatigue	6 (30%)	1 (5%)	3 (15%)	-	
Back pain	5 (25%)	-	2 (10%)	-	
Chills	5 (25%)	-	5 (25%)	-	
Myalgia	5 (25%)	-	4 (20%)	-	
Vomiting	5 (25%)	-	5 (25%)	-	
Cough	4 (20%)	-	3 (15%)	-	
Abdominal pain	3 (15%)	-	1 (5%)	-	
Arthralgia	3 (15%)	-	2 (10%)	-	
Dermatitis acneiform	3 (15%)	-	3 (15%)	-	
Lipase increased	(15%)	-	2 (10%)	-	
Oedema peripheral	3 (15%)	-	-	-	
Pruritus	3 (15%)	1 (5%)	3 (15%)	1 (5%)	

Efficacy



• No dose limiting toxicities (DLTs) reported

• The majority of IRR events occurred during the first infusion

* Ou et al., EORTC-NCI-AACR 2022, data cutoff August 15, 2022; Safety: most frequent (>)10% adverse events among n=20 pts as of Aug 15, 2022 data cutoff date;

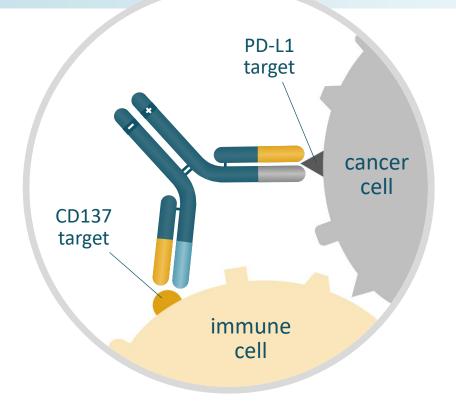
** Grouped term covering all AEs occurring within 24 hours of the infusion considered by the investigator as an IRR;

*** PB: platinum based chemotherapy; O: osimertinib; N: nivolumab; P: pembrolizumab; Cr: crizotinib; Cap: capmatinib; Cet: cetuximab; Tep: tepotinib; (+) patient ongoing; PR partial response; uPR unconfirmed partial response; SD stable disease; PD progression disease

Designed to recruit and activate tumor infiltrating T-cells

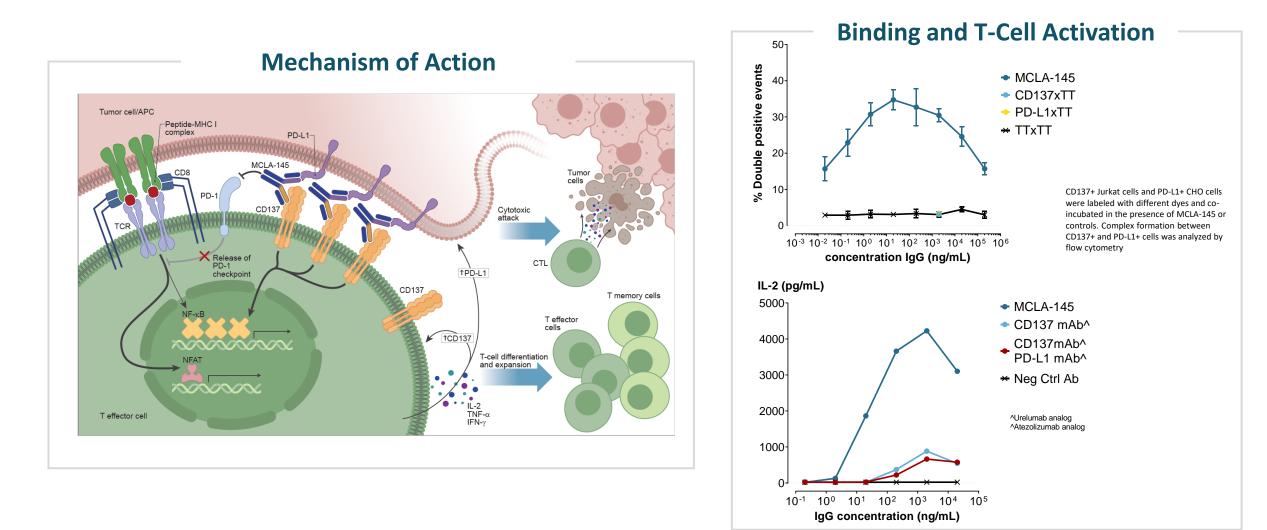
MCLA-145 PD-L1 x CD137 bispecific

- Binds to PD-L1 on tumor cells and CD137 (4-1BB), a potent activator of tumor infiltrating T-cells, on activated T-cells
- Targets PD-L1 positive cells in the tumor and blocks the PD-1/PD-L1 inhibitory signal
- Potential in a variety of solid tumors
- Global phase 1 trial ongoing, including in combination with a PD1 inhibitor
- Clinical update presented at ESMO Immuno-Oncology Congress 2021



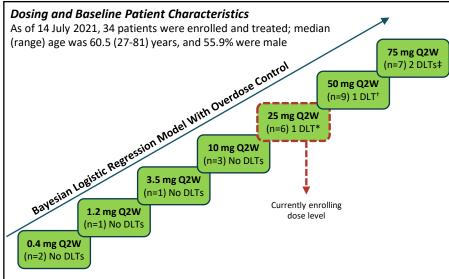


MCLA-145 — Targets PD-L1 Positive Tumor Cells





Phase 1 Clinical Trial

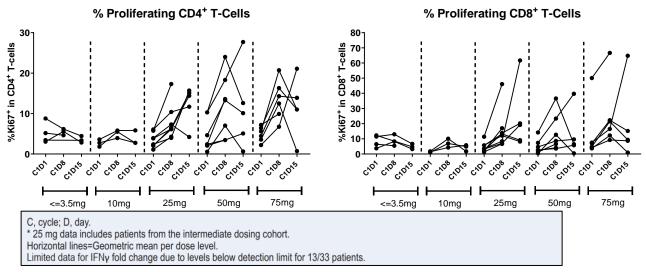


ALT, alanine aminotransferase; AST, aspartate aminotransferase; DLT, dose-limiting toxicity (DLT period is defined as 28 days from the first infusion); Q2W, every 14 days.

Intermediate dose levels from 25 to 75 mg have been explored in 5 additional patients not included in the figure above. *Febrile neutropenia. †Myositis. ‡ALT/AST increased, febrile neutropenia

Patient Characteristics (N=34)				
Age (years), median (range)	60.5 (27-81)			
Male / female	19 (56%) / 15 (44%)			
ECOG PS 0 / 1	16 (47%) / 18 (53%)			
PDL-1 expression on tumor cells				
Unknown/unevaluable	16 (47%)			
 0% / ≥1% 	11 (32%) / 7 (21%)			
PDL-1 expression on tumor assoc. immune cells				
Unknown/unevaluable	16 (47%)			
 0% / ≥1% 	4 (12%) / 14 (41%)			

Peripheral Blood T cell activation



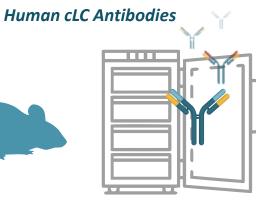
Conclusions

- Thirty-four patients have been treated with MCLA-145 at dose levels from 0.4 – 75 mg q2W
- AEs are consistent with the MOA and can be managed with drug interruption and/or steroids in some patients
- Preliminary evidence of antitumor activity has been observed at doses ≥ 25 mg
- Peripheral blood T cell activation has been observed
- Further evaluation of optimal dose in PD-L1+ tumors is planned. Full blockade of PDL1 may be required



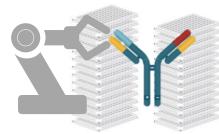
Our Platform – Unique Capabilities in Multispecific Antibodies

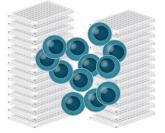




Generate

Evaluate Thousands of Multispecific Abs





Patented Mouse Technology

"Merus Mouse" (MeMo[®]) to generate diverse, high quality common light chain (cLC) antibody panels

Established Inventory

Diverse panels of cLC antibodies against numerous targets

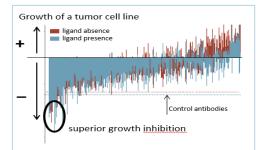
Multiclonics® Libraries

Robotics generate thousands of Multiclonics[®] by combining cLC antibody panels and our patented "DEKK" IgG heterodimerization technology

Unbiased Screening

In-format, unbiased functional screening in relevant molecular and cellular assays Identify Best Candidates



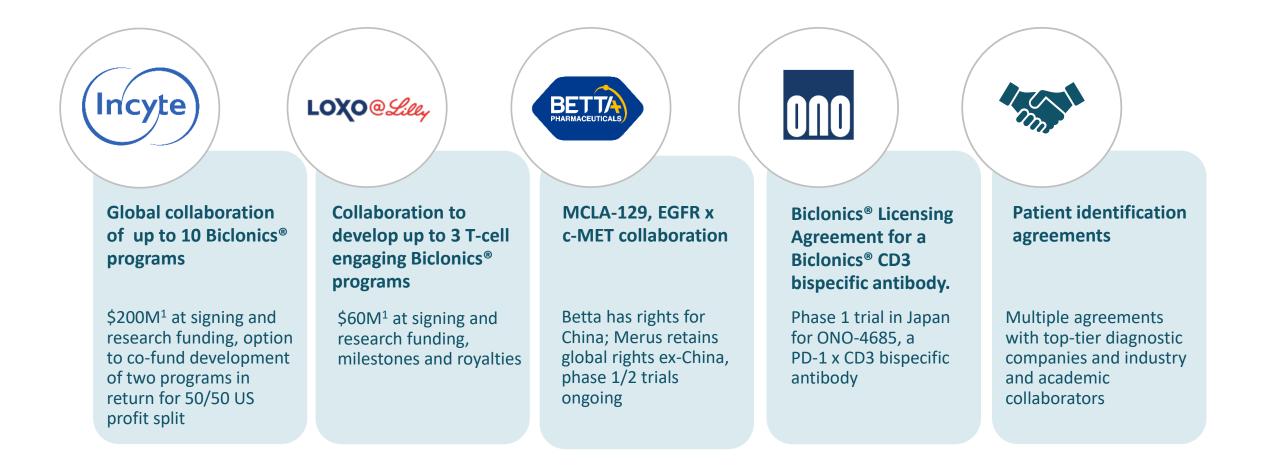


Develop unique, best candidates from thousands of different Biclonics[®] and Triclonics[®] with potential to achieve meaningful clinical activity in patients



Merus Collaborations

Strategic relationships expand pipeline potential and clinical reach

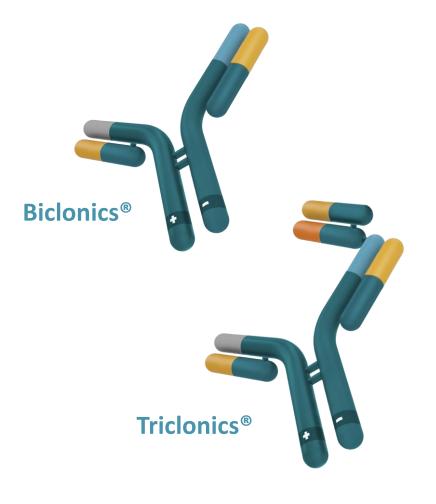


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Merus Multiclonics®

Bispecific and Trispecific therapeutic candidates for cancer with broad application for human disease



Large-scale screening of Biclonics® and Triclonics®

• To select the best molecules from up to 1,000s of candidates

Fully human IgG structure

- Ease of manufacturing
- Low immunogenicity risk
- Predictable in vivo behavior
- Durable, consistent half life
- Potential for ADCC enhancement and Fc silencing

Novel, innovative trispecific Triclonics® format

- Stable format with predictable behavior; production similar to monoclonal antibody
- Allows for 3 specificities without the need to engineer each individual Fab
- Leverages Merus' extensive library of established antibody panels against ~50 established cancer targets

Robust IP portfolio of patents covering the platform technology, including

- Common light chain antibody generation and screening
- Dimerization by charge engineering



Merus Potential Milestones 2023

Zenocutuzumab in NRG1+ cancer & CRPC (Zeno, MCLA-128)

- *Potential registrational path and timeline* in NRG1+ cancer (planned 1H23)
- <u>Update clinical data</u> in NRG1+ cancer (planned 2023)
- Initial clinical data in combination with an ADT in CRPC (planned 2H23)

Petosemtamab in Head and Neck & other cancers (MCLA-158)

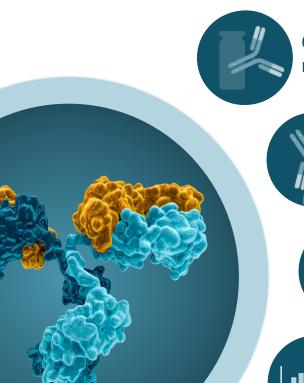
- Update clinical data in previously treated HNSCC (planned 1H23)
- Initial clinical data in previously treated gastric/esophageal cancer (planned 1H23)
- *Potential regulatory path and program next steps* (planned 1H23)

MCLA-129 in NSCLC & other cancers

- Initial clinical data update from the expansion cohorts (planned 2H23)
- <u>Update clinical development strategy</u> (planned 2H23)



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Merus closing in on cancer