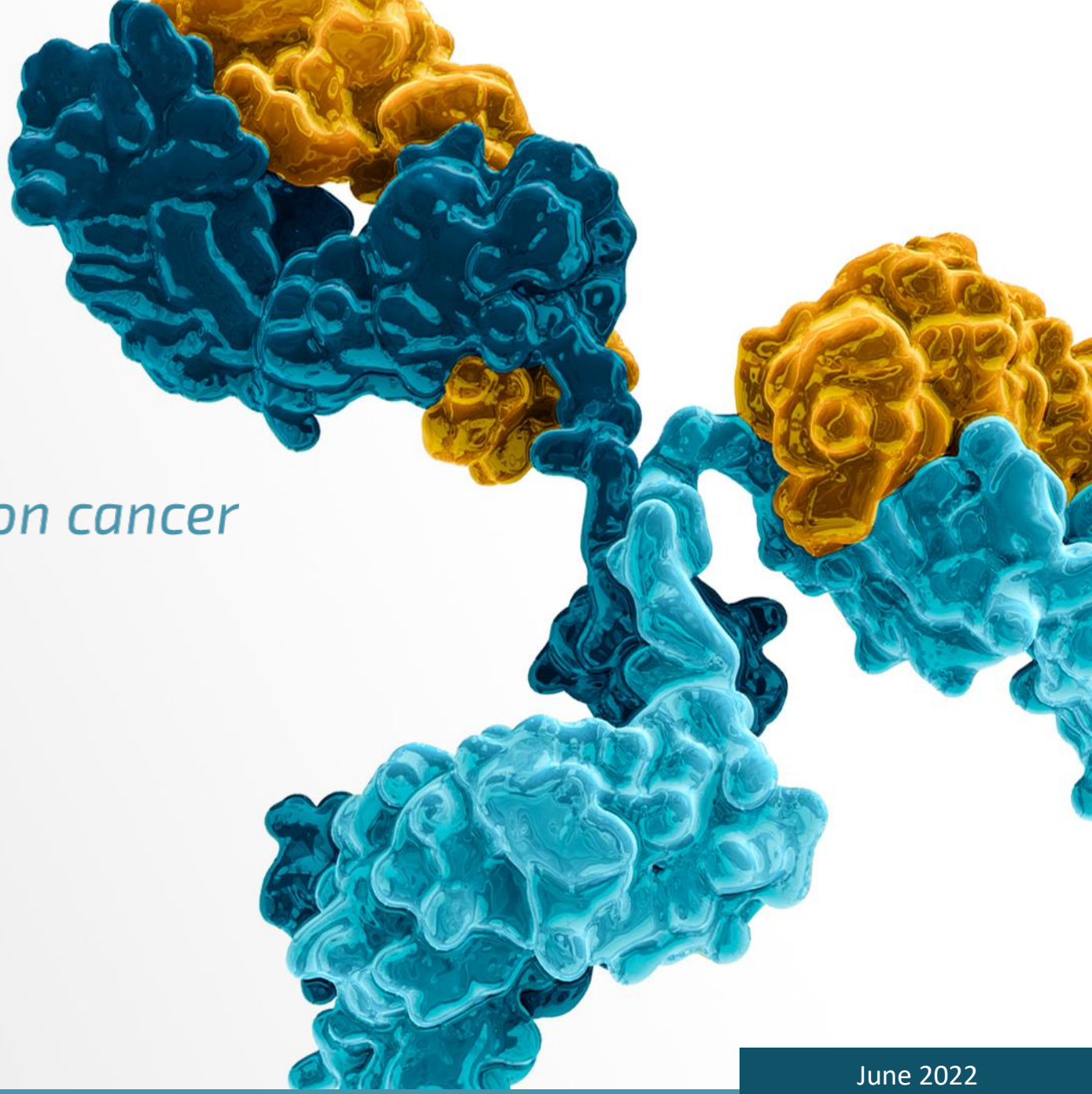
Merus *closing in on cancer*



SPEAKERS

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CHIEF EXECUTIVE OFFICER

Andrew Joe, MD
CHIEF MEDICAL OFFICER

Hui Liu, PhD
CHIEF BUSINESS OFFICER & HEAD, MERUS US

Shannon Campbell
CHIEF COMMERCIAL OFFICER

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June 2022

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 read outs 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 in our Annual Report on Form 10-Q for the period ended March 31, 2022 filed on May 9, 2022 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.

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Agenda

1. Welcome & Introductions
2. Merus Platform & Pipeline
3. Zeno in NRG1 Fusion (NRG1+) Cancer
4. Summary
5. Q & A

Merus

Q&A

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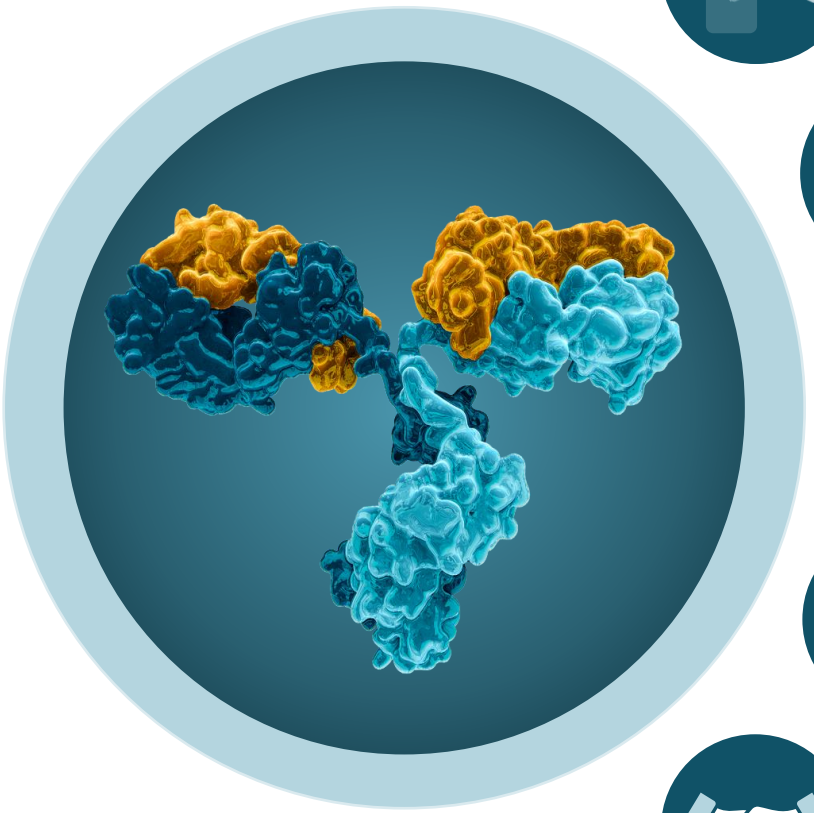
Merus

Merus Overview



Oncology-focused Company Developing Multispecific Antibody Therapies

Bispecific and trispecific cancer therapeutic candidates based on the human IgG format

Established Clinical Pipeline

Four clinical stage assets with proof of concept data on Zeno in NRG1-fusion cancer[1], and early encouraging data on Peto in Head and Neck cancer[2]

Leading Multispecific Antibody (Multiclonics®) Platforms

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

Near Term Trial Updates and Strong Cash Position Beyond 2024*

Upcoming clinical milestones, and program updates planned over the next 12-18 months: Zeno registrational directed program, Peto clinical update, and MCLA-129 initial clinical data

Strategic Collaborations to Unlock Platform Value

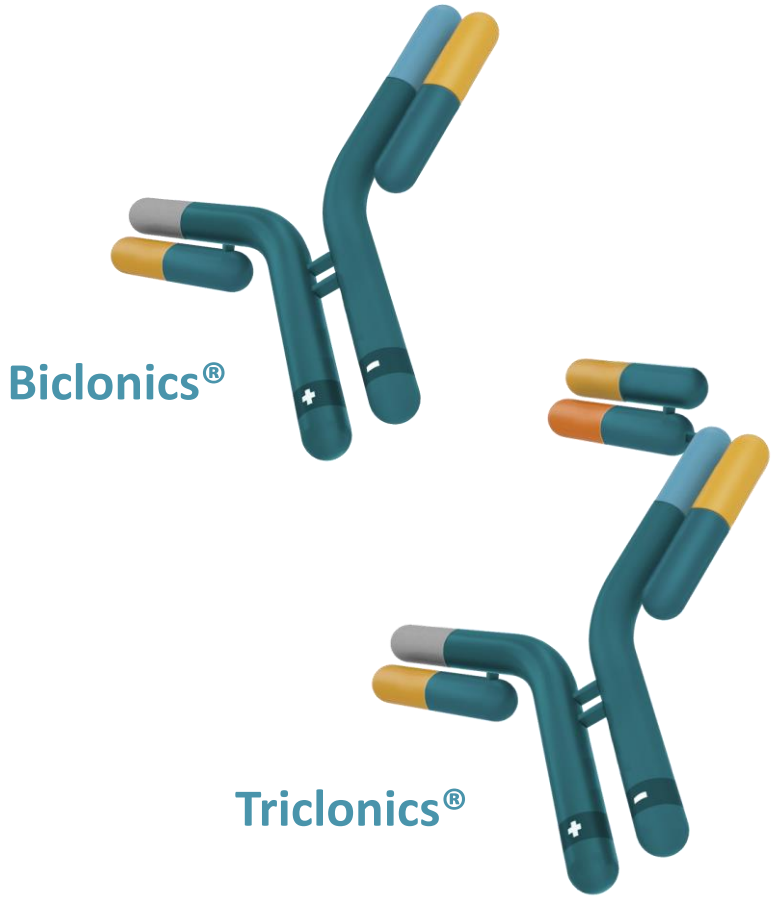
Multiple strategic collaborations and license agreements

[1] Schram et al., ASCO 2022, efficacy data cutoff April 12, 2022, safety cutoff January 12, 2022
[2] Hollebecque et al., AACR-NCI-EORTC 2021, data cutoff August 9, 2021
*See May 9, 2022 10-Q noting our belief that our cash, cash equivalents and marketable securities, will fund our operations beyond 2024.

Merus

Merus Multiclonics®

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



Large-scale screening

To select the best Biclonics® and Triclonics® from up to 1,000s of candidates

Fully human IgG format

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

Robust IP portfolio

Patents covering Multiclonics® technology, including

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

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Merus Clinical Pipeline

PROGRAM	BISPECIFIC TARGETS	INDICATION(S)	PRECLINICAL	PHASE 1	PHASE 1/2	STATUS
Zenocutuzumab (Zeno) (MCLA-128)	HER2 x HER3	NRG1+ cancer				• Phase 1/2 registration-directed trial ongoing • Clinical update at ASCO 2022
Petosemtamab (Peto) (MCLA-158)	LGR5 x EGFR	Solid tumors				• Phase 1 trial ongoing • Clinical update planned 2H22
MCLA-145	CD137 x PD-L1	Solid tumors				• Phase 1 trial ongoing
MCLA-129	EGFR x c-MET	Solid tumors	BETTA (China)			• Phase 1/2 trial ongoing • Clinical update planned 2H22
ONO-4685*	PD-1 x CD3	Relapsed/Refractory T Cell Lymphoma; Psoriasis	ONO			• Phase 1 trial ongoing

** If commercialized, Merus to receive royalties*

Merus

2022 ASCO® ANNUAL MEETING

Efficacy and safety of zenocutuzumab, a HER2 x HER3 bispecific antibody, in advanced *NRG1* fusion-positive (NRG1+) cancer

Alison M Schram[1], Koichi Goto[2], Dong-Wan Kim[3], Patricia Martin-Romano[4], Sai-Hong I Ou[5], Grainne M O'Kane[6], Eileen M O'Reilly[1], Kumiko Umemoto[7], Michaël Duruisseaux[8], Cindy Neuzillet[9], Frans Opdam[10], Jordi Rodon Ahnert[11], Misako Nagasaka[12], Benjamin A Weinberg[13], Teresa Macarulla[14], Andrew K Joe[15], Jim Ford[15], Viktoriya Stalbovskaya[15], Ernesto Wasserman[15], Alexander E Drilon[1]

1. Memorial Sloan Kettering Cancer Center, New York, NY, USA; **2**. National Cancer Center Hospital East, Kashiwa, Japan; **3**. Seoul National University Hospital, Seoul, South Korea; **4**. Gustave Roussy Cancer Campus, Villejuif, France; **5**. Chao Family Comprehensive Cancer Center, University of California Irvine, Orange, CA, USA; **6**. Princess Margaret Cancer Centre, Toronto, ON, Canada; **7**. St. Marianna University School of Medicine, Kawasaki, Japan; **8**. URCOT, Hôpital Louis Pradel, Hospices Civils de Lyon Cancer Institute, Lyon, France; **9**. Curie Institute, Saint-Cloud, France; **10**. Netherlands Cancer Institute, Amsterdam, Netherlands; **11.**The University of Texas MD Anderson Cancer Center, Houston, TX, USA; **12**. Karmanos Cancer Institute, Detroit, MI, USA; **13**. Ruesch Center for the Cure of Gastrointestinal Cancers, Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC, USA; **14**. Hospital Vall d'Hebron, Barcelona, Spain; **15**. Merus NV, Utrecht, Netherlands

Merus

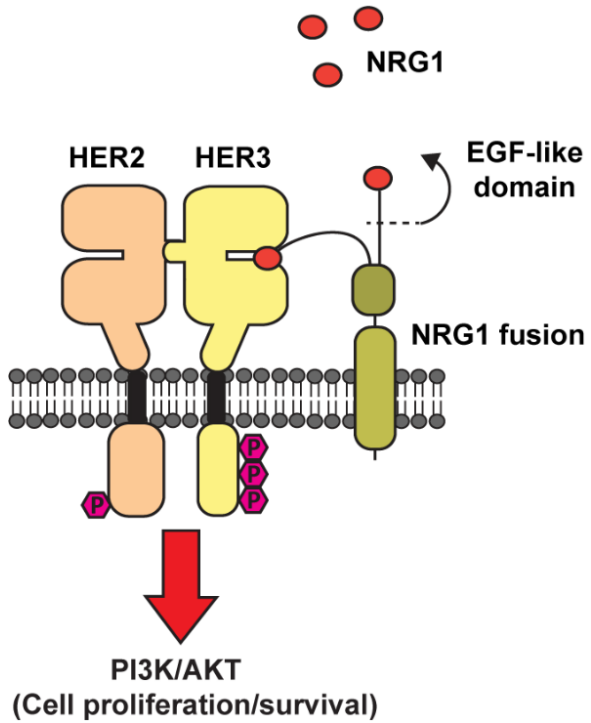
Background

NRG1 Fusions are Clinically Actionable Targets

Key Takeaways

- Neuregulin 1 (NRG1) is a ligand that binds to HER3, promotes HER2/HER3 dimerization and PI3K/AKT/mTOR signaling, and causes malignant transformation[1,2]
- Chromosomal rearrangements involving *NRG1* are rare oncogenic drivers in a broad range of solid tumors (NRG1+ cancer), including pancreatic and lung cancers[3,4]
- *NRG1* fusions are reported to be associated with poor prognosis, lower response rates to standard therapy, and shorter overall survival in lung cancer[5,6]
- NRG1+ cancer models across histologies are sensitive to HER2/HER3 directed therapy with zenocutuzumab (Zeno) *in vitro* and *in vivo*[7]

NRG1 Fusion Signaling



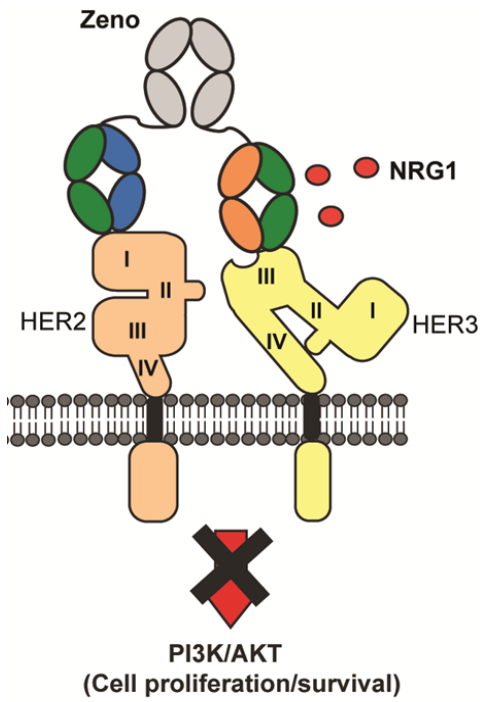
1. Fernandez-Cuesta et al. Cancer Discov, 2014; 2. Werr et al. Mol Cancer Ther, 2022; 3. Schram et al. J Clin Oncol, 2019; 4. Jonna et al. J Clin Oncol, 2020; 5. Drilon et al. J Clin Oncol, 2021; 6. Chang et al. Clin Cancer Res, 2021; 7. Schram et al. Cancer Discov, 2022

Background

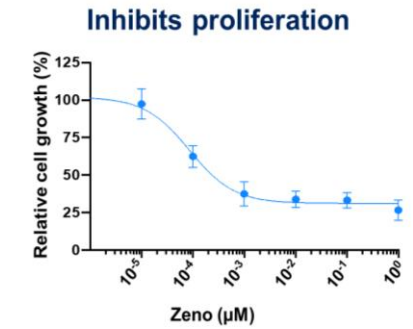
Zenocutuzumab is a Novel Therapeutic for NRG1+ Cancer

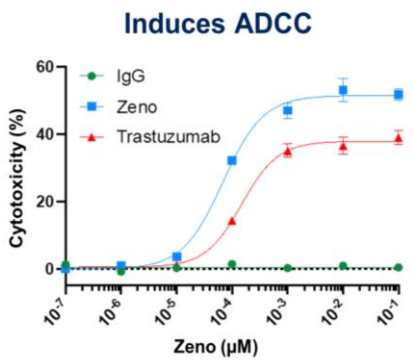
- Common light chain bispecific Biclonics® antibody with enhanced ADCC activity[1]
- Docks on HER2 and blocks NRG1 interaction with HER3, preventing HER2/HER3 heterodimerization[1]
- Potent inhibition of cell growth and molecular signaling (pHER3, pAKT) at ≤ 0.01 µM[2]
- Granted FDA Fast-Track designation for NRG1+ cancer and Orphan designation for pancreatic cancer

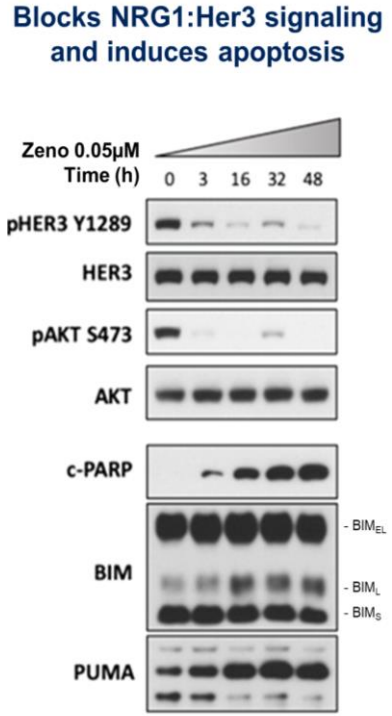
Mechanism of Action



MDA-MB-175-VII (*DOC4-NRG1* fusion)







1. Geuijen et al. Cancer Cell, 2018; 2. Schram et al. Cancer Discov, 2022

Schema

Global, Multicenter Zenocutuzumab Development Program

Phase 1/2 global, open-label clinical trial (eNRGy)
+
Early Access Program (EAP)

PDAC
NSCLC
Other solid tumors

Inclusion Criteria

- Locally advanced, unresectable or metastatic solid tumor
- NRG1+ cancer
- Previously treated with or unable to receive standard therapy
- ≥ 18 years-old
- ECOG PS ≤ 2

Treatment Plan

- Zenocutuzumab 750 mg IV Q2W until PD
- Tumor assessment Q8W

Follow-up

Survival follow-up: up to 2 years

Endpoints and Population

Primary endpoint
Overall response rate (ORR) using RECIST v1.1 per investigator

Secondary endpoints
Duration of response, ORR per central review, safety, pharmacokinetics, antidrug antibodies

Primary analysis population
≥ 1 dose of Zeno, opportunity for ≥ 6 months follow-up at cutoff, and met criteria for primary efficacy population

Enrollment and Analysis

Data cutoff date
12-Apr-2022

Enrollment
110 patients
64 sites
17 countries

Primary analysis population
83 patients

27 patients excluded[1]:

- 21 patients < 6 months follow-up[2]
- 2 patients baseline scan > 5 weeks before first dose
- 2 patients with other genetic drivers (*KRAS*)
- 2 patients with prior anti-HER3 inhibitor[2]
- 1 patient with ECOG PS 3

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

Patient Population

Demographics and Disease Features of NRG1+ Cancer

All Patients (N=83)	
Enrolled in eNRGy trial / EAP, n (%)	72 (87) / 11 (13)
Age in years, median (range)	59 (22 - 84)
Male / female, n (%)	34 (41) / 49 (59)
ECOG PS 0 / 1 / 2, n (%)	35 (42) / 47 (57) / 1 (1)
Race, n (%)[1]	
White	47 (57)
Asian	27 (33)
Other	3 (4)

1. Data not reported for 6 patients

All Patients (N=83)	
Metastatic disease, n (%)	82 (99)
Measurable disease, n (%)	79 (95)
Primary tumor, n (%)	
NSCLC[2]	47 (57)
PDAC	19 (23)
Breast cancer	7 (8)
Cholangiocarcinoma	3 (4)
CRC	3 (4)
Other[3]	4 (5)

2. Adenocarcinoma (N=42), IMA (N=4), mixed adeno-squamous carcinoma (N=1)
3. Endometrial soft tissue sarcoma, pancreatic neuroendocrine carcinoma, renal cell carcinoma, unknown primary

Patient Population and Disposition

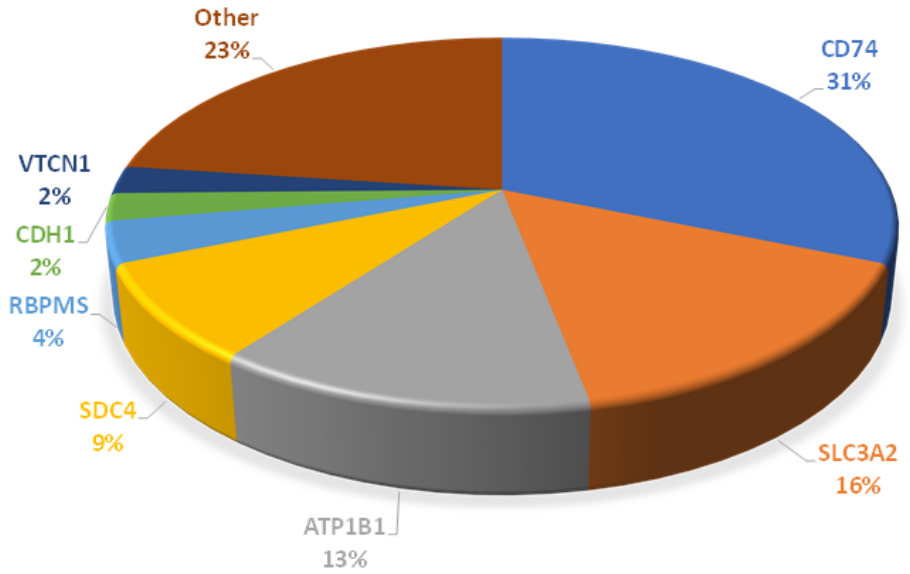
Prior Therapy, Diagnostics, and Molecular Features of NRG1+ Cancer

All Patients (N=83)	
Prior systemic therapy	
N lines, median (range)[1]	2 (0 - 8)
Prior afatinib, n (%)	9 (11)
Patient disposition	
Treatment ongoing, n (%)	20 (24)
Reason for discontinuation, n (%)	
Disease progression[2]	61 (73)
Other[3]	2 (2)
Duration of exposure, months	
Median (range)	6.3 (1 - 21)

1. 11 patients were treatment-naïve in the metastatic setting
2. Includes radiological and clinical progression
3. Unrelated AE of dyspnea due to underlying progression, pregnancy

All Patients (N=83)	
***NRG1* identification technology, n (%)**	
RNAseq	64 (77)
DNAseq	18 (22)
Nanostring	1 (1)

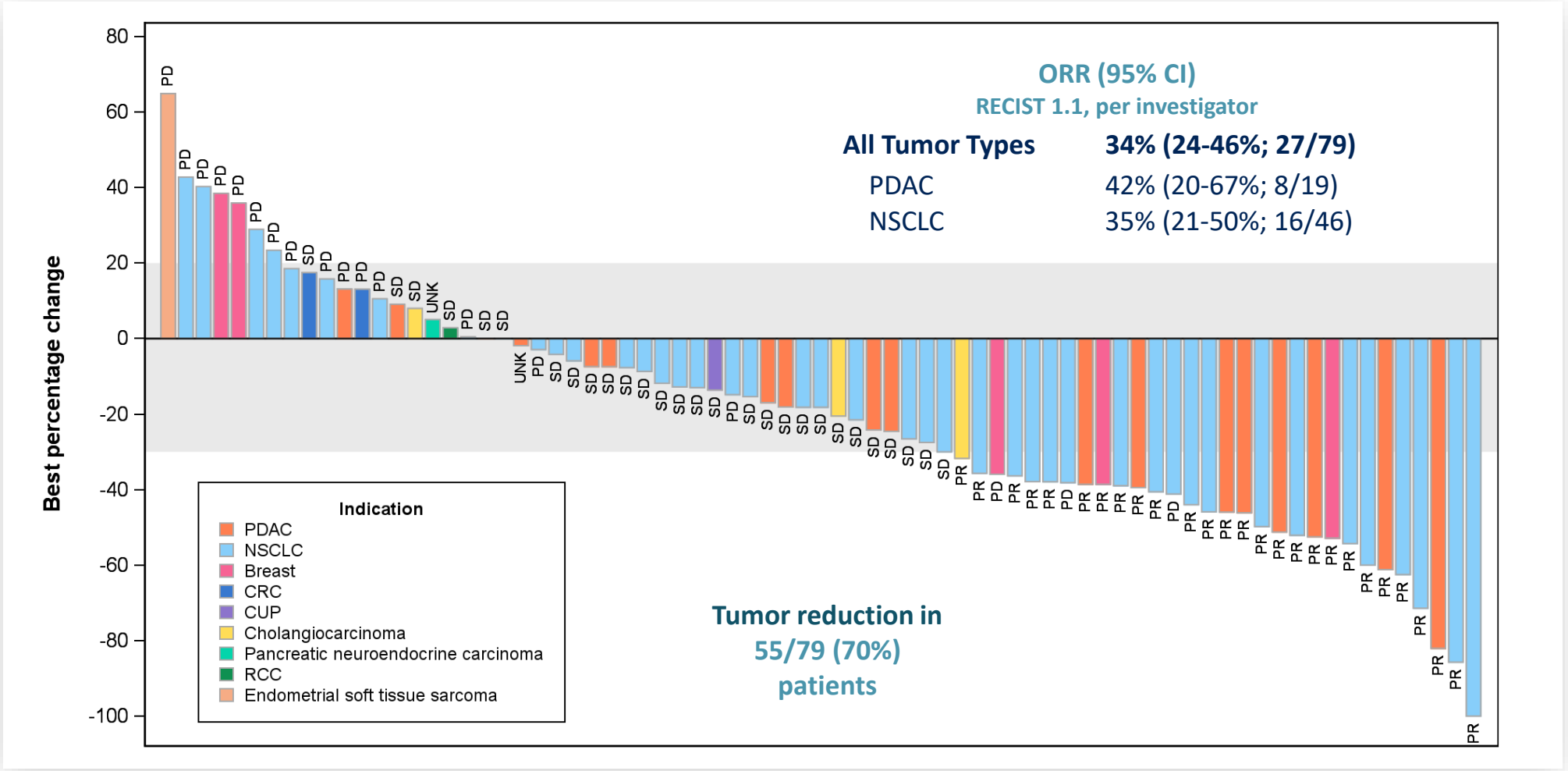
***NRG1* fusion partners**



"Other" includes 19 fusion partners with a single patient each

Zenocutuzumab Activity in NRG1+ Cancer

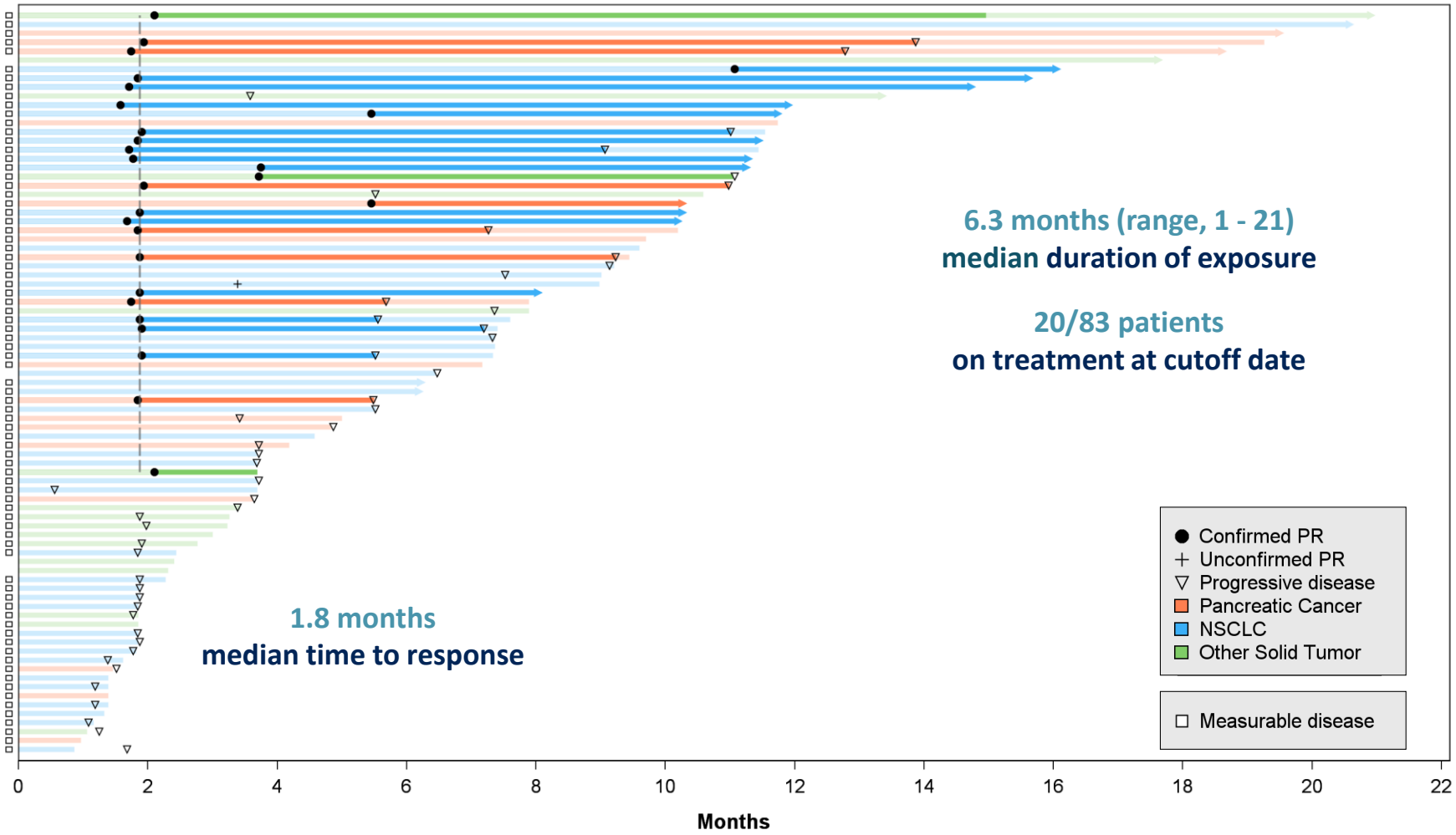
Best Percent Change in Target Lesions from Baseline



Note: The waterfall plot shows data for 75 of 79 patients. Change in tumor size could not be measured for 4 of the 79 patients, 3 due to absence of post baseline assessment (early progression) and one due to incomplete assessment.

Zenocutuzumab Activity in NRG1+ Cancer

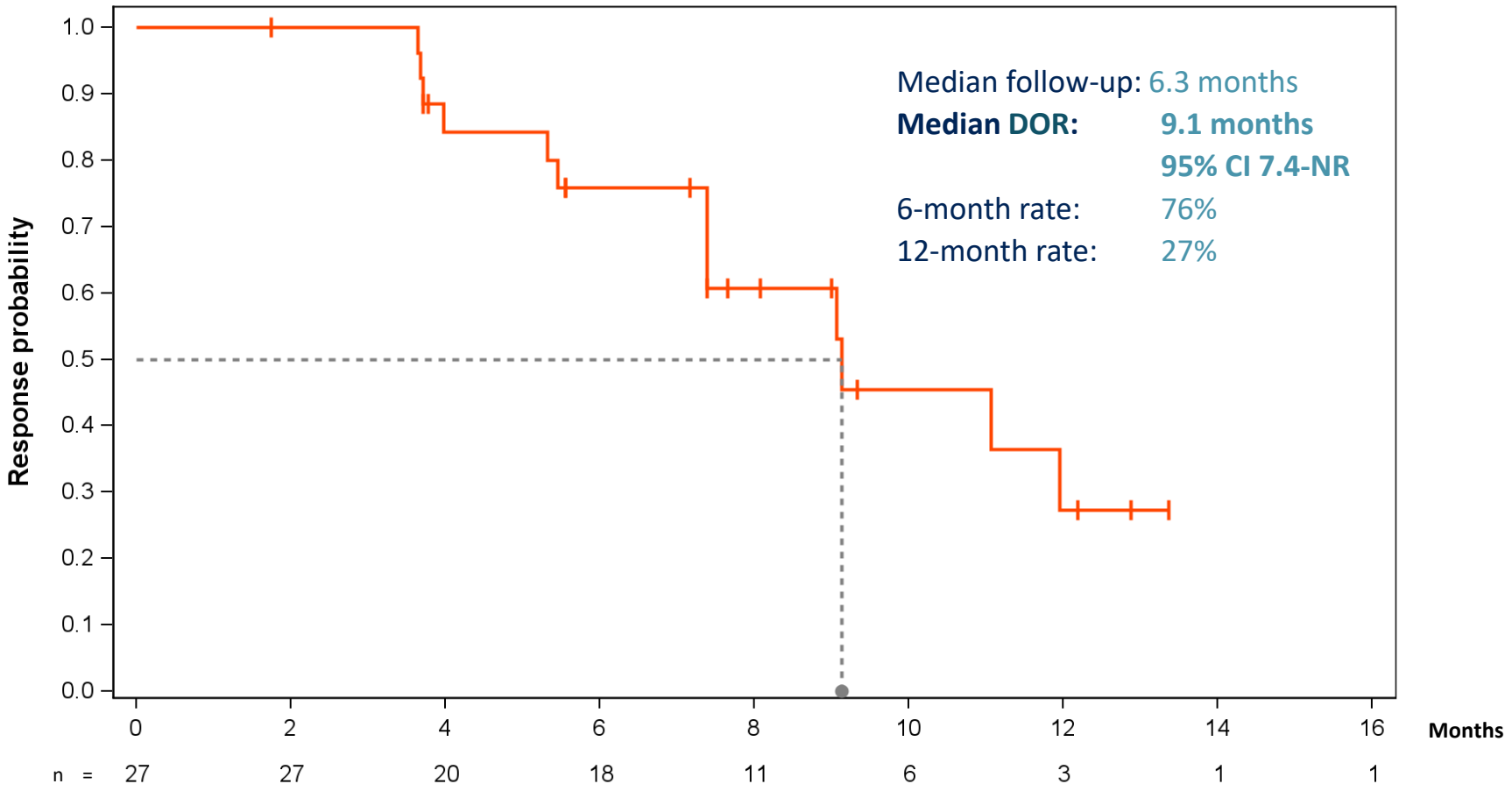
Time to Response and Time on Therapy



Arrows indicate treatment is ongoing at the cutoff date

Zenocutuzumab Activity in NRG1+ Cancer

Duration of Response



Note: 20/83 patients were on treatment at cutoff date

Pharmacokinetics and Immunogenicity

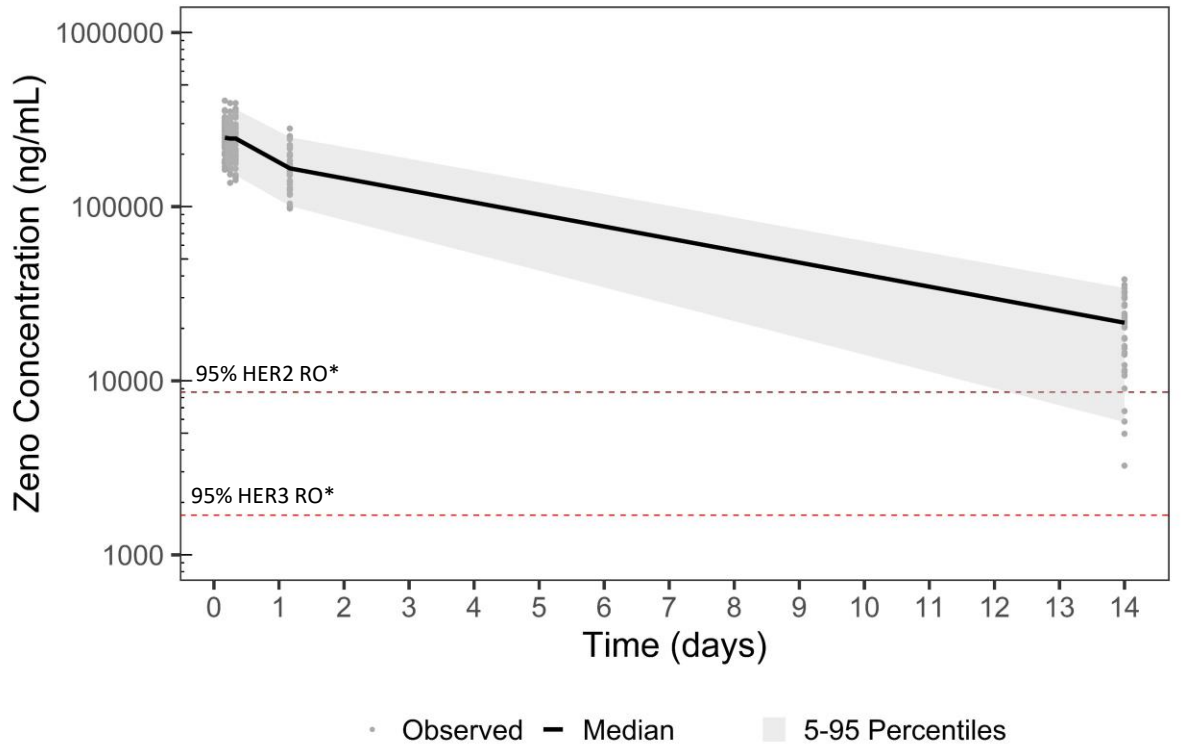
Zenocutuzumab achieved substantial receptor occupancy and was not immunogenic

Key Takeaways

- Mean terminal half-life is approx. 4 days
- >95% receptor occupancy (RO) for HER3 and HER2 predicted for the entire dosing interval in the majority of patients, after the first 750 mg Q2W dose
- No treatment-emergent positive anti-Zeno antibodies observed up to 12 weeks with 750 mg Q2W (based on available data from N=31)

Zeno Serum Concentration vs Time Profile

Patients treated with the first dose of 750 mg (N=45)



** RO based on average of KD values for binding affinities. Geuijen et al. Cancer Cell, 2018.*

Safety Profile

Zenocutuzumab is well tolerated

Key Takeaways

- Safety profile of 208 patients treated with Zeno at the RP2D[1] in the single agent program
- Low incidence of Grade ≥3 treatment-related AEs
- Low incidence of severe gastrointestinal and skin toxicity, and no clinical cardiotoxicity
- <1% of patients discontinued due to AEs

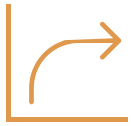
	AEs Irrespective of Causality (>10%)			Treatment-Related AEs (>10% and all Grade 3-5)		
	ALL GRADES	GRADE 3-4	GRADE 5	ALL GRADES	GRADE 3-4[2]	GRADE 5
Patients with ≥1 AE	**92%**	**36%**	**3%**	**61%**	**5%**	**0.5%**
Diarrhea	32%	2%	-	21%	0.5%	-
Asthenia/fatigue	30%	4%	-	12%	0.5%	-
Nausea	20%	1%	-	10%	0.5%	-
Anemia	19%	3%	-	1%	-	-
Infusion-related reaction[3,4]	15%	1%	0.5%	15%	1%	0.5%[3]
Dyspnea	14%	4%	-	2%	0.5%	-
Vomiting	13%	0.5%	-	4%	-	-
Abdominal pain	12%	1%	-	2%	0.5%	-
Constipation	11%	-	-	2%	-	-
Decreased appetite	10%	0.5%	-	4%	-	-
AST increase	9%	3%	-	2%	0.5%	-
Cough	8%	0.5%	-	1%	0.5%	-
ALT increase	7%	3%	-	1%	0.5%	-
Myalgia	4%	0.5%	-	2%	0.5%	-
Neutropenia	3%	1%	-	2%	0.5%	-
Hypertension	1%	1%	-	0.5%	0.5%	-
Platelet count decrease	1%	0.5%		0.5%	0.5%	-
Hyperuricemia	0.5%	0.5%	-	0.5%	0.5%	-
Lymphadenitis	0.5%	0.5%	-	0.5%	0.5%	-
Hypoxia	0.5%	0.5%	-	0.5%	0.5%	-
Bacteremia	0.5%	0.5%	-	0.5%	0.5%	-

Safety data cut off:12-Jan-2022
1. 101 patients with 750 mg Q3W; 26 patients with QW; 81 patients with 750 mg Q2W

2. No Grade 4 treatment-related AEs reported
3. One Grade 5 hypersensitivity (previously reported; Alsina et al. ASCO, 2017)
4. Composite term covering preferred terms considered by the investigator to be IRRs occurring within 24 hours of infusion start

Zenocutuzumab

Conclusions



Durable responses in previously treated advanced NRG1+ cancer

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

Extremely well tolerated safety profile

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

Offers potential new standard of care for patients with NRG1+ cancer

- Currently no approved targeted therapy for NRG1+ cancer
- Significant unmet medical need

Merus

Launch Plan for Potentially First and Best in Class Treatment

Establish Zeno as the Standard of Care for NRG1+ Cancer

1. Raise awareness of NRG1 as an oncogenic driver
2. Maximize upfront testing for NRG1 to identify appropriate patients and guide treatment decisions
3. Differentiate Zeno as the preferred choice for NRG1+ cancers
4. Provide rapid access to Zeno by minimizing barriers for patients & HCP's

Merus

Innovative Merus Technology Platform

Zeno is potentially a new NRG1+ specific & tumor agnostic standard of care

NRG1 fusions are new, clinically actionable oncological targets

Zeno has **demonstrated clinical activity** across multiple NRG1+ tumor types and fusion partners

Zeno is **well-tolerated** and has a patient-friendly every other week dosing regimen

On track for a **BLA filing for Zeno in NRG1+ cancer** for patients who have received prior standard therapy

Potential first and best in class medicine for NRG1+ cancer

Merus

Q&A

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