BCMA-Directed Therapy in Multiple Myeloma — Expert Opinions and Patient Perspectives

Part 1 of a 2-Part CME/MOC-Accredited Virtual Series

Wednesday, October 26, 2022 5:00 PM – 6:00 PM ET

Faculty Elizabeth O'Donnell, MD



Faculty



Elizabeth O'Donnell, MD Director of Early Detection and Prevention Dana-Farber Cancer Institute Harvard Medical School Boston, Massachusetts



Jesús G Berdeja, MD Director of Multiple Myeloma Research Tennessee Oncology Nashville, Tennessee



MODERATOR Neil Love, MD Research To Practice



Natalie S Callander, MD Director, Myeloma Clinical Program Interim Director, Bone Marrow Transplant Program University of Wisconsin Carbone Cancer Center Madison, Wisconsin



Commercial Support

This activity is supported by educational grants from Bristol-Myers Squibb Company, GlaxoSmithKline, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, and Regeneron Pharmaceuticals Inc.



Dr Love — Disclosures

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Dr Berdeja — Disclosures

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Dr Callander — Disclosures

No relevant conflicts of interest to disclose.

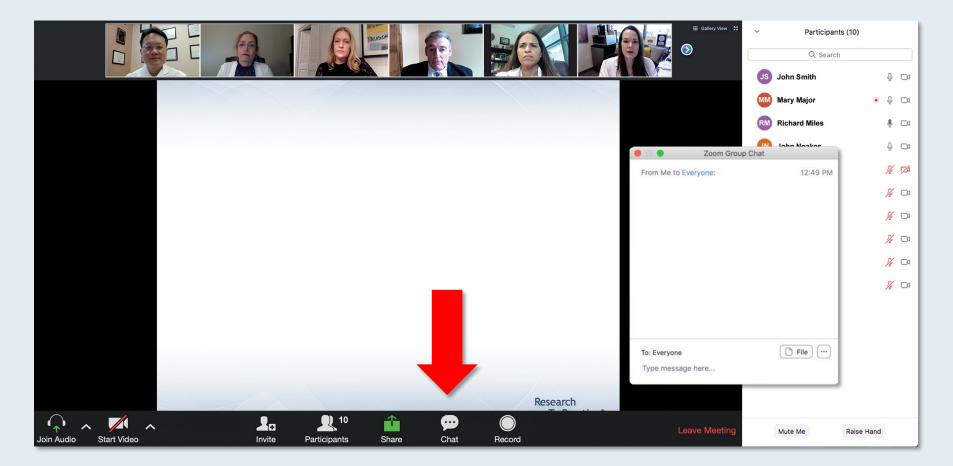


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We Encourage Clinicians in Practice to Submit Questions

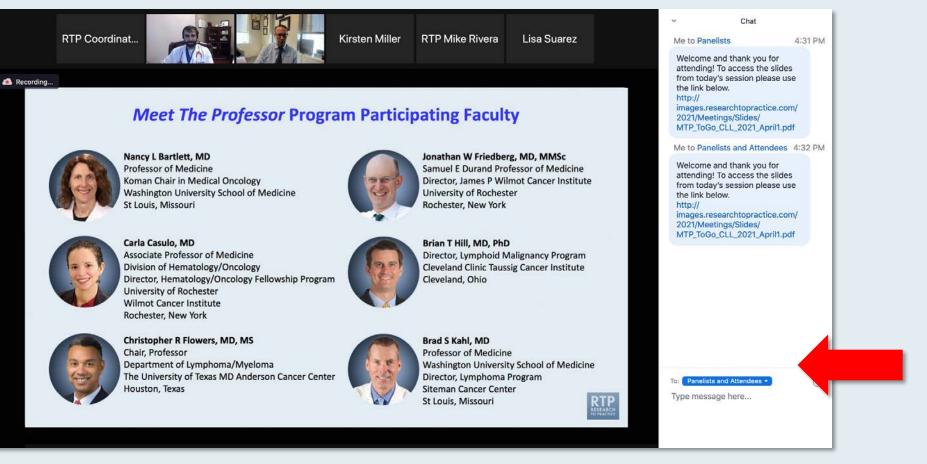


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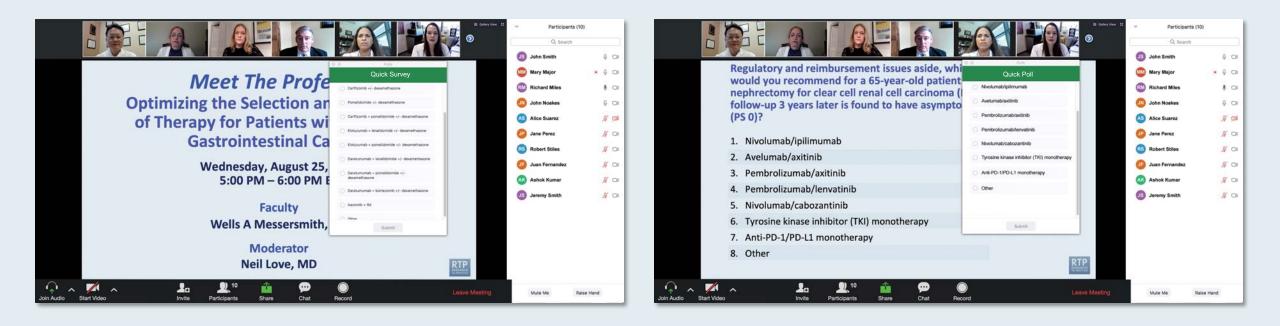
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Press Command (for Mac) or Control (for PC) and the + symbol. You may do this as many times as you need for readability.



Clinicians in the Audience, Please Complete the Pre- and Postmeeting Surveys





ONCOLOGY TODAY WITH DR NEIL LOVE

BCMA-Directed Therapies for Multiple Myeloma



DR AMRITA KRISHNAN









Dr Amrita Krishnan – BCMA-Directed Oncology Today with Dr Neil Love —

(15) (30)

Current Paradigm and Future Directions for Immunotherapy in the Treatment of Metastatic Non-Small Cell Lung Cancer

A CME/MOC-Accredited Virtual Event

Tuesday, November 1, 2022 5:00 PM – 6:00 PM ET

Faculty John V Heymach, MD, PhD Stephen V Liu, MD



Consensus or Controversy? Documenting and Discussing Clinical Investigators' Practice Patterns in Ovarian Cancer

A CME/MOC-Accredited Virtual Event

Thursday, November 3, 2022 5:00 PM – 6:00 PM ET

Faculty Ursula Matulonis, MD Debra L Richardson, MD



Meet The Professor Optimizing the Management of HER2-Positive Breast Cancer

> Tuesday, November 8, 2022 5:00 PM – 6:00 PM ET

> > Faculty Lisa A Carey, MD, ScM



Meet The Professor Optimizing the Management of Multiple Myeloma

> Tuesday, November 15, 2022 5:00 PM – 6:00 PM ET

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Emerging Role of Antibody-Drug Conjugates in the Management of Non-Small Cell Lung Cancer

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What Clinicians Want to Know: Addressing Current Questions and Controversies in the Management of Breast Cancer

A 2-Part CME Satellite Symposium Series Held in Conjunction with the 2022 San Antonio Breast Cancer Symposium[®]

HER2-Positive Breast Cancer Wednesday, December 7, 2022 7:15 PM – 9:15 PM CT ER-Positive Breast Cancer Thursday, December 8, 2022 7:15 PM – 9:15 PM CT



Addressing Current Questions and Controversies in the Management of Hematologic Cancers — What Clinicians Want to Know

A 3-Part CME Friday Satellite Symposium and Virtual Event Series Preceding the 64th ASH Annual Meeting

Chronic Lymphocytic Leukemia Friday, December 9, 2022 11:30 AM – 1:30 PM CT Hodgkin and Non-Hodgkin Lymphoma Friday, December 9, 2022 3:15 PM – 5:15 PM CT

Multiple Myeloma Friday, December 9, 2022 7:00 PM – 9:00 PM CT



Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.



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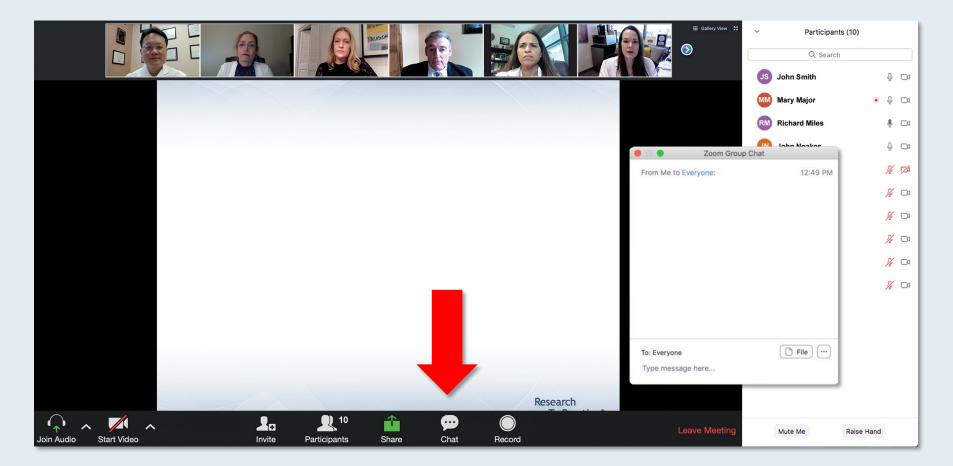
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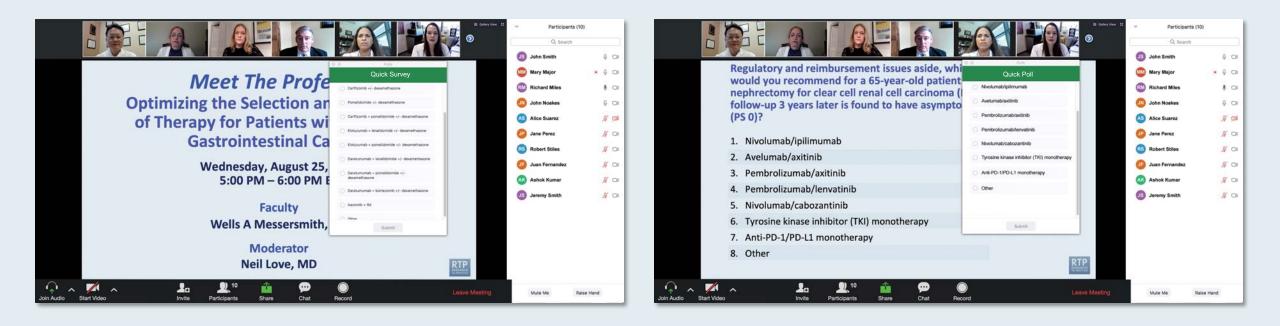
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Dr Callander — Disclosures

No relevant conflicts of interest to disclose.



Dr O'Donnell — Disclosures

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Agenda

INTRODUCTION: Quality of Life in Multiple Myeloma

MODULE 1: CAR T-Cell Therapy

• Dr Berdeja: 58-year-old woman with multiregimen-refractory MM receives ciltacabtagene autoleucel

MODULE 2: Bispecific Antibodies

 Dr Berdeja: 50-year-old frail woman with multiregimen-refractory MM and numerous bone lesions receives teclistamab on a clinical trial

MODULE 3: Belantamab Mafodotin

 Dr Callander: 62-year-old woman with multiregimen-refractory MM who began treatment with belantamab mafodotin on the DREAMM-2 trial in 2018 remains on therapy

MODULE 4: Ongoing Trials; Reported Data; Review Articles



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FDA Approves Teclistamab-cqyv for Relapsed or Refractory Multiple Myeloma Press Release: October 25, 2022

"On October 25, 2022, the Food and Drug Administration granted accelerated approval to teclistamab-cqyv, the first bispecific B-cell maturation antigen (BCMA)-directed CD3 T-cell engager, for adult patients with relapsed or refractory multiple myeloma who have received at least four prior lines of therapy, including a proteasome inhibitor, an immunomodulatory agent, and an anti-CD38 monoclonal antibody.

Teclistamab-cqyv was evaluated in MajesTEC-1 (NCT03145181; NCT04557098), a single-arm, multi-cohort, open-label, multi-center study. The efficacy population consisted of 110 patients who had previously received at least 3 prior therapies, including a proteasome inhibitor, an immunomodulatory agent, and an anti-CD38 monoclonal antibody, and had not received prior BCMA-targeted therapy.

The prescribing information for teclistamab-cqyv has a Boxed Warning for life threatening or fatal cytokine release syndrome (CRS) and neurologic toxicity, including immune effector cell-associated neurotoxicity (ICANS)."



Quality of Life, Psychological Distress, and Prognostic Awareness in Patients with Multiple Myeloma

O'Donnell EK et al. ASH 2021;Abstract 4082.



Cancer 2022 May 15;128(10):1996-2004.

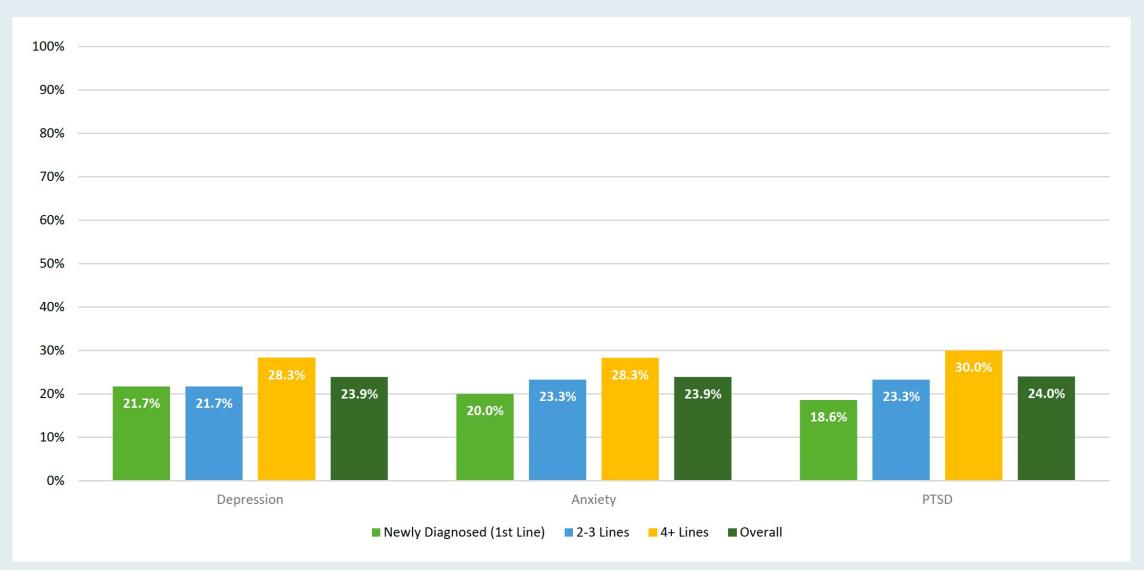
Original Article

Quality of life, psychological distress, and prognostic perceptions in patients with multiple myeloma

Elizabeth K. O'Donnell, MD D^{1,2}; Yael N. Shapiro, BA¹; Andrew J. Yee, MD^{1,2,3}; Omar Nadeem, MD^{2,4}; Bonnie Y. Hu, BS¹; Jacob P. Laubach, MD^{2,4}; Andrew R. Branagan, MD, PhD^{1,2}; Kenneth C. Anderson, MD^{2,4}; Clifton C. Mo, MD^{2,4}; Nikhil C. Munshi, MD^{2,4}; Irene M. Ghobrial, MD^{2,4}; Adam S. Sperling, MD^{2,4,5}; Emerentia A. Agyemang, NP¹; Jill N. Burke, NP¹; Cynthia C. Harrington, NP¹; Paul G. Richardson, MD^{2,4}; Noopur S. Raje, MD^{1,2}; and Areej El-Jawahri, MD D^{1,2}



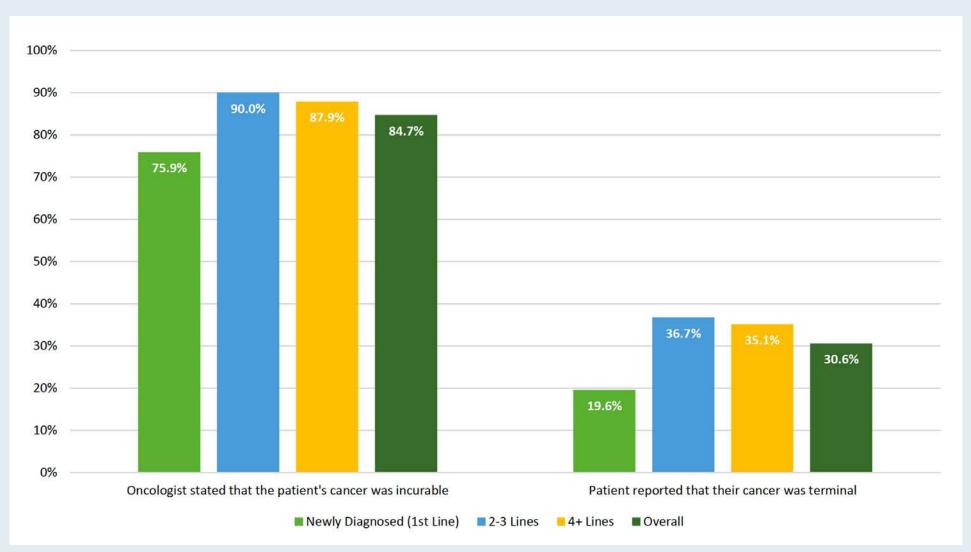
Psychological Distress by Line of Therapy





O'Donnell EK et al. Cancer 2022 May 15;128(10):1996-2004.

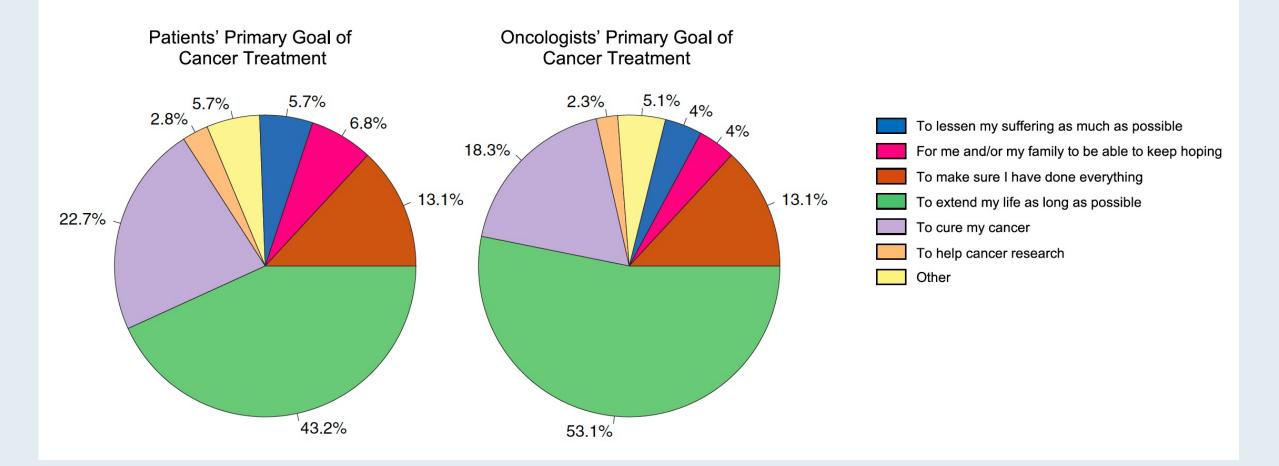
Patient-Reported Perceptions of Incurability and Acknowledgment of Terminal Illness





O'Donnell EK et al. Cancer 2022 May 15;128(10):1996-2004.

Patient Goals of Treatment and Patient Perceptions of Oncologist Goals of Treatment





O'Donnell EK et al. *Cancer* 2022 May 15;128(10):1996-2004.

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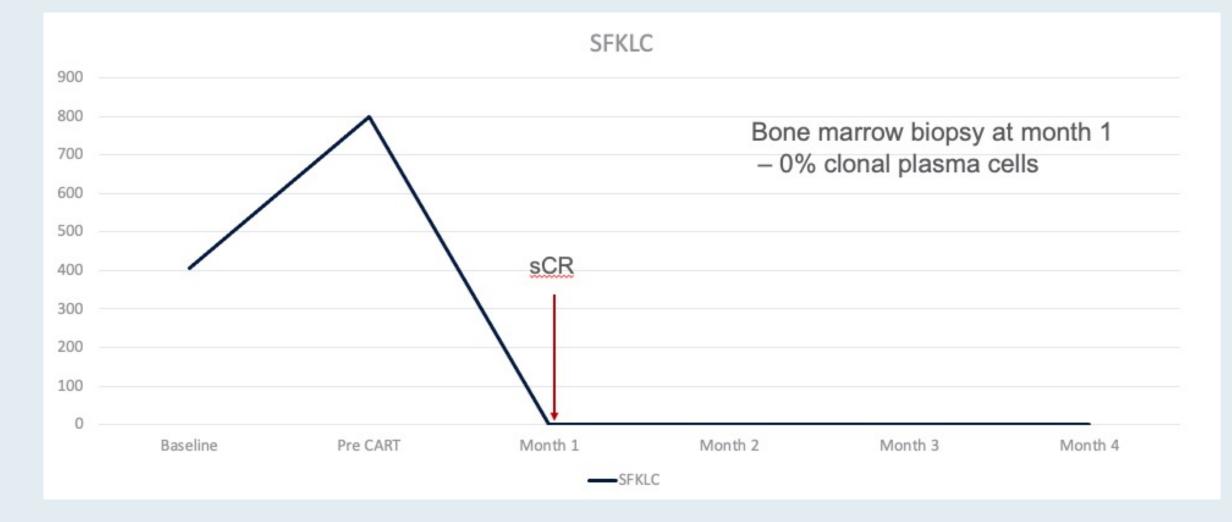
Case Presentation: 58-year-old woman with multiregimenrefractory MM receives ciltacabtagene autoleucel and develops cytokine release syndrome



Dr Jesús Berdeja (Nashville, Tennessee)



Response Assessment





MRD Negative by NGS @ 10⁻⁶ at 30 days

No Residual Sequences Detected

ESTIMATED MRD VALUE:

0 residual clonal cells (Range: 0 - <1) **

Total nucleated cells evaluated from this sample: 3,222,559

The MRD range presented above represents the 95% confidence interval for the measured number of residual clonal sequences per million nucleated cells. Details for each identified dominant sequence from this sample are provided on subsequent pages of this report.

RESULTS SUMMARY

- · Genomic DNA was extracted from a fresh bone marrow sample.
- The 2 dominant sequences identified in a diagnostic sample from this patient were not detected in this current sample.
- ** The sensitivity of this assay is directly related to the total number of cells (or cellular equivalents of genomic DNA) analyzed. There were 3,222,559 total nucleated cells evaluated from this sample.
- The results obtained from this assay should always be used in combination with the clinical examination, patient medical history, and other findings.







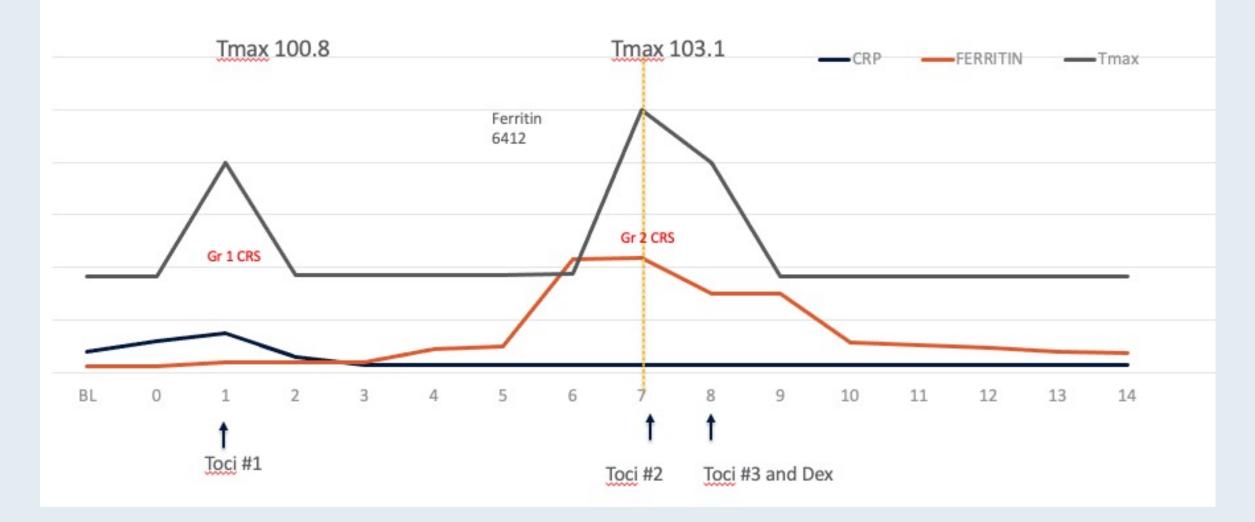
Case Presentation: 58-year-old woman with multiregimenrefractory MM receives ciltacabtagene autoleucel and develops cytokine release syndrome (continued)



Dr Jesús Berdeja (Nashville, Tennessee)



CRS: Temperature, CRP and ferritin





Patient Comments: Experiences with pathologic fractures and relapsed disease; importance of physician support; coping with stress and anxiety



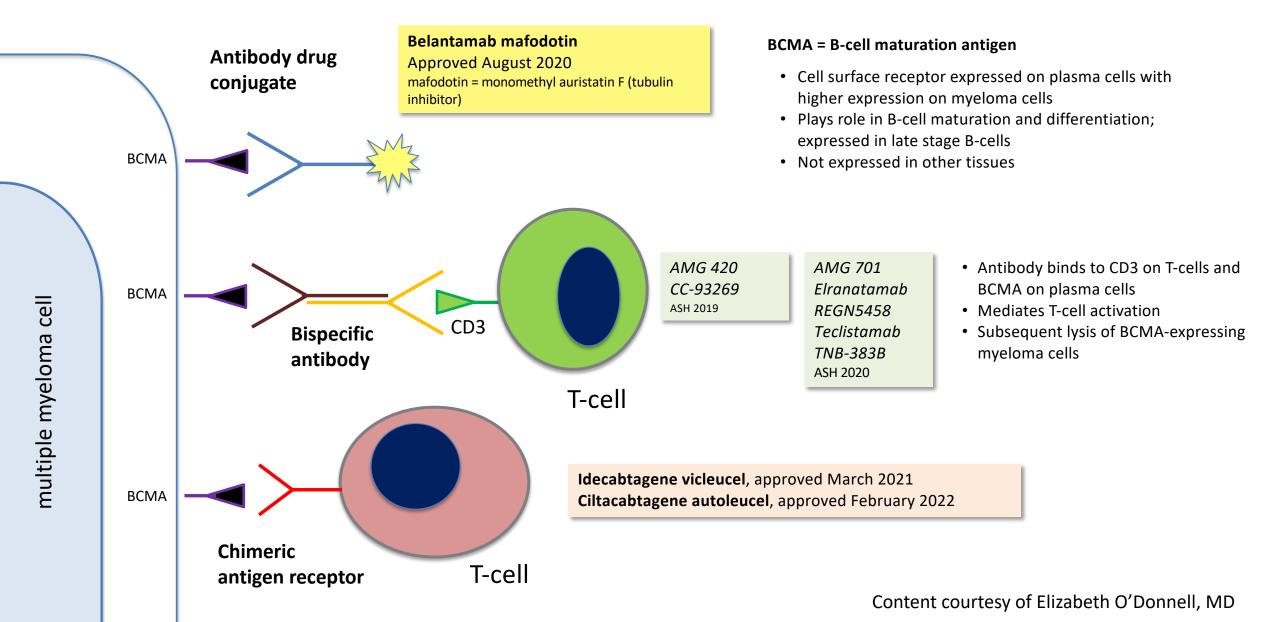


Patient Comments: Personal experience with CAR T-cell therapy





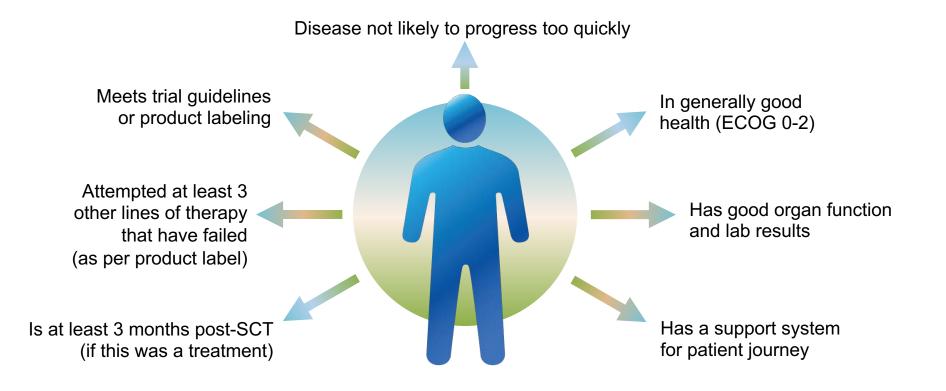
Therapies targeting BCMA



Targeting BCMA may be is a new standard

	Antibody drug conjugate	Bispecific antibody	CAR T-cell
Approved product	Belantamab mafodotin (August 2020)	Several in phase II	Ide-cel and cilta-cel
Efficacy	++ (as single agent; higher in combinations)	+++	++++
How given	IV, q3 weeks, until progression	IV or SC, weekly or q2 weeks until progression	One-and-done
Where given	Community	Academic medical centers	Academic medical centers
Notable adverse events	Ocular (corneal)	CRS and neurotoxicity	CRS and neurotoxicity
CRS	Not seen	++	+++
Neurotoxicity	Not seen	+	++
Availability	Off-the-shelf; after ophthalmology evaluation	Off-the-shelf	Wait time for manufacturing

What Type of Patient Is Eligible for CAR T Therapy?



**In general, more patients would be eligible for CAR T-cell therapy compared to stem cell transplantation

References: 1. Dave H, et al. *Curr Hematol Malig Rep.* 2019. doi.org/10.1007/s11899-019-00544-6. 2. Beaupierre A, et al. *Clin J Oncol Nursing*. 2019;23(2):27-34. 3. Perica K, et al. *Biol Blood Marrow Transplant*. 2018;24:1135-1141. 4. Cohen AD. American Society of Clinical Oncology Educational Book 38 (May 23, 2018) e6-e15. doi: 10.1200/EDBK_200889.

Content courtesy of Elizabeth O'Donnell, MD

Which patient to refer?

An expert panel consensus covering patient selection for CAR T cell therapy

- The International Myeloma Society gathered investigators from BCMA CAR T cell registration trials to reach a consensus on patient eligibility
- Patient eligibility is determined prior to leukapheresis

An expert panel consensus: Patient eligibility

Patients who have received at least three prior MM treatment regimens:

- Including a PI, an IMiD[®] agent and an anti-CD38 mAb
- Best to refer prior to the label indication for planning

Patients who have progressive disease:

- Do not need to be refractory to the last treatment regimen; stable disease or minimal response are acceptable
- •Do not need traditional measurable disease; imaging is adequate

No age limit for eligibility to receive CAR T cell therapy:

If patients are over
 75 then they will be
 judged on an
 individual basis

Patients must be willing and able to adhere to the clinic visit schedule:

Daily assessments: Ide-cel (7 days) Ciltacel (10 days)

Must stay locally for 30 days

CAR, chimeric antigen receptor; IMiD[®], immunomodulatory drug; mAb, monoclonal antibodies; MM, multiple myeloma; PI, proteasome inhibitor.

Factors impacting CAR T cell therapy outcomes and the risk of toxicities (2)



Patients with any disease burden may be eligible for CAR T cell therapy

- Patients with higher disease burden may have a higher likelihood of CRS
- -Cytoreduction may be considered after initial evaluation Important to keep disease stable throughout the entire process



Important considerations for leukapheresis

It is preferable to avoid agents with an effect on lymphocyte count, such as bendamustine, melphalan, or cyclophosphamide, within 6 months prior to treatment
A 4-week interval from any other treatment is adequate but not

mandated



Prior treatment history

• Patients with a history of allogeneic SCT, or treatment with any gene therapy, investigational cellular cancer therapy, or BCMAtargeted therapy, should be evaluated for BCMAdirected CAR T cell therapy -Data in patients with previous BCMA directed therapies are lacking -Prior exposure to belantamab or bispecific antibodies may impact therapy

BCMA, B cell maturation antigen; CAR, chimeric antigen receptor; CRS, cytokine release syndrome; SCT, hematopoietic stem cell transplantation.

Content courtesy of Elizabeth O'Donnell, MD

An expert panel consensus: Comorbidities and relevant considerations (1)

Cardiorespiratory

Well managed and compensated cardiorespiratory comorbidities are acceptable.

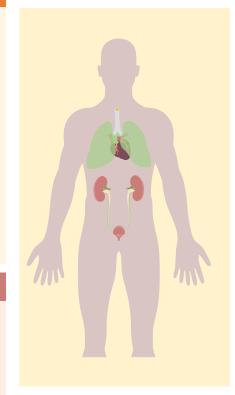
Close evaluation is required for patients presenting with the following conditions within 6 months prior to CAR T cell therapy, before proceeding with plans for therapy:

- •Class III or IV congestive heart failure
- •Severe non-ischemic cardiomyopathy
- Unstable or poorly controlled angina
- Myocardial infarction
- •Ventricular arrhythmia

Renal function

Patients with adequate renal function defined as CrCl ≥ 30 mL/min using Cockcroft-Gault equation, will be included

Decreased renal function would require dose reduction for fludarabine and cyclophosphamide during lymphodepletion



Comorbidities and relevant considerations (2)

CNS

Subjects with known CNS involvement with myeloma could be investigated for CAR T cell therapy.

- Patients with remote history (> 6 months) of well-controlled CNS pathology^a may not be excluded
- Patients with active or ongoing clinically relevant CNS disease may require a delay in consideration for CAR T cell therapy

Viral

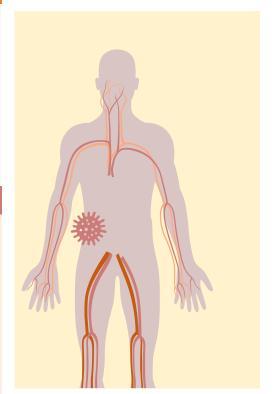
CAR T cell therapy should be deferred for patients with active viral infection e.g. HCV, HBV or HIV.

Some patients are eligible, including:

- Patients who had HCV but have received an antiviral treatment and show no detectable HCV viral RNA for 6 months
- Patients with known HBV infection and undetectable HBV viral load, maintained on antiviral therapy to prevent reactivation should be considered
- Patients who are hepatitis B surface antigen (HBsAg) negative and HBV viral DNA negative

Immune status

Patients considered for CAR T cell therapy irrespective of their immune status



^aIncluding seizure, paresis, aphasia, stroke, subarachnoid hemorrhage or other CNS bleed, severe brain injuries, dementia, Parkinson's disease and cerebellar disease.

CAR, chimeric antigen receptor; CNS, central nervous system; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus.

Content courtesy of Elizabeth O'Donnell, MD

Important patient history considerations for eligibility





Patient on chronic immunosuppressants^a should be considered with a possibility to hold it during CAR T cell therapy.

Ongoing treatment with intermittent topical, inhaled or intranasal corticosteroids is allowed



Patients on anticoagulation should have no active bleeding and should be safe to be taken off anticoagulation

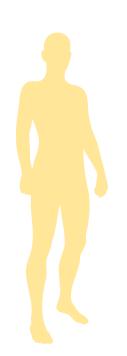


Patients with known hypersensitivity to any component of CAR T product, cyclophosphamide, fludarabine or tocilizumab may not be eligible to undergo CAR T cell therapy

^aFor example, cyclosporine or systemic steroids at any dose. CAR, chimeric antigen receptor.

Content courtesy of Elizabeth O'Donnell, MD

Factors impacting CAR T cell therapy outcomes and the risk of toxicities (1)



Adequate bone marrow function is not a prerequisite for consideration for CAR T cell therapy

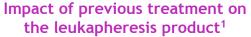
- •There are minimal blood count requirements for a patient to be considered for therapy
- A low count (ANC < 1000 cells/mm³ and/or platelet count < 50,000 mm³) may impact production of adequate CAR T cells, and may also increase risk of more prolonged cytopenia following lymphodepletion

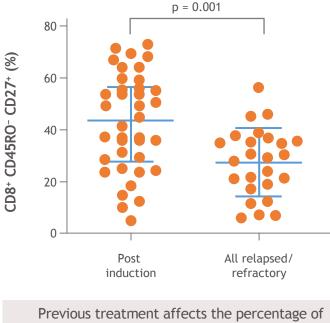


Patients with significant amyloidosis should be eligible if they have adequate cardiac and renal function

It is important to plan early for CAR T cell therapy

- Patients should be considered for CAR T cell therapy as early as eligible
 - T cells from patients early in their treatment journey generate a more effective CAR T cell product than cells from heavily pre-treated RRMM¹
- Timely referral to authorized CAR T cell therapy centers is key
 - Clear communication and discussion about CAR T cell therapy at an early stage is recommended
- Checklists exist to help physicians determine eligibility and plan for the CAR T cell therapy process²





memory T cells in the leukapheresis product (also affects the CD4/CD8 ratio)

CAR, chimeric antigen receptor; RRMM, relapsed refractory multiple myeloma.

1. Garfall AL, et al. Blood Adv. 2019;3:2812-15. 2. Yakoub-Agha I, et al. Haematologica 2020;105:297–316.

Considerations for treatment

Managing patients before and after CAR T cell infusion

Logistical Considerations



How far is the closest treatment center and what CAR T products do they offer?



Can the patient travel or remain close to the center for extended periods of time (~4 weeks)?



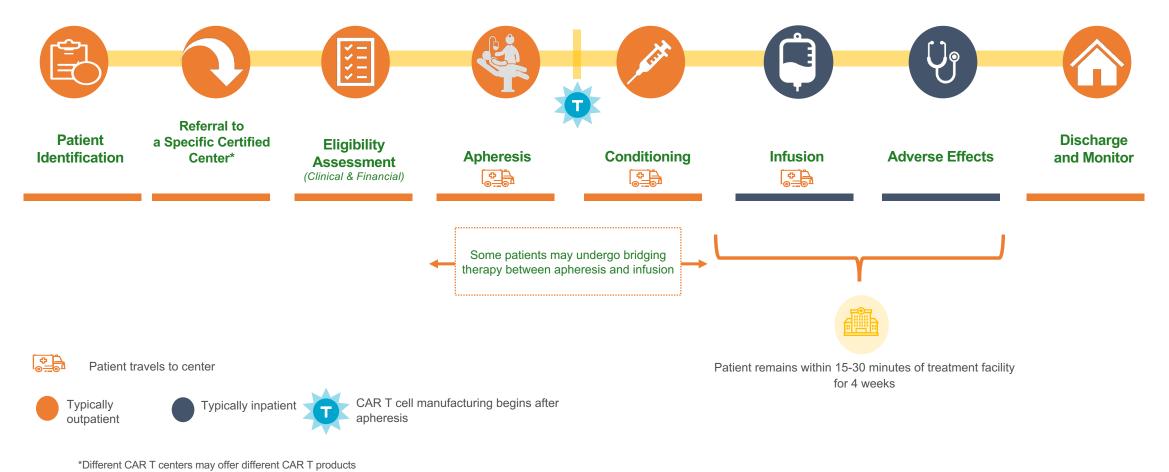
Does the patient have the ability to pay for treatment either through insurance coverage or other financing options?

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When is the optimal time to harvest cells for best results?

References: 1. Dave H, et al. Curr Hematol Malig Rep. 2019. doi.org/10.1007/s11899-019-00544-6. 2. Perica K, et al. Biol Blood Marrow Transplant. 2018;24:1135-1141. 3. Beaupierre A, et al. Clin J Oncol Nursing. 2019;23(2):27-34.

The Patient Journey Through CAR T Therapy Involves Coordination Between Referring Physician and Treatment Center



Apheresis procedure

Objective: collection of T cells for the CAR T cell manufacturing process

Minimum threshold of lymphocyte count:

Not required for some products When required, it varies between manufacturers (e.g. 0.3×10^9 /L) Steroids (e.g. dexamethasone) prior to apheresis are prohibited (due to lymphodepleting activity)

2 weeks wash-out time is recommended

Minimum wash-out time for antimyeloma treatment:

2 weeks for standard agents (proteasome inhibitors, IMiD[®] agents, chemotherapy)

3 weeks for monoclonal antibodies Central venous catheter may be required

Volume of blood required is either according to PBMC counts or as per manufacturer's instructions (e.g. $2-20 \times 10^9$ PBMCs)

CAR, chimeric antigen receptor; IMiD[®], immunomodulatory drug; PBMC, peripheral blood mononuclear cell.

Bridging therapy

Objective: to control the disease during the CAR T cell manufacturing process

Further reduction of underlying myeloma can:

Maintain the patient in a good condition and preserve organ function (e.g. kidney function)

Reduce the risk for severe adverse events associated with CAR T cell infusion

If new options are not available, retreatment with a previous regimen can be considered **Bridging therapies associated with a significant risk of toxicity** (e.g. combination chemotherapy) **are to be avoided**

During the bridging period patients should be:

Discouraged from traveling

Encouraged to carefully follow infectionprevention measures

Bridging therapy needs to be discontinued at least 2 weeks before CAR T cell infusion

CAR, chimeric antigen receptor.

Practical Real-World Considerations

- Most commonly used first line regimen RVD +/- ASCT, with increasing use of quadruplets with the addition
 of daratumumab
- Patients frequently on multiagent maintenance therapy with lenalidomide +/- a proteasome inhibitor +/daratumumab depending on risk of disease
- Increasing numbers of patients are **refractory to CD38 monoclonal antibodies** earlier in the disease course
- Thus, a patient may become **triple class refractory** as early as second line and frequently in 3rd line
- This would be ideal time for referral so subsequent **salvage therapy** can be planned in anticipation of CAR T-cell therapy
- Supply constraints with CAR T-cell therapy ongoing and demand is likely to exceed supply for the foreseeable future
- Other BCMA-directed therapy with bispecific antibodies and antibody-drug conjugates and optimal sequence remains an open question

What's next for CAR T-cell therapy

- Some of the highest response rates seen in this patient population with challenging disease
- Progression-free survival, on average, 9 months-1 year with ide-cel; nearly two years with cilta-cel
- Using CAR T-cells earlier in disease course
 - Lymphocytes may be more fit
 - Disease may be easier to treat earlier in disease course
- Using CAR T-cells as first-line of therapy, instead of autologous stem cell transplant, in clinical trials in high-risk disease
- Ongoing randomized study, KarMMa-3, comparing ide-cel v. SOC in patients with 2-4 prior lines of therapy
- Other targets besides BCMA, e.g. TACI
- Allogeneic CAR T-cells
 - Source of lymphocytes is from healthy donors; do not have to wait for manufacturing of autologous cells

Agenda

INTRODUCTION: Quality of Life in Multiple Myeloma

MODULE 1: CAR T-Cell Therapy

• Dr Berdeja: 58-year-old woman with multiregimen-refractory MM receives ciltacabtagene autoleucel

MODULE 2: Bispecific Antibodies

 Dr Berdeja: 50-year-old frail woman with multiregimen-refractory MM and numerous bone lesions receives teclistamab on a clinical trial

MODULE 3: Belantamab Mafodotin

 Dr Callander: 62-year-old woman with multiregimen-refractory MM who began treatment with belantamab mafodotin on the DREAMM-2 trial in 2018 remains on therapy

MODULE 4: Ongoing Trials; Reported Data; Review Articles



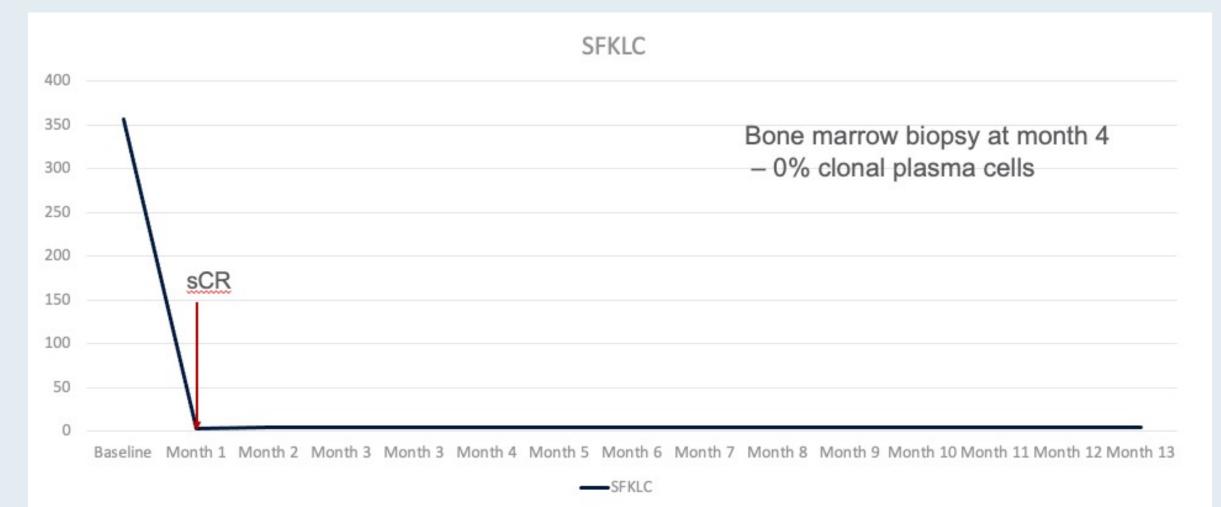
Case Presentation: 50-year-old frail woman with multiregimen-refractory MM and numerous bone lesions receives teclistamab on a clinical trial



Dr Jesús Berdeja (Nashville, Tennessee)



Response Assessment





Case Presentation: 50-year-old frail woman with multiregimen-refractory MM and numerous bone lesions receives teclistamab on a clinical trial (continued)



Dr Jesús Berdeja (Nashville, Tennessee)



CRS: Temperature Curve





Questions and Comments: CAR T-cell therapy versus bispecific antibodies



Dr Jesús Berdeja (Nashville, Tennessee)



Questions and Comments: Administration of bispecific antibodies in the community setting



Dr Jesús Berdeja (Nashville, Tennessee)



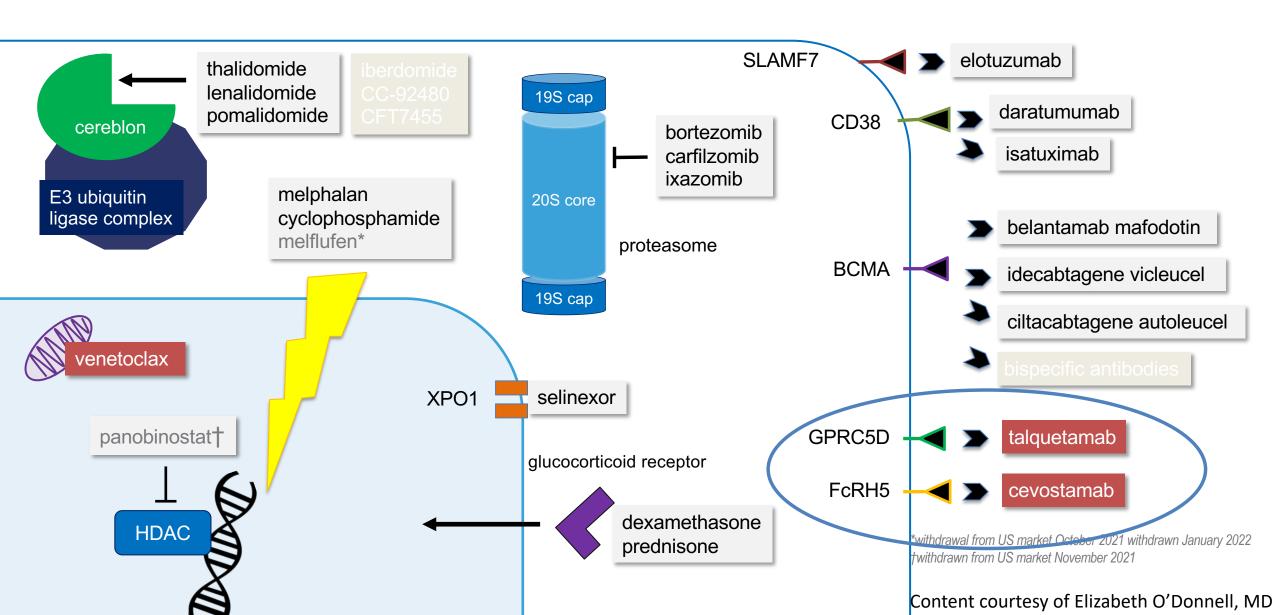
BCMA x CD3 Bispecific Antibodies: Summary

Therapy	Characteristics	N	Population	Safety	Response	DOR/PFS
Teclistamab ¹	 Bispecific IV/SC (RP2D: 1500µg/kg SC) Weekly and every other week in f/u 	157	 At SC cohorts: Median of 5PL 79% triple refractory 38% penta refractory 	 At RP2D: CRS 70% G1-2 Neurotox 1% (G1) Infections 50% 	At RP2D, ORR: 65% with 40% sCR/CR	No mature data
AMG701 ²	BiTE modifiedIVWeekly	82	Median of 6PL62% triple refractory	 CRS 55%, G3-4: 9% No ICANS 20% cytopenias 	83% ORR at the top dose level and 50% VGPR	No mature data
REGN5458 ³	 Bispecific IV Weekly and every other week C4-> 	49	 Median of 5PL 100% triple refractory 57% penta refractory 	 CRS 39%, no G3-4 ICANS 12% cytopenias 47% and infections 18% 	62.5% at 96 mg and 95% of responders were VGPR. Some CR in lower dose levels	Preliminary median DOR: 6m
TNB-383B⁴	 Triple chain anti-BCMA bispecific IV fixed doses Every 3 weeks 	58	 Median of 6PL 64% triple refractory 34% penta refractory 	 CRS 45% and no G3-4 No ICANS Cytopenias 21% and infections 14% 	80% (13% CR) at the dose levels 40-60 mg	No mature data
PF-3135⁵	 Bispecific SC and weekly RP2D: 1000 µg/kg 	30	 Median of 8PL 87% triple refractory 23% prior BCMA-based therapy 	 CRS 73% and no G3-4 ICANS 20% ISR 50% 	83% ORR at RP2D	No mature data

1. Usmani SZ et al. Lancet 2021. 2. Harrison SJ, et al. Presented at ASH 2020. Abstract 181. 3. Madduri D, et al. Presented at ASH 2020. Abstract 291. 4. Rodriguez C, et al. Presented at ASH 2020. Abstract 293.5. Bahlis NJ, et al. Presented at ASCO 2021. Abstract 8006.

Content courtesy of Elizabeth O'Donnell, MD

Emerging drugs for multiple myeloma: bispecific antibodies targeting GPRC5D or FcRH5



Novel Bispecific Antibodies

Therapy	Characteristics	N	Population	Safety	Response	DOR/PFS
Talquetamab ¹	 G protein-coupled receptor family C group 5 member D (GPRC5D) x CD3 bispecific antibody IV or SC admin 	184, 30 at RP2D (405 μg/kg)	 Median of 6PL (6PL at RP2D) 76% triple refractory 28% penta refractory 	 Infections in 37% of SC and RP2D patients; G3-4 3% at RP2D Neurotoxicity in 4 SC patients; 2 (7%) at RP2D CRS 73%, G3-4 2% at RP2D 	At RP2D: 70% ORR with ≥ VGPR 60%	No mature data
Cevostamab (BFCR4350A) ²	 FcRH5/CD3 bispecific T-cell engager Q3W IV infusions 	53	 Median of 6PL 72% triple refractory 45% penta refractory 	 Thrombocytopenia 32%, G3-4 25% CRS 76%, G3-4 2% Neurotoxicity 28%, no G3-4 	ORR in ≥3.6/20-mg cohorts: 53% (18/34) in all pts 63% (5/8) in pts with prior anti-BCMA	No mature data

1. Berdeja JG, et al. ASCO 2021. Abstract 8008. 2. Cohen A, et al. ASH 2020. Abstract 292.

ASCO 2022; Abstract 8007.

Teclistamab, a B-Cell Maturation Antigen (BCMA) x CD3 Bispecific Antibody, in Patients With Relapsed/Refractory Multiple Myeloma (RRMM): Updated Efficacy and Safety Results From MajesTEC-1

Ajay K Nooka (anooka@emory.edu)¹, Philippe Moreau², Saad Z Usmani³, Alfred L Garfall⁴, Niels WCJ van de Donk⁵, Jesús San-Miguel⁶, Albert Oriol⁷, Ajai Chari⁸, Lionel Karlin⁹, Maria-Victoria Mateos¹⁰, Rakesh Popat¹¹, Joaquín Martínez-López¹², Surbhi Sidana¹³, Danielle Trancucci¹⁴, Raluca Verona¹⁵, Suzette Girgis¹⁵, Clarissa Uhlar¹⁵, Tara Stephenson¹⁵, Arnob Banerjee¹⁵, Amrita Krishnan¹⁶

¹Winship Cancer Institute, Emory University, Atlanta, GA, USA; ²University Hospital Hôtel-Dieu, Nantes, France; ³Memorial Sloan Kettering Cancer Cent NY, USA; ⁴Abramson Cancer Center, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA; ³Amsterdam, University Medical-Universiteit Amsterdam, Cancer Center Amsterdam, Amsterdam, Netherlands; ⁹University of Navara, Pamplona, Spain; ⁷Hospital Germans Trias I Pu Spain; ⁸Mount Sinal School of Medicine, New York, NY, USA; ⁹Centre Hospitalier Lyon Sud, France; ¹⁰University Hospital of Salamanca/IBSAL/CIC, Salar ¹¹University College London Hospitals, NRS Foundation Trust, London, UK; ¹³Hematología Hospital 12 de Octubre, Madrid, Spain; ¹³Sanford Universit Medicine, Stanford, CA, USA; ¹⁴Janssen Research & Development, Raritan, NJ, USA; ¹²Janssen Research & Development, Spring House, PA, USA; ¹⁶City (Comprehensive Cancer Center, Duarte, CA, USA;

Presented at the 2022 American Society of Clinical Oncology (ASCO) Annual Meeting; June 3-7, 2022; Chicago, IL

N Engl J Med 2022 June 5;[Online ahead of print].

The NEW ENGLAND JOURNAL of MEDICINE

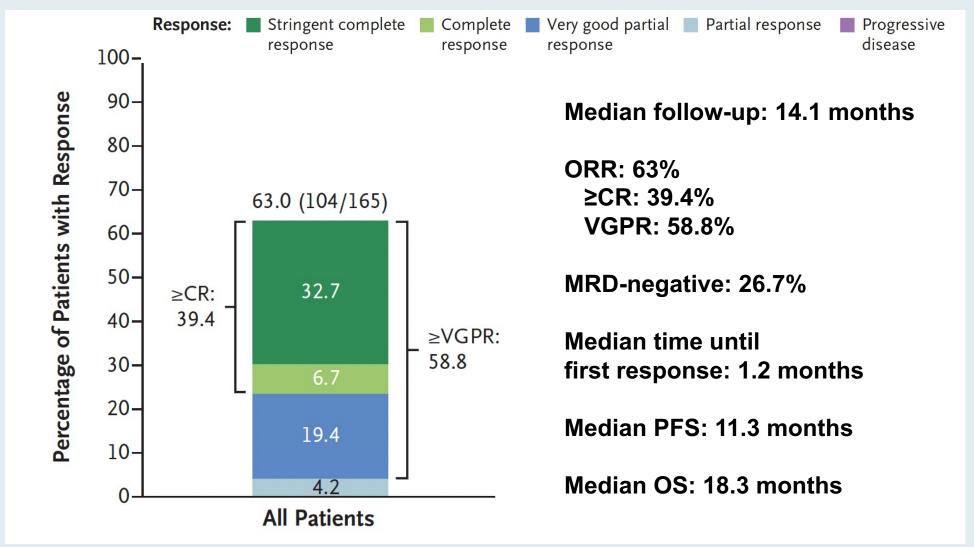
ORIGINAL ARTICLE

Teclistamab in Relapsed or Refractory Multiple Myeloma

P. Moreau, A.L. Garfall, N.W.C.J. van de Donk, H. Nahi, J.F. San-Miguel, A. Oriol, A.K. Nooka, T. Martin, L. Rosinol, A. Chari, L. Karlin, L. Benboubker, M.-V. Mateos, N. Bahlis, R. Popat, B. Besemer, J. Martínez-López, S. Sidana, M. Delforge, L. Pei, D. Trancucci, R. Verona, S. Girgis, S.X.W. Lin, Y. Olyslager, M. Jaffe, C. Uhlar, T. Stephenson, R. Van Rampelbergh, A. Banerjee, J.D. Goldberg, R. Kobos, A. Krishnan, and S.Z. Usmani



MajesTEC-1: Response and Survival

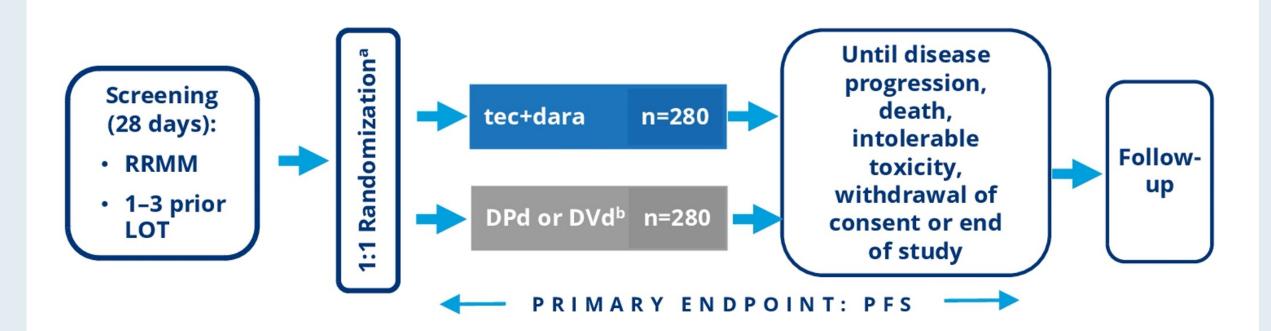


ORR = overall response rate; MRD = minimal residual disease

Moreau P et al. N Engl J Med 2022 June 5;[Online ahead of print].



MajesTEC-3 Ongoing Phase III Study Design



Key Eligibility Criteria

- Received 1-3 prior lines of therapy, including PI and lenalidomide
 - Patients with only 1 prior line of therapy must be lenalidomide refractory
- No prior BCMA-directed therapy and/or not refractory to anti-CD38 mAb

RRMM = relapsed/refractory multiple myeloma; PI = proteasome inhibitor; tec = teclistamab; dara = daratumumab; DPd = dara/pomalidomide/dexamethasone; DVd = bortezomib/dexamethasone; mAb = monoclonal antibody



LINKER-MM1 — Early, Deep, and Durable Responses,

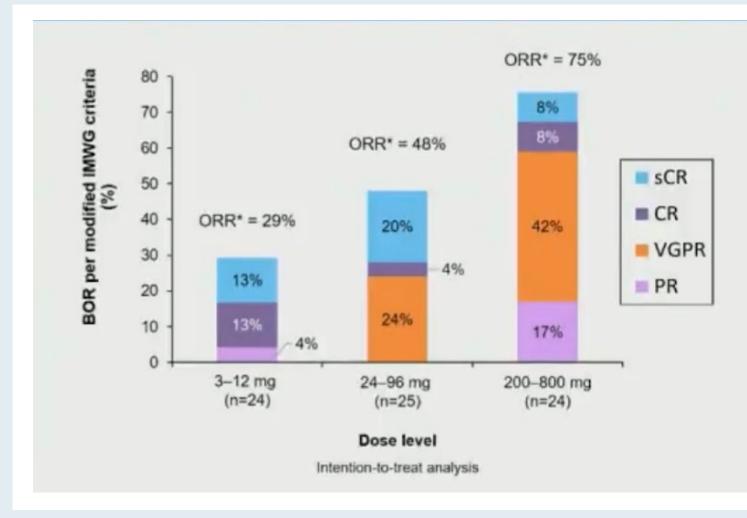
and Low Rates of Cytokine Release Syndrome with REGN5458, a BCMA x CD3 Bispecific Antibody, in a Phase 1/2 Study in Patients with Relapsed/Refractory Multiple Myeloma

Zonder JA et al.

International Myeloma Society Meeting 2022; Abstract OAB-056.



LINKER-MM1: Phase I Efficacy with REGN5458



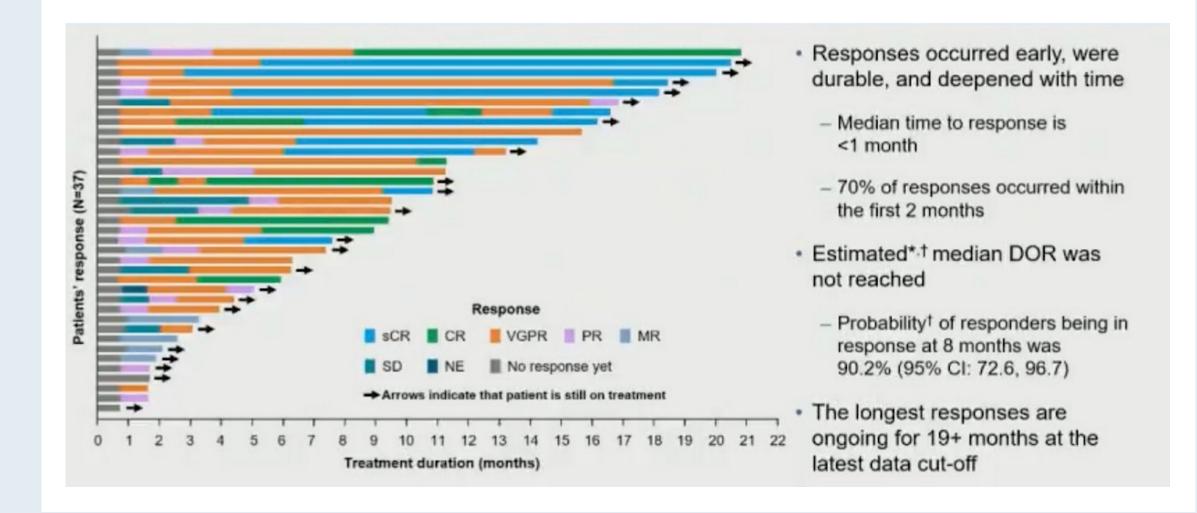
Responses have been observed across all dose levels, with a trend for higher response rates at higher doses

- 51% ORR among all enrolled patients*
- 75% ORR and 58% ≥VGPR with REGN5458 200–800 mg
- Among all responders, 86% achieved ≥VGPR, 43% ≥CR
- Among CR/sCR with available MRD data:
 - 4/10 MRD negative at 10-5



ORR = overall response rate

LINKER-MM1: Duration of Response with REGN5458





Zonder JA et al. International Myeloma Society Meeting 2022; Abstract OAB-056.

Other BCMA x CD3 Bispecific Antibodies: Summary

Therapy	Characteristics	N	Population	Safety	Response
AMG 701 ²	 BiTE[®] modified IV Weekly 	82	 Median of 6 PL 62% triple refractory 	 CRS 55%, G3-4: 9% No ICANS 20% cytopenias 	83% ORR at the top dose level and 50% VGPR
TNB-383B ⁴	 Triple chain anti-BCMA bispecific IV fixed doses Every 3 weeks 	58	 Median of 6 PL 64% triple refractory 34% penta refractory 	 CRS 45% and no G3-4 No ICANS Cytopenias 21% and infections 14% 	80% (13% CR) at the dose levels 40-60 mg
Elranatamab (PF-3135 ⁵)	 Bispecific SC and weekly RP2D: 1,000 µg/kg 	30	 Median of 8 PL 87% triple refractory 23% prior BCMA-based therapy 	 CRS 73% and no G3-4 ICANS 20% ISR 50% 	83% ORR at RP2D

PL = prior lines of therapy; SC = subcutaneous; ISR = injection site reaction

1. Usmani SZ et al. *Lancet* 2021. 2. Harrison SJ et al. ASH 2020;Abstract 181. 3. Madduri D et al. ASH 2020;Abstract 291. 4. Rodriguez C et al. ASH 2020;Abstract 293.5. Bahlis NJ et al. ASCO 2021;Abstract 8006.



Agenda

INTRODUCTION: Quality of Life in Multiple Myeloma

MODULE 1: CAR T-Cell Therapy

• Dr Berdeja: 58-year-old woman with multiregimen-refractory MM receives ciltacabtagene autoleucel

MODULE 2: Bispecific Antibodies

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MODULE 3: Belantamab Mafodotin

 Dr Callander: 62-year-old woman with multiregimen-refractory MM who began treatment with belantamab mafodotin on the DREAMM-2 trial in 2018 remains on therapy

MODULE 4: Ongoing Trials; Reported Data; Review Articles



Case Presentation: 62-year-old woman with multiregimenrefractory MM who began treatment with belantamab mafodotin on the DREAMM-2 trial in 2018 remains on therapy



Dr Natalie Callander (Madison, Wisconsin)



Questions and Comments: Mechanism of action of belantamab mafodotin; predicting clinical responses



Dr Natalie Callander (Madison, Wisconsin)



Questions and Comments: Management of keratopathy



Dr Natalie Callander (Madison, Wisconsin)



Patient Comments: Experiences with belantamab mafodotin



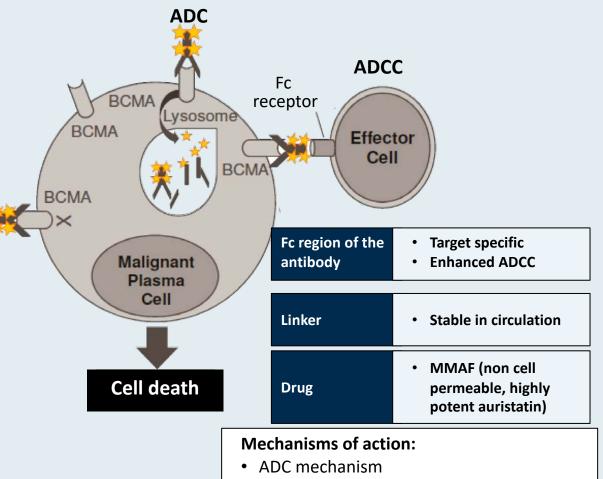


Targeting BCMA as a new standard

- Which modality to be determined, depending on availability and disease characteristics
 - CAR T-cells. Advantages are "one-and-done," depth of response.
 - Limitations include waiting for manufacturing of CAR T-cells and management of CRS and neurotoxicity. Availability may be limited to major centers with experience in CAR T.
 - Bispecific antibodies. Efficacy approaching CAR T-cells. In earlier stages of clinical development. No wait time to administer.
 - Has CRS and neurotoxicity (less than CAR T-cells), which may also limit availability in the community.
 - Antibody drug conjugates. Belantamab mafodotin is approved and available now Easier to administer (e.g. in the community), no risk of CRS or neurotoxicity.
 - However, associated with ocular toxicities, may be less of an issue over time with increasing experience, modifications in dose and frequency.
- More treatment options = better outcomes in multiple myeloma

Belantamab Mafodotin: Anti-BCMA Antibody-Drug Conjugate

- B-cell maturation factor (BCMA) expression is restricted to B cells at later stages of differentiation and is required for survival of plasma cells
- BCMA is broadly expressed at variable levels on malignant plasma cells
- Belantamab mafodotin is a humanized, afucosylated IgG1 anti-BCMA antibody conjugated to microtubule disrupting agent MMAF via a stable, proteaseresistant maleimidocaproyl linker



- ADCC mechanism
- Immunogenic cell death
- BCMA receptor signaling inhibition



Safety and Efficacy of Belantamab Mafodotin in Combination with Rd in Newly Diagnosed, Transplant Ineligible Multiple Myeloma Patients: A Phase 1/2 Study by the Hellenic Society of Hematology

Terpos E et al. EHA 2022;Abstract S178.



BelaRd: Results Summary from a Phase I/II Study of Belantamab Mafodotin with Lenalidomide/Dexamethasone for Newly Diagnosed, Transplant-Ineligible MM

Clinical response, n	All patients	Cohort 1 Belamaf 2.5 mg/kg	Cohort 2 Belamaf 1.9 mg/kg	Cohort 3 Belamaf 1.4 mg/kg
Evaluable patients	28	9	9	10
Overall response rate	27 (96.4%)	9 (100.0%)	9 (100.0%)	9 (90%)
CR	4 (14.3%)	2 (22.2%)	2 (22.2%)	_
VGPR	10 (35.7%)	4 (44.4%)	2 (22.2%)	4 (40%)
Select Grade 3/4 AEs	N = 36	n = 12	n = 12	n = 12
Leukopenia	2 (5.6%)	2 (16.7%)	—	—
Neutropenia	2 (5.6%)	1 (8.3%)	—	1 (8.3%)
Keratopathy		_	_	—
Ocular symptoms	_	—	—	—
Visual acuity reduced	5 (13.9%)	3 (25%)	1 (8.3%)	—

CR = complete response; VGPR = very good partial response; AEs = adverse events



DREAMM-9: Phase I Study of Belantamab Mafodotin plus Standard of Care in Patients with Transplant-Ineligible Newly Diagnosed Multiple Myeloma

Usmani SZ et al. EHA 2022;Abstract P942.



DREAMM-9: Efficacy and Safety Summary with Belantamab Mafodotin and Standard Therapy (VRd) for Newly Diagnosed MM

Clinical response, n	Cohort 1 Belamaf 1.9 mg/kg q3 or 4wk, every cycle of VRd n = 12	Cohort 2 Belamaf 1.4 mg/kg q6 or 8wk, every other cycle of VRd n = 12	Cohort 3 Belamaf 1.9 mg/kg q6 or 8wk, every other cycle of VRd n = 12	Cohort 4 Belamaf 1.0 mg/kg q3 or 4wk, every cycle of VRd n = 15	Cohort 5 Belamaf 1.4 mg/kg q3 or 4wk, every cycle of VRd n = 13
ORR	12 (100%)	11 (92%)	12 (100%)	12 (80%)	12 (92%)
sCR	6 (50%)	1 (8%)	0	3 (20%)	2 (15%)
CR	3 (25%)	0	2 (17%)	2 (13%)	1 (8%)
VGPR	3 (25%)	9 (75%)	7 (58%)	5 (33%)	8 (62%)
Adverse events	n = 12	n = 12	n = 12	n = 14	n = 13
Grade 3/4 corneal exam findings	9 (75%)	4 (33%)	3 (25%)	7 (50%)	5 (39%)
Grade 3/4 visual acuity changes	10 (83%)	7 (58%)	4 (33%)	3 (21%)	6 (46%)

VRd = bortezomib/lenalidomide/dexamethasone; ORR = overall response rate; CR = complete response; sCR = stringent CR; VGPR = very good partial response



Usmani SZ et al. EHA 2022; Abstract P942.

2022 ASCO Abstract 8019 ANNUAL MEETING

Synergistic Effects of Low-dose Belantamab Mafodotin in Combination with a Gamma-Secretase Inhibitor (Nirogacestat) in Patients with Relapsed/Refractory Multiple Myeloma (RRMM): DREAMM-5 Study

Poster No. 443

Speaker: Sagar Lonial, MD, FACP

Acknowledgments

This study was funded by GlaxoSmithKline (GSK Study 208887). Drug linker technology licensed from Seagen, Inc.; monoclonal antibody produced using POTELLIGENT Technology licensed from BioWa; nirogacestat (gamma-secretase inhibitor) is manufactured and provided by SpringWorks Therapeutics as part of a collaborative agreement with GSK. On behalf of all authors, and with their permission, an audio recording was prepared by Sagar Lonial who did not receive any payment for this recording. Writing assistance was provided by Elisabeth Walsby, PhD and Sharon Bryant, DPT of Fishawack Indicia, part of Fishawack Health and funded by GSK.

Authors and Affiliations

Sagar Lonial, MD, FACP¹, Sebastian Grosicki, MD², Marek Hus, MD³, Kevin Song, MD⁴, Thierry Facon, MD⁵, Natalie S. Callander, MD⁶, Vincent Ribrag, MD⁷, Katarina Uttervall, MD⁸, Hang Quach, MD⁹, Vladimir Vorobyev, MD¹⁰, Chang-Ki Min, MD¹¹, Shinta Cheng, MD, PhD¹², L. Mary Smith, PhD¹², Jing Yu, PhD¹³, Therese Collingwood, PhD¹³, Beata Holkova, MD¹³, Brandon E. Kremer, MD, PhD¹³, Ira Gupta, MD¹³, Paul G. Richardson, MD¹⁴, Monique C. Minnema, MD, PhD¹⁵

¹Emory University, Winship Cancer Institute, Atlanta, GA, USA; ²Department of Hematology and Cancer Prevention, Medical University of Silesia, Katowice, Poland; ³Katedra i Klinika Hematoonkologii i Transplantacji Szpiku, Lublin, Poland; ⁴Vancouver General Hospital, Vancouver, BC, Canada; ⁵Department of Haematology, Lille University Hospital, Lille, France; ⁶University of Wisconsin, Carbone Cancer Center, Madison, WI, USA; ⁷Institut Gustave Roussy, Villejuif, France; ⁸Karolinska University Hospital, Stockholm, Sweden; ⁹University of Melbourne, St. Vincent's Hospital Melbourne, Melbourne, VIC, Australia; ¹⁰S P Botkin City Clinical Hospital, Moscow, Russia; ¹¹Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea; ¹²SpringWorks Therapeutics, Stamford, CT, USA; ¹³GlaxoSmithKline, Upper Providence, PA, USA; ¹⁴Dana-Farber Cancer Institute, Boston, MA, USA; ¹⁵University Medical Center Utrecht, Utrecht, the Netherlands



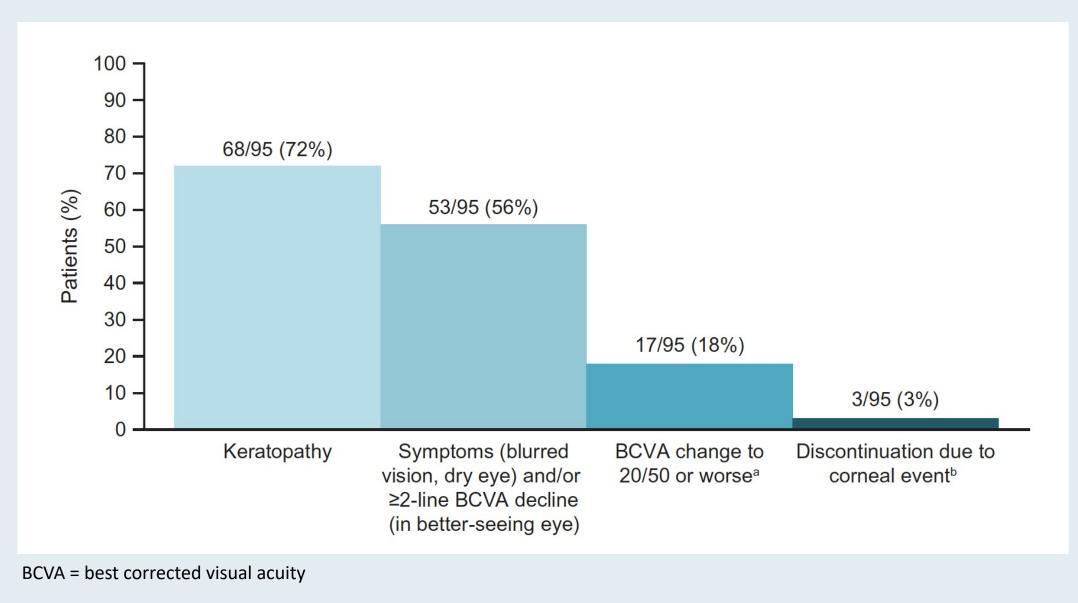
Longer Term Outcomes With Single-Agent Belantamab Mafodotin in Patients With Relapsed or Refractory Multiple Myeloma: 13-Month Follow-Up From the Pivotal DREAMM-2 Study

Sagar Lonial, MD D¹; Hans C. Lee, MD²; Ashraf Badros, MD D³; Suzanne Trudel, MD⁴; Ajay K. Nooka, MD D¹; Ajai Chari, MD D⁵; Al-Ola Abdallah, MD⁶; Natalie Callander, MD⁷; Douglas Sborov, MD⁸; Attaya Suvannasankha, MD⁹; Katja Weisel, MD¹⁰; Peter M. Voorhees, MD¹¹; Lynsey Womersley, MSc¹²; January Baron, MS¹³; Trisha Piontek, BSN¹³; Eric Lewis, MD¹⁴; Joanna Opalinska, MD¹³; Ira Gupta, MD¹³; and Adam D. Cohen, MD¹⁵

Cancer 2021;127(22):4198-212.



DREAMM-2: Frequency of Corneal and Vision-Related Events



Lonial S et al. *Cancer* 2021;127(22):4198-212.



Corneal Events: Mitigation Strategy

- Not corticosteroid eye drops not beneficial for prophylaxis or treatment
- Lubricating eye drops ≥4 times per day throughout duration of the treatment period
- No contact lens use during treatment period
- Eye examination with BCVA assessment and slit lamp examination with fluorescein staining prior to each planned dose
- Dose delays and dose reductions per recommendations



Belantamab Mafodotin Dose Modifications for Corneal Toxicity

	Exam findings per KVA scale	Recommended dose modifications	
Grade 1	Corneal exam: Mild superficial keratopathy	Continue treatment at the current dose	
	Change in BCVA: Decline from baseline of 1 line on the Snellen visual acuity chart		
Grade 2	Corneal exam: Moderate superficial keratopathy	Withhold treatment until improvement in both	
Change in BCVA: Decline from baseline of 2 or 3 lines (and Snellen visual acuity not worse than 20/200)		corneal examination findings and changes in BCVA to Grade 1 or better, and resume at same dose	
Grade 3	Corneal exam: Severe superficial keratopathy	Withhold treatment until improvement in both corneal examination findings and changes in BCVA to Grade 1 or better, and resume at a reduced dose	
	Change in BCVA: Decline from baseline by more than 3 lines (and Snellen visual acuity not worse than 20/200)		
Grade 4	Corneal exam: Corneal epithelial defect	Consider treatment discontinuation. Based on a benefit-risk ratio assessment, if continuing belantamab mafodotin is considered, treatment may be resumed at a reduced dose after the event has improved to Grade 1 or better	
	Change in BCVA: Snellen visual acuity worse than 20/200		



Farooq AV et al. *Ophthalmol Ther* 2020;9(4):889-911; Lonial S et al. *Blood Cancer J* 2021;11:103.

Summary of Select Clinical Trials of Belantamab Mafodotin (Belamaf) Combination Approaches for R/R Multiple Myeloma

Trial	Characteristics	ORR	Safety
DREAMM-6 (NCT03544281)	 Phase I/II Arm A: Belamaf + len/dex (n = 45) Arm B: Belamaf + bor/dex (n = 18) 	 Arm A: Highest ORR of 75% with the 1.9 mg/kg q4wk dose Arm B: 78% 	 Arm A Grade ≥3 AEs: Thrombocytopenia – 3 (7%) Keratopathy – 15 (33%) Arm B Grade ≥3 AEs: Thrombocytopenia – 12 (67%) Keratopathy – 11 (61%)
DREAMM-4 (NCT03848845)	 Phase I/II (N = 34) Belamaf + pembrolizumab Dose escalation: Belamaf 2.5 mg/kg and 3.4 mg/kg 	 47% at RP2D of 2.5 mg/kg 	All grades: • Thrombocytopenia – 12 (35%) • Keratopathy – 26 (76%)
ALGONQUIN (NCT03715478)	 Phase I/II (N = 56) Belamaf + pom/dex 	 ≥PR/VGPR 89%/72% across all dosing cohorts 	Grade ≥3 TEAEs: • Thrombocytopenia – 19 (34%) • Keratopathy – 39 (70%)

ORR = overall response rate; len = lenalidomide; dex = dexamethasone; AEs = adverse events; RP2D = recommended Phase II dose; pom = pomalidomide; PR = partial response; VGPR = very good partial response; TEAEs = treatment-emergent AEs

Popat R et al. ASH 2020; Abstract 1419; Quach H et al. ASCO 2022; Abstract 8017; Lonial S et al. SOHO 2022; Abstract MM-459; Suvannasankha A et al. EHA 2022; Abstract P940; Trudel S et al. ASH 2021; Abstract 2736.



Ongoing Phase III Trials of Belantamab Mafodotin for R/R MM

Study	N	Setting	Treatment arms	Estimated primary completion
DREAMM-3 (NCT04162210)	380	 ≥2 prior lines of treatment, including ≥2 consecutive cycles of both lenalidomide and a proteasome inhibitor (separately or in combination) 	 Belantamab mafodotin Pomalidomide/low-dose dexamethasone 	June 2022
DREAMM-8 (NCT04484623)	450	≥1 prior line of treatment, including a lenalidomide-containing regimen	 Belantamab mafodotin + pomalidomide/dexamethasone Bortezomib + pomalidomide/dexamethasone 	March 2023
DREAMM-7 (NCT04246047)	575	≥1 prior line of treatment	 Belantamab mafodotin + bortezomib/dexamethasone Daratumumab + bortezomib/dexamethasone 	April 2023



Agenda

INTRODUCTION: Quality of Life in Multiple Myeloma

MODULE 1: CAR T-Cell Therapy

• Dr Berdeja: 58-year-old woman with multiregimen-refractory MM receives ciltacabtagene autoleucel

MODULE 2: Bispecific Antibodies

 Dr Berdeja: 50-year-old frail woman with multiregimen-refractory MM and numerous bone lesions receives teclistamab on a clinical trial

MODULE 3: Belantamab Mafodotin

 Dr Callander: 62-year-old woman with multiregimen-refractory MM who began treatment with belantamab mafodotin on the DREAMM-2 trial in 2018 remains on therapy

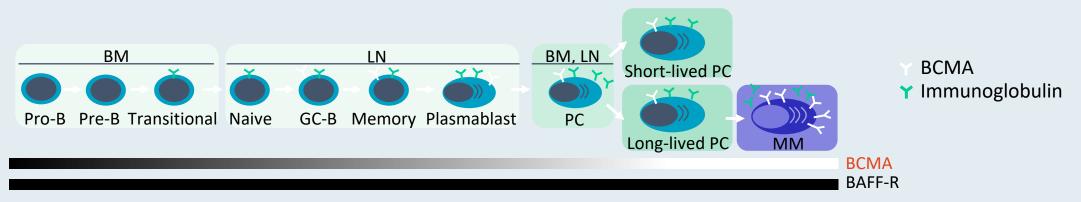
MODULE 4: Ongoing Trials; Reported Data; Review Articles

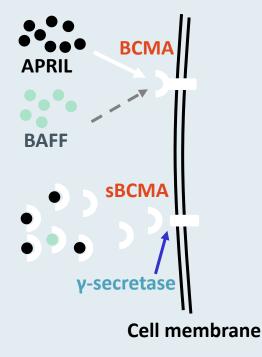


CAR T-Cell Therapy



BCMA as a Target in Myeloma Treatment





- BCMA: antigen expressed specifically on PCs and myeloma cells
- Higher expression on myeloma cells than normal PCs
- Not expressed in other tissues
- Cell-surface receptor in TNF superfamily
- Receptor for APRIL and BAFF
- Key role in B-cell maturation and differentiation
- Promotes myeloma cell growth, chemotherapy resistance, immunosuppression in bone marrow microenvironment

Cho S-F et al. *Front Immunol* 2018;9:1821. Moreaux J et al. *Blood* 2004;103(8):3148-57. Sanchez E at al. *Br J Haematol* 2012;158(6):727-38.



FDA-Approved CAR T-Cell Therapies for Relapsed or Refractory Multiple Myeloma

February 28, 2022: Ciltacabtagene autoleucel approved for the treatment of relapsed or refractory multiple myeloma in adult patients after 4 or more prior lines of therapy, including a proteasome inhibitor, an immunomodulatory agent and an anti-CD38 monoclonal antibody, based on the CARTITUDE-1 study.

March 26, 2022: Idecabtagene vicleucel approved for the treatment of relapsed or refractory multiple myeloma in adult patients after 4 or more prior lines of therapy, including an immunomodulatory agent, a proteasome inhibitor and an anti-CD38 monoclonal antibody. This is the first FDA-approved cell-based gene therapy for multiple myeloma, based on the KarMMa study.

https://www.fda.gov/drugs/resources-information-approved-drugs/fda-approves-ciltacabtagene-autoleucel-relapsed-orrefractory-multiple-myeloma https://www.fda.gov/drugs/resources-information-approved-drugs/fda-approves-idecabtagene-vicleucel-multiple-myeloma



Select Clinical Trials of BCMA-Directed CAR T-Cell Therapy for Multiagent-Refractory Multiple Myeloma: Efficacy Summary

	KarMMa (N = 128)	CARTITUDE-1 (N = 97)	CRB-402 (N = 72)
Phase	II	Ib/II	1/11
Product	Idecabtagene vicleucel	Ciltacabtagene autoleucel	bb21217
Median prior lines of therapy	6	6	6
Overall response rate	73%	98%	69%
Complete response	33%	sCR: 83%	sCR/CR: 36%
MRD-negative	26%	92%	67%
Median PFS 8.6 months		Not reached	Not applicable
Median OS	24.8 months	Not reached	Not applicable

sCR = stringent complete response; MRD = minimal residual disease; PFS = progression-free survival; OS = overall survival

Anderson LD et al. ASCO 2021; Abstract 8016. Usmani SZ et al ASCO 2022; Abstract 8028. Martin T et al. *J Clin Oncol* 2022 June 4; [Online ahead of print]. Raje N et al. ASH 2021; Abstract 548. Mateos M-V et al. 2022 ASCO Educational Book.



Select Clinical Trials of BCMA-Directed CAR T-Cell Therapy for Multiagent-Refractory Multiple Myeloma: CRS and Neurotoxicity

	KarMMa (N = 128)	CARTITUDE-1 (N = 97)	CRB-402 (N = 72)
Product	Idecabtagene vicleucel	Ciltacabtagene autoleucel	bb21217
Median prior lines of therapy	6	6	6
CRS Grade 3: 4% Gra		Grade 3/4: 4%	Grade 3/4: 1%
Neurotoxicity	Grade 3: 3%	Grade 3/4: 11%	Grade 3/4: 4%

CRS = cytokine release syndrome

Anderson LD et al. ASCO 2021; Abstract 8016. Usmani SZ et al ASCO 2022; Abstract 8028. Martin T et al. J Clin Oncol 2022 June 4; [Online ahead of print]. Raje N et al. ASH 2021; Abstract 548. Mateos M-V et al. 2022 ASCO Educational Book.



Topline Results from KarMMa-3: Idecabtagene Vicleucel Significantly Improves PFS for Patients with Relapsed and Refractory Multiple Myeloma Press Release: August 10, 2022

Positive topline results were announced from KarMMa-3, a Phase III, global, randomized, multicenter, open-label study evaluating idecabtagene vicleucel compared to standard combination regimens for adults with multiple myeloma that is relapsed and refractory after 2 to 4 prior lines of therapy and refractory to the last regimen.

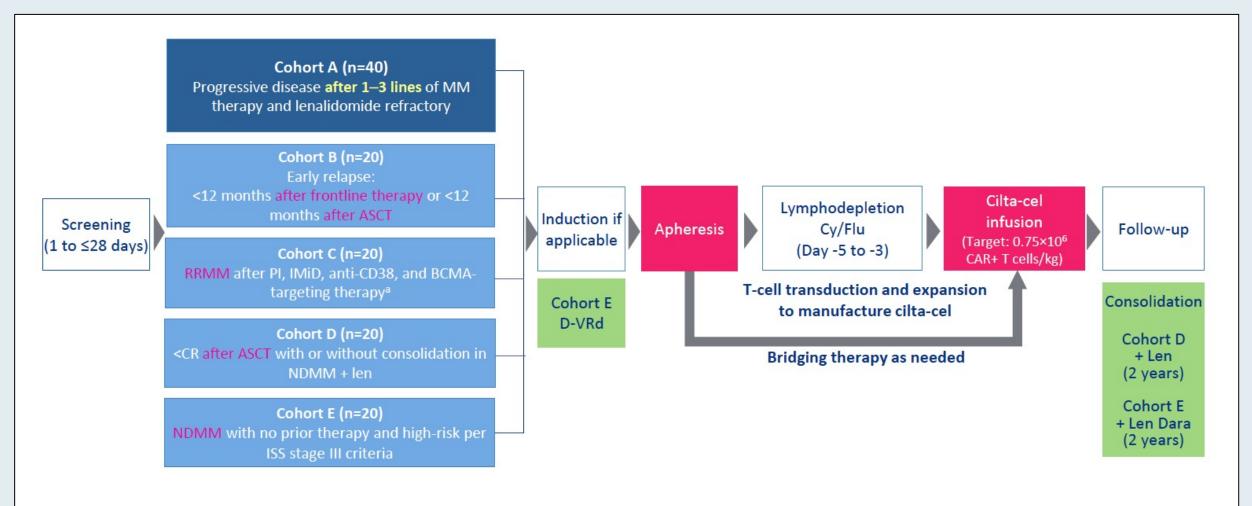
"KarMMa-3 is the first randomized clinical trial to evaluate a CAR T cell therapy in multiple myeloma. Results of a pre-specified interim analysis conducted through an independent review committee showed that KarMMa-3 met its primary endpoint of demonstrating a statistically significant improvement in progression-free survival. Treatment with idecabtagene vicleucel also showed an improvement in the key secondary endpoint of overall response rate compared to standard regimens. Follow-up for overall survival, a key secondary endpoint, remains ongoing.

Safety results in the trial were consistent with the well-established and predictable safety profile of idecabtagene vicleucel previously demonstrated in the pivotal KarMMa trial. No new safety signals were reported in this study."

https://news.bms.com/news/corporate-financial/2022/Bristol-Myers-Squibb-and-2seventy-bio-Announce-Topline-Results-from-KarMMa-3-Trial-Showing-Abecma-idecabtagene-vicleucel-Significantly-Improves-Progression-Free-Survival-Versus-Standard-Regimens-in-Relapsed-and-Refractory-Multiple-Myeloma/default.aspx



CARTITUDE-2 Multicohort Overall Trial Design



ASCT = autologous stem cell transplant; RRMM = relapsed/refractory multiple myeloma (MM); NDMM = newly diagnosed MM; D-VRd = daratumumab/bortezomib/lenalidomide/dexamethasone; cilta-cel = ciltacabtagene autoleucel; len = lenalidomide; dara = daratumumab



Agha M et al. EHA 2021; Abstract S190.

Biological Correlative Analyses and Updated Clinical Data of Ciltacabtagene Autoleucel, a BCMA-Directed CAR-T Cell Therapy, in Lenalidomide-Refractory Patients With Progressive Multiple Myeloma After 1–3 Prior Lines of Therapy: CARTITUDE-2, Cohort A ASCO 2022; Abstract 8020.

Hermann Einsele¹, Adam Cohen², Michel Delforge³, Jens Hillengass⁴, Hartmut Goldschmidt⁵, Katja Weisel⁶, Marc-Steffen Raab⁷, Christoph Scheid⁸, Jordan M Schecter⁹, Kevin De Braganca⁹, Helen Varsos⁹, Tzu-Min Yeh⁹, Pankaj Mistry¹⁰, Tito Roccia⁹, Christina Corsale⁹, Muhammad Akram¹¹, Lida Pacaud¹¹, Tonia Nesheiwat¹¹, Mounzer Agha¹², Yael Cohen¹³

¹Universitätsklinikum Würzburg, Medizinische Klinik und Poliklinik II, Würzburg, Germany; ²Abramson Cancer Center, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA; ³University Hospitals (UZ) Leuven, Leuven, Belgium; ⁴Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA; ⁵University Hospital Heidelberg and National Center of Tumor Diseases, Heidelberg, Germany; ⁶University Medical Center Hamburg-Eppendorf, Hamburg, Germany; ⁷University Hospital Heidelberg and Clinical Cooperation Unit Molecular Hematology/Oncology, German Cancer Research Center, Heidelberg, Germany; ⁸University of Cologne, Cologne, Germany; ⁹Janssen Research & Development, Raritan, NJ, USA; ¹⁰Janssen Research & Development, High Wycombe, UK; ¹¹Legend Biotech USA, Piscataway, NJ, USA; ¹²UPMC Hillman Cancer Center, Pittsburgh, PA, USA; ¹³Tel-Aviv Sourasky (Ichilov) Medical Center, and Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

Presented at the 2022 American Society of Clinical Oncology (ASCO) Annual Meeting; June 3-7, 2022; Chicago, IL, USA & Virtual.

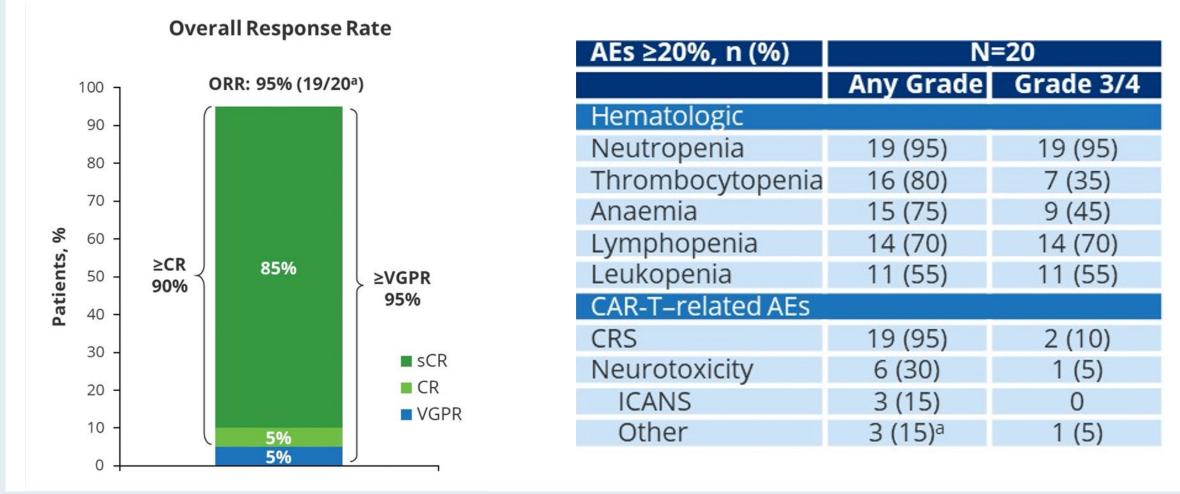
https://www.congresshub.com/Oncology/ AM2022/Cilta-Cel/Einsele-Biological

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CARTITUDE-2 Cohort A: Ciltacabtagene Autoleucel for Lenalidomide-Refractory MM After 1 to 3 Prior Lines of Therapy



CR = complete response; VGPR = very good partial response; sCR = stringent CR; CRS = cytokine release syndrome; ICANS = immune effector cell-associated neurotoxicity

Einsele H et al. ASCO 2022;Abstract 8020.

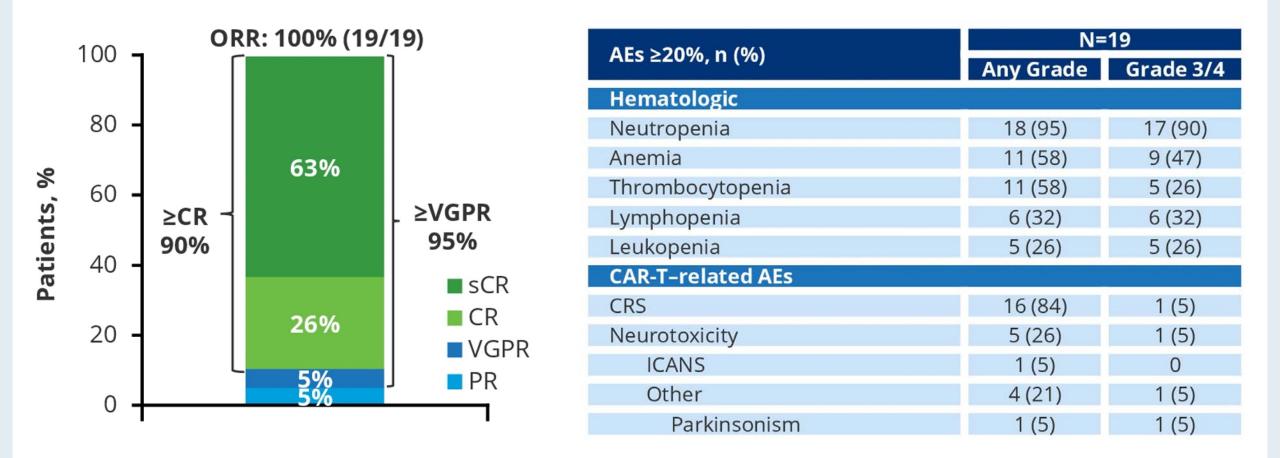


Biological Correlative Analyses and Updated Clinical Data of Ciltacabtagene Autoleucel, a BCMA-Directed CAR-T Cell Therapy, in Patients with Multiple Myeloma and Early Relapse After Initial Therapy: CARTITUDE-2, Cohort B

Niels WCJ van de Donk¹ (n.vandedonk@amsterdamumc.nl), Mounzer Agha², Adam Cohen³, Yael Cohen⁴, Sébastien Anguille⁵, Tessa Kerre⁶, Wilfried Roeloffzen⁷, Jordan M Schecter⁸, Kevin De Braganca⁸, Helen Varsos⁸, Pankaj Mistry⁹, Tito Roccia⁸, Enrique Zudaire¹⁰, Christina Corsale⁸, Muhammad Akram¹¹, Dong Geng¹¹, Tonia Nesheiwat¹¹, Lida Pacaud¹¹, Pieter Sonneveld¹², Sonja Zweegman¹



CARTITUDE-2 Cohort B: Ciltacabtagene Autoleucel for Patients with Multiple Myeloma and Early Relapse After Initial Therapy





Key Ongoing Studies of BCMA-Directed CAR T-Cell Therapy with Ide-cel and Cilta-cel

Study	Phase	N	Setting	Treatments
CARTITUDE-4	11	419	Relapsed and lenalidomide- refractory	 Pomalidomide/bortezomib/dexamethasone or daralutamide/pomalidomide/dexamethasone Cilta-cel
CARTITUDE-5		650	NDMM, with no ASCT planned	 VRd → cilta-cel VRd → lenalidomide/dexamethasone
CARTITUDE-6		750	NDMM, ASCT eligible	 DVRd → cilta-cel DVRd → ASCT
KarMMa-4	I	13	NDMM, high risk	• Ide-cel \rightarrow lenalidomide maintenance
KarMMa-2	II	235	R/R MM, high risk NDMM	Ide-celIde-cel + lenalidomide

Ide-cel = idecabtagene vicleucel; cilta-cel = ciltacabtagene autoleucel; NDMM = newly diagnosed multiple myeloma; ASCT = autologous stem cell transplant; VRd = bortezomib/lenalidomide/dexamethasone; DVRd = daratumumab/VRd; R/R = relapsed/refractory



www.clinicaltrials.gov. Accessed August 2022.

CAR T-Cell-Associated Toxicities: Acute and Late Phase

Acute Phase (Days 0-30)

- Cytokine release syndrome (CRS)
- Immune effector cell-associated neurotoxicity syndrome (ICANS)
- Cytopenias
- B-cell aplasia and hypogammaglobulinemia
- Tumor lysis syndrome (rare and likely varies by disease burden)

Late Phase (Days 30+)

- Persistent cytopenias
- B-cell aplasia and hypogammaglobulinemia
- T-cell deficiency
- Residual effects of acute toxicity
- Delayed CRS and ICANS are rare but can occur
- Impairment to QoL fatigue, memory issues not yet well described



Cytokine Release Syndrome Associated with CAR T-Cell Therapy for Multiple Myeloma

- Potentially severe or life-threatening reactions, with the most common manifestations being pyrexia, hypotension, tachycardia, chills, hypoxia, fatigue and headache
- Grade 3 or higher events may include hypotension, hypoxia, hyperbilirubinemia, hypofibrinogenemia, acute respiratory distress syndrome, atrial fibrillation, hepatocellular injury, metabolic acidosis, pulmonary edema, multiple organ dysfunction syndrome and hemophagocytic lymphohistiocytosis/macrophage activation syndrome
- Occurs in approximately 85% to 95% of patients (Grade ≥3: 5%-9%)
- Time to onset: 1 to 7 days (range 1-23 days)
- Duration: 4 to 7 days (range 1-63 days)
- Manage with tocilizumab or tocilizumab and corticosteroids



www.carvyktihcp.com/safety; www.abecmahcp.com/safety/

ICANS (Immune Effector Cell-Associated Neurotoxicity Syndrome) Associated with CAR T-Cell Therapy for MM

- Potentially severe or life-threatening neurotoxicity, including encephalopathy, tremor, aphasia and delirium
- Occurs in about 25% of patients (Grade ≥3: 4%-5%)
- Time to onset: 2 to 8 days (range 1-42 days)
- Duration: 6 to 8 days (range 1-578 days)
- Resolved in 77% to 92% of patients
- Manage with supportive care and corticosteroids as needed



Bispecific Antibodies



MajesTEC-1: Cytokine Release Syndrome

Parameter	N=165
Patients with CRS, n (%)	119 (72.1)
Patients with ≥2 CRS events	55 (33.3)
Time to onsetª (days), median (range)	2 (1-6)
Duration (days), median (range)	2 (1-9)
Received supportive measures ^a for CRS, n (%)	110 (66.7)
Tocilizumab ^b	60 (36.4)
Low-flow oxygen by nasal cannula ^c	21 (12.7)
Corticosteroids	14 (8.5)
Single vasopressor	1 (0.6)

- Most CRS events were confined to step-up and first full treatment doses
- All CRS events were grade 1/2, except for 1 transient-grade 3 CRS event that occurred in the context of concurrent pneumonia (resolved in 2 days)
- All CRS events fully resolved without treatment discontinuation or dose reduction



MajesTEC-1: Neurotoxic Events

Parameter	N=165
Neurotoxic event ^a , n (%)	24 (14.5)
Headache	14 (8.5)
ICANS ^b	5 (3.0)
Dysgeusia	2 (1.2)
Lethargy	2 (1.2)
Tremor	2 (1.2)
Grade ≥3 events, n (%)	1 (0.6)
Time to onset, median (range) days	3.0 (1–13)
Duration, median (range) days	7.0 (1–291)
Received supportive measures for	
neurotoxic events ^c , n (%)	14 (8.5)
Tocilizumab	3 (1.8)
Dexamethasone	3 (1.8)
Levetiracetam	2 (1.2)
Gabapentin	1 (0.6)

- The overall incidence of neurotoxic events was low
- All neurotoxic events were grade 1/2, except for 1 grade 4 seizure (in the context of bacterial meningitis during cycle 7)
- 5 patients (3.0%) had a total of 9 ICANS events
 - 7 events were concurrent with CRS
 - All ICANS events were grade 1/2 and fully resolved
- There were no treatment discontinuations or dose reductions due to neurotoxic events, including ICANS



LINKER-MM1: Safety with REGN5458

	Т	Total (N=73)		
	Any grade	Grade 3	Grade	
All treatment-emergent adverse events (TEAEs) n	(%)			
Any	73 (100)	31 (42)	24 (33)	
Hematologic TEAEs, in ≥20% of patients (any grade) n (%)			
Anemia	23 (32)	17 (23)	0	
Lymphopenia	17 (23)	7 (10)	7 (10)	
Neutropenia	17 (23)	5 (7)	11 (15	
Thrombocytopenia	15 (21)	6 (8)	4 (5)	
Non-hematologic TEAEs, in ≥20% of patients (any g	grade) n (%)			
Fatigue	33 (45)	2 (3)	0	
CRS	28 (38)	0	0	
Pyrexia	26 (36)	3 (4)	0	
Nausea	24 (33)	0	0	
Dyspnea	19 (26)	0	0	
Diarrhea	18 (25)	2 (3)	0	
Back pain	18 (25)	4 (5)	0	
Vomiting	18 (25)	0	0	
Pneumonia	17 (23)	8 (11)	0	
Chills	16 (22)	1 (1)	0	
Cough	16 (22)	0	0	
Headache	15 (21)	2 (3)	0	

Dose-limiting toxicity (DLT)

- DLTs were reported in 2 patients
 - DL4 (24 mg) and DL6 (96 mg)
- Maximum-tolerated dose not reached

Potential ICANS events

- No Grade 3 ICANS events reported
- Grade 2 events occurred in 3 patients (4%)

Deaths

- 5 (7%) Grade 5 AEs were reported [sepsis (n=3); COVID (n=1); pneumonia (n=1)]
- All Grade 5 events were not related to study treatment

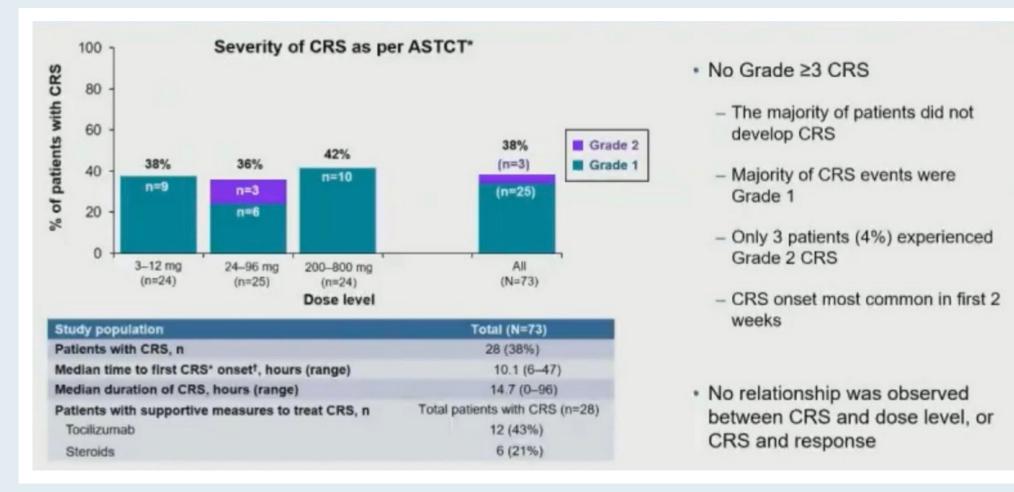
Pharmacokinetics

 REGN5458 serum concentration increased with dose, approximately dose proportionally



Zonder JA et al. International Myeloma Society Meeting 2022; Abstract OAB-056.

LINKER-MM1: Cytokine Release Syndrome with REGN5458



ASTCT = American Society for Transplantation and Cellular Therapy

Zonder JA et al. International Myeloma Society Meeting 2022; Abstract OAB-056.



Select Ongoing Phase III Trials of BCMA-Directed Bispecific Antibodies

Study	Ν	Description
MajesTEC-4	1,000	Teclistamab in combination with lenalidomide versus lenalidomide alone in participants with NDMM as maintenance therapy after ASCT
MajesTEC-7	1,030	Teclistamab in combination with daratumumab SC and lenalidomide versus daratumumab SC, lenalidomide and dexamethasone in participants with NDMM who are either ineligible or not intended for ASCT as initial therapy
MajesTEC-3	630	Teclistamab in combination with daratumumab SC versus daratumumab SC, pomalidomide and dexamethasone or daratumumab SC, bortezomib and dexamethasone in RRMM
MajesTEC-9	590	Teclistamab monotherapy versus pomalidomide, bortezomib, dexamethasone (PVd) or carfilzomib, dexamethasone in participants with RRMM who have received 1 to 3 prior lines of therapy, including an anti-CD38 monoclonal antibody and lenalidomide
MagnetisMM-7	366	Elranatamab versus lenalidomide in patients with NDMM who are minimal residual disease- positive after undergoing ASCT
MagnetisMM-5	589	Elranatamab monotherapy and elranatamab + daratumumab versus daratumumab + pomalidomide + dexamethasone in participants with RRMM

NDMM = newly diagnosed multiple myeloma; ASCT = autologous stem cell transplant; RRMM = relapsed/refractory multiple myeloma



Belantamab Mafodotin



DREAMM-2: Single-Agent Belantamab Mafodotin Efficacy Outcomes

	Patients with 3-6 prior therapies (n = 47)	Patients with ≥7 prior therapies (n = 50)
ORR, % (97.5% CI)	32 (21.7-43.6)	30 (16.5-46.6)
Median DoR (95% CI estimates), months	11.0 (4.2-NR)	13.1 (4.0-NR)
Probability of DoR ≥6 months, % (95% CI estimates)	63 (31-83)	73 (44-89)
Median PFS (95% CI estimates), months	2.8 (1.6-3.6)	2.2 (1.2-3.6)
Probability of PFS at 6 months, % (95% CI estimates)	35 (20-50)	30 (17-43)

ORR = overall response rate; CI = confidence interval; DoR = duration of response; NR = not reached; PFS = progression-free survival



Lonial S et al. *Cancer* 2021;127(22):4198-212; ASH 2020;Abstract 1417.

DREAMM-2: Longitudinal Outcomes

Progression-Free Survival Overall Survival (OS) 1.0 .0 - Overall population Proportion alive and progression free Overall population 0.8 0.8 **Overall** survival 0.6 0.6 50% probability 50% probability 0.4 0.4 0.2 0.2 Median (95% CI), mo. Median (95% CI), mo. 13.7 (9.9-NR) 2.8 (1.6-3.6) 0.0 10 11 12 13 14 15 16 17 18 3 12 13 14 15 16 17 0 2 3 6 8 9 0 2 5 6 8 9 10 11 Δ 5 Time from randomization (months) Time from randomization (months) Number at risk (Number of events) Number at risk (Number of events) 97 91 81 77 71 67 66 64 62 59 55 55 49 43 31 22 13 6 0 97 64 54 34 29 27 25 23 21 20 17 16 14 12 0 8 4 2 (0) (5) (13) (16) (21) (25) (26) (28) (30) (33) (37) (37) (39) (42) (45) (46) (46) (47) (47) (0) (26) (36) (51) (55) (57) (59) (60) (62) (63) (65) (65) (66) (67) (69) (69) (68) (69)

Expected median OS in triple class-refractory myeloma: 8.6 months



Lonial S et al. *Cancer* 2021;127(22):4198-212.

Current Paradigm and Future Directions for Immunotherapy in the Treatment of Metastatic Non-Small Cell Lung Cancer

A CME/MOC-Accredited Virtual Event

Tuesday, November 1, 2022 5:00 PM – 6:00 PM ET

Faculty John V Heymach, MD, PhD Stephen V Liu, MD

> Moderator Neil Love, MD



Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.

