New Strategies for Multiple Myeloma Care: Case Studies for Nurses
Part 3: Heavily Pretreated Multiple Myeloma and Drugs in Development


International Myeloma Foundation
800-452-CURE (2873)
http://myeloma.org

Heavily Pretreated Multiple Myeloma and Drugs in Development

CASE #5: Carl*

*HIPAA-compliant; not actual patient names

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HIPAA = Health Insurance Portability and Accountability Act.

NURSE LEADERSHIP BOARD

INTERNATIONAL MYELOMA FOUNDATION

Objectives

- Identify common treatment regimens in heavily pretreated multiple myeloma
- Apply knowledge of nursing management of patients with multiple myeloma, including effective symptom management

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CASE #5:

Carl*

- 63-year-old man diagnosed with MM in 2010
  - High risk: gain(1q)
  - Thal/dex
  - Bortezomib/dex then transplant + len maintenance
  - Carfilzomib on clinical trial
  - Elo/Pom/dex
  - Daratumumab/bortezomib/dex
- Now: 73 years old, with symptomatic relapse
  - Cytopenias, bone marrow, platelets dropping
- Repeat bone marrow biopsy
  - FISH (t11,14)

*HIPAA-compliant, stock photo (not actual patient).

Dex = dexamethasone; Elo = elotuzumab; FISH = fluorescence in situ hybridization; HIPAA = Health Insurance Portability and Accountability Act; len = lenalidomide; MM = multiple myeloma; Pom = pomalidomide; Thal = thalidomide.

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Options for R/R Multiple Myeloma Later Relapse

FDA-approved myeloma therapies >2 therapies	Combinations
Selinexor	Sd
Panobinostat	PVd
Cyclophosphamide	KCd, DCEP, VTd-PACE
Drugs and combinations not previously used, or possibly re-treatment, if patient had good prior response and does not have signs of resistance	
New agents or regimens in clinical trials are always an option	

DCEP = dexamethasone cyclophosphamide etoposide cisplatin; FDA = US Food and Drug Administration; KCd = carfilzomib cyclophosphamide dexamethasone; PACE = cisplatin doxorubicin cyclophosphamide etoposide; R/R = relapsed/refractory; Sd = selinexor dexamethasone; PVd = panobinostat bortezomib dexamethasone; VTd = bortezomib thalidomide dexamethasone.

Faiman B, et al. *J Adv Pract Oncol.* 2016:7(suppl 1):17-29. Mikhael J. https://www.medscape.com/viewarticle/882042. Accessed May1, 2020. Rajkumar SV. How I treat. 2020. https://twitter.com/vincentrk/status/1203058085776035840. Accessed May 1, 2020. Prescribing Information.

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Selinexor

- Oral nuclear export inhibitor: blocks tumor cells from exporting tumor suppressor proteins → selective apoptosis of tumor cells
- Indication: in combination with dex for the treatment of adult patients with R/R MM relapsed or refractory multiple myeloma R/R MM who have received at least 4 prior therapies and whose disease is refractory to at least 2 PIs, at least 2 IMiDs, and an anti-CD38 monoclonal antibody (accelerated approval with full approval contingent upon confirmatory trials)
- Clinical pearls: patient education, setting expectations are crucial
  - AEs most challenging in first month—significant supportive care up front but decrease for most with time
  - Thrombocytopenia and neutropenia (weekly blood counts in cycle 1)
  - Dose reductions/delays are common in managing AEs
    - Consider/discuss with prescriber starting patients at 80 mg weekly (used at Cleveland Clinic → lower rates of cytopenias)
  - Prophylactic management of nausea and anorexia (start ondansetron day 1; consider adding olanzapine and/or aprepitant)
  - Hyponatremia (salty snacks, oral hydration)
  - Diarrhea (oral hydration)

NEW Drug Class

Selinexor-dex
FDA approved July 2019

NEW MOA

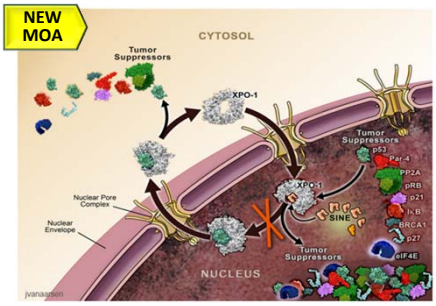

Image: Chen C, et al. EHA 2014

AE = adverse event; dex = dexamethasone; FDA = US Food and Drug Administration; IMiD, immunomodulatory drug; MM = multiple myeloma
MOA = mechanism of action; PI = proteasome inhibitor; R/R = relapsed/refractory.
XPOVIO™ (selinexor) Prescribing Information. Mikhael J, et al. *Clin Lymphoma Myeloma Leuk*. 2020;20(6):351-357. Beth Faiman. Personal communication.

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NEW Publication

Commentary

Check for updates

Consensus Recommendations for the Clinical Management of Patients With Multiple Myeloma Treated With Selinexor

Joseph Mikhael,[1] Kimberly R. Noonan,[2] Beth Faiman,[3] Charise Gleason,[4] Ajay K. Nooka,[4] Luciano J. Costa,[5] Sundar Jagannath,[6] Paul G. Richardson,[2] David Siegel,[7] Ajai Chari,[6] Suzanne Lentzch[8]

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Keywords: Adherence, Refractory multiple myeloma, Side effect management, Supportive care, Symptom management

Introduction

Despite being an incurable disease, life expectancy after diagnosis of multiple myeloma (MM) has more than doubled owing to novel treatments and autologous stem cell transplant in eligible patients.[1,2] There are now over 10 United States Food and Drug Administration (FDA)-approved agents for the treatment of MM, and the standard of care has been to leverage their mechanism of action by using them in combinations with corticosteroids such as dexamethasone. The key 3 classes of novel agents are proteasome inhibitors, immunomodulatory agents, and monoclonal antibodies. Although highly effective agents exist in these 3 classes, nearly all patients will become refractory to with at least 4 prior therapies and refractory to at least 2 proteasome inhibitors, 2 immunomodulatory agents, and an anti-CD38 monoclonal antibody. This indication received accelerated approval based on the response rate from the STORM trial (KCP-330-012; NCT02336815).[4] This study included 122 patients who had previously been treated with 3 or more regimens including an alkylating agent, glucocorticoids, bortezomib, carfilzomib, lenalidomide, pomalidomide, and an anti-CD38 monoclonal antibody; and whose myeloma was documented to be refractory to glucocorticoids, a proteasome inhibitor, an immunomodulatory agent, an anti-CD38 monoclonal antibody, and to the last line of therapy.

Published June 2020 in *Clinical Lymphoma, Myeloma & Leukemia*

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Selinexor: STORM Part 2 Clinical Trial: 26.2% ORR in Heavily Pretreated Patients With MM

- Patients with MM, with a median of 7 prior treatment regimens
  - ORR of 26.2%
    - 2 patients with sCR
    - 2 patients with previous PD after CAR T-cell therapy achieved PR
  - Median time to response was 1 month (range 1-14 weeks)
- OS: 15.6 months in patients with ≥MR vs 1.7 months in patients with PD/NE
  - Median OS: 8.6 months for all patients

"The **26.2%** ORR … in the STORM study is highly compelling and reinforces the potential of selinexor in this difficult-to-treat patient population."

		STORM Part 2 (N=123)				
	Preferred Term	All Grades	Grade 3	Grade 4	AE Leading to Dose Modification	AE leading to Discontinuation
HEMATOLOGIC	Thrombocytopenia	73%	27%	32%	47%	3%
	Concurrent bleeding AE	18%	4%	0	NA	NA
	Neutropenia	38%	19%	3%	16%	0%
	Febrile neutropenia	2%	2%	0	NA	NA
	Anemia	66%	42%	1%	23%	2%
	Leukopenia	31%	12%	0	NA	NA
	Lymphopenia	16%	8%	3%	NA	NA
NON-HEMATOLOGIC	Fatigue	63%	20%	NA	29%	4%
	Nausea	70%	10%	NA	19%	6%
	Weight decrease	49%	0%	NA	12%	4%
	Hyponatremia	35%	20%	1%	6%	0
	Decreased appetite	54%	4%	0	8%	2%
	Vomiting	37%	3%	0	5%	2%
	Diarrhea	42%	7%	0	NA	NA

*25.3 ORR and 1 CR in STORM trial in Prescribing Information.
AE = adverse event; CAR = chimeric antigen receptor; CR = complete response; MM = multiple myeloma; MR = minimal response; NA = not applicable; NE = not evaluable; ORR = overall response rate; OS = overall survival; PD = progressive disease; sCR = stringent complete response.
XPOVIO™ (selinexor) Prescribing Information. Chari A, et al. ASH 2018. Abstr #598. Karyopharm Press Release December 3, 2018. https://investors.karyopharm.com/node/11626/pdf. Accessed June 30, 2020. Mikhael J, et al. *Clin Lymphoma Myeloma Leuk*. 2020;20(6):351-357.

NEW DATA

BOSTON Phase 3 Trial: Selinexor Vd Combination

Design

- 402 patients with MM 1-3 prior therapies
- Patients treated with SVd or Vd

Results

	SVd	Vd	
PFS	13.93 mo	9.46 mo	HR=0.70 *P* =0.0066
ORR	76.4%	62.3%	*P* =0.0012
Most-common treatment-related Grade ≥3 AEs			
Thrombocytopenia	35.9%	15.2%	
Fatigue	11.3%	0.5%	
Nausea	7.7%	0%	

Conclusions

- Once-weekly SVd significantly improved PFS and ORR compared to twice-weekly Vd
- Rates of PN were significantly reduced, with numerically fewer deaths on SVd vs Vd

WATCH FOR

New dosing regimens for selinexor combinations

AE = adverse event; HR = hazard ratio; MM = multiple myeloma; ORR = overall response rate; PN = peripheral neuropathy; PFS = progression-free survival; SVd = selinexor bortezomib dexamethasone; Vd = bortezomib dexamethasone.
Dimopoulos MA, et al. ASCO 2020. Abstr #8501.

Clinical Trials: Early Access to Promising Treatments

Phase 1 **First introduction of an investigational drug into humans**

- Determine metabolism and PK/PD actions, MTD and DLT
- Side effects
- Gain early evidence of effectiveness, studied in many conditions; typically 20 to 80 patients; everyone gets agent

Phase 2 **Evaluation of effectiveness in a certain tumor type**

- Determine short-term side effects and risks, closely monitored
- No more than several hundred patients

Phase 3 **Gather additional effectiveness and safety information compared to standard of care**

- Placebo may be involved if no standard of care exists, hundreds to several thousand patients
- Often multiple institutions, single or double blind

Phase 4 **Approved agents in new populations or new dose-forms**

DLT = dose-limiting toxicity; MTD = maximum tolerated dose; PD = pharmacodynamics; PK = pharmacokinetics.
Faiman B, et al. *Adv Pract Oncol.* 2016;7:17-29.

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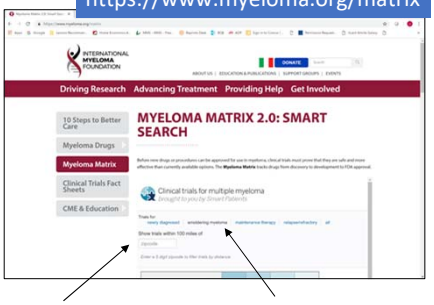
Finding Clinical Trials

https://www.myeloma.org/matrix



Search within 100 miles of zip code

Filter trials:

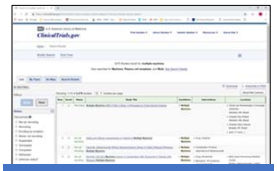
- Newly diagnosed
- Smoldering myeloma
- Maintenance therapy
- Relapsed/refractory
- All

The Myeloma Matrix 2.0 Smart Search

multiple myeloma treatments	69 phase 1	105 phase 2	13 phase 3	10 other*
targeted therapy				
AMG 232 MDM2	1	0	0	0
bevacizumab (Avastin) VEGF	1	1	0	0
AZD5991 mcl-1	1	0	0	0
bosutinib (Bosulif) BCR-ABL, SRC	0	1	0	0
cabozantinib c-MET, AXL, FLT-3, KIT, RET, TIE2, TRKB, VEGF	1	1	0	0
carfilzomib (Kyprolis) proteasome	8	18	3	0
cetuximab (Erbitux) EGFR	0	1	0	0
crizotinib (Xalkori) ALK, c-MET, ROS1	0	1	0	0
dabrafenib (Tafinlar) BRAF	1	0	0	0

Click to expand

IMF Infoline
US & Canada 800-452 CURE (2873)
Worldwide: 1-818-487-7455



https://clinicaltrials.gov/

IMF = International Myeloma Foundation.
International Myeloma Foundation. Myeloma Matrix. https://www.myeloma.org/matrix. Accessed July 1, 2020. Clinicaltrials.gov. https://clinicaltrials.gov/. Accessed May 1, 2020.

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NEW DATA at ASCO 2020

BELLINI Phase 3 Clinical Trial: Vd ± Venetoclax

Design

- 291 patients with MM 1-3 prior therapies
- Patients treated with Vd ± venetoclax

Results

	Vd + Ven	Vd	
Median PFS	23.22 mo	11.41 mo	HR=0.60; *P* =0.0013
Median OS	33.5 mo	NR	HR=1.46; *P* =0.112
ORR	84%	70%	*P* =0.013
MRD $<10^{-5}$	15%	4%	*P* <0.002
Median DoR	NR	12.8	HR=0.46; *P* <0.001

- PFS benefit for patients with t(11;14) or high *BCL2* expression

Conclusions:

- Venetoclax + Vd significantly improved PFS, ORR, and MRD vs Vd, but was associated with worse OS
  - Increased deaths attributed to infection
- Favorable risk-benefit of venetoclax for patients with t(11;14) or high *BCL2* expression

ASCO = American Society of Clinical Oncologists; *BCL2* = B-cell lymphoma 2; DoR = duration of response; HR = hazard ratio; MM = multiple myeloma; MRD = minimal residual disease; NR = not reached; ORR = overall response rate; OS = overall survival; PFS = progression-free survival; Vd = bortezomib dexamethasone; Ven = venetoclax.
Kumar S, et al. ASCO 2020. Abstr #8509.

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Venetoclax Clinical Pearls

- Venetoclax currently FDA-approved for CLL and AML **(off label for MM)**
- Deep responses in patients with MM, but increased infections
- Particular efficacy in patients with MM with t(11,14) or high expression of *BCL2*
- AEs associated with venetoclax in other indications (eg, TLS) may not be similar in patients with MM
- Expanded access program provides free drug if insurance denies coverage for patients with MM
- Clinical trials are available

WATCH FOR

- **New clinical data on venetoclax in patients with MM**
- **FDA approval**

AE = adverse event; AML = acute myeloid leukemia; *BCL2* = B-cell lymphoma 2; CLL = chronic lymphocytic leukemia; FDA = US Food and Drug Administration; MM = multiple myeloma; TLS = tumor lysis syndrome.
Venclexta® (venetoclax) Prescribing Information. Kumar S, et al. ASCO 2020. Abstr #8509. Faiman B. Cleveland Clinic Experience.

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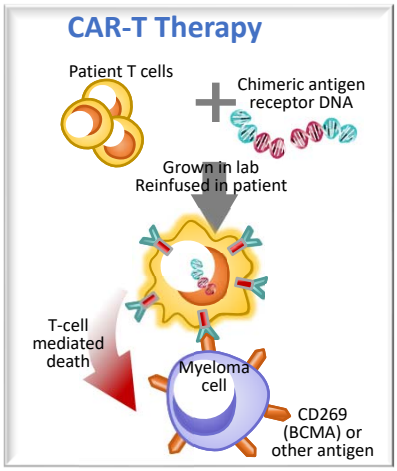
CAR T-Cell Treatment: Engineered Patient's Own T Cells

CAR-T example	Target
Orva-cel (JCARH 125)	BCMA
JNJ-4528	BCMA
Idecabtagene vicleucel (Ide-cel; bb2121)	BCMA
LCAR-B38M	CD38
CT053	BCMA
MCARH171	BCMA



Clinical Pearls

- CAR-T engineers patients own T cells, which takes ≈4-6 weeks
  - Must have sufficient blood counts to be eligible
  - Must be able to wait/have bridging therapy for CAR-T to be produced
- Different CAR-T products have different methods and targets; different safety profiles for different products
  - CRS experienced by nearly all patients; mild to severe

BCMA = B-cell maturation antigen; CAR-T = chimeric antigen receptor T cell; CRS = cytokine release syndrome.

Munshi NC, et al. ASCO 2020. Abstr #8503. Mailankody S, et al. ASCO 2020. Abstr #8504. Berdja JG, et al. ASCO 2020. Abstr #8505. Madduri D, et al. ASH 2019. Abstr #577. Raje NS, et al. ASH 2018. Abstr #8007. Zhao W-H, et al. ASH 2018. Abstr #955. Mailankody S, et al. ASH 2018. Abstr #959.

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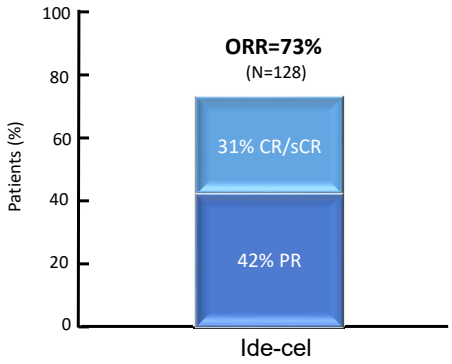
KarMMa Phase 2 Clinical Trial: Ide-Cel in R/R MM

Design

- Idecabtagene vicleucel (ide-cel; bb2121): CAR-T therapy targeting BCMA
- 128 patients with R/R MM treated with
  - ≥3 prior therapies, including PI, IMiD, and anti-CD38 OR refractory to last regimen
  - Median of 6 prior therapies

Results

- Dose-escalation study
- **73% ORR** (31% CR/sCR)
- Median DoR: 10.6 months
- 84% CRS with 5% grade ≥3
- ORR, DoR, and AEs higher at higher doses



AE = adverse event; BCMA = B-cell maturation antigen; CAR-T = chimeric antigen receptor T cell; CR = complete response; CRS = cytokine release syndrome; DoR = duration of response; IMiD = immunomodulary agent; MM = multiple myeloma; ORR = overall response rate; PI = proteasome inhibitor; PR = partial response; R/R = relapsed/refractory; sCR = stringent complete response.

Munshi NC, et al. ASCO 2020. Abstr #8503.

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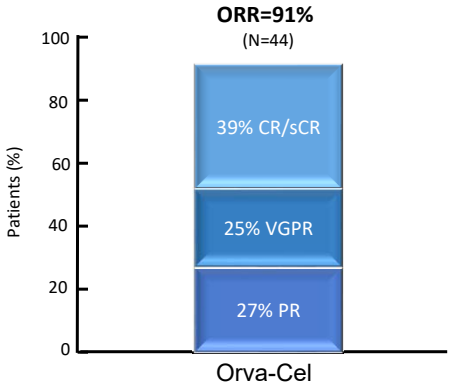
EVOLVE Phase 1/2 Clinical Trial: Orva-Cel in R/R MM

Design

- Orvacabtagene autoleucel (orva-cel): CAR-T therapy targeting BCMA
- 44 patients with R/R MM
  - ≥3 prior therapies, including PI, IMiD, and anti-CD38
  - Median 6 prior therapies

Results

- **91% ORR**
- CRS managed with tocilizumab and/or steroids (78%), anakinra (14%), and/or vasopressors (6%)
  - Grade ≥3 CRS: 2%
- Median PFS not reached at a median follow-up of 5.9 months



BCMA = B-cell maturation antigen; CAR-T = chimeric antigen receptor T cell; CR = complete response; CRS = cytokine release syndrome; IMiD = immunomodulary agent; MM = multiple myeloma; ORR = overall response rate; PFS = progression-free survival; PI = proteasome inhibitor; PR = partial response; R/R = relapsed/refractory; sCR = stringent complete response; VGPR = very good partial response.

Mailankody SM, et al. ASCO 2020. Abstr #8504.

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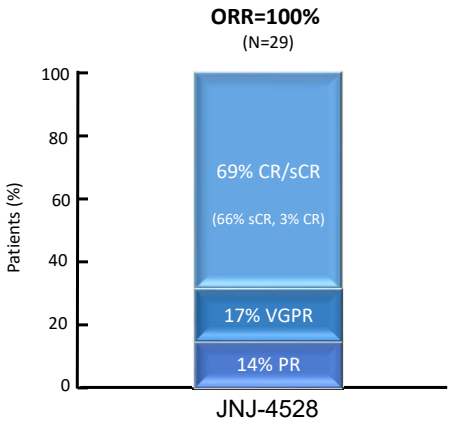
CARTITUDE-1 Phase 1b/2 Clinical Trial: JNJ-4528 in R/R MM

Design

- JNJ-4528: CAR-T therapy with 2 BCMA-targeting domains
- 29 patients with progressive MM
  - ≥3 prior therapies, including PI, IMiD, and anti-CD38 OR refractory to PI and IMiD

Results

- **100% ORR**
- Deep responses: 66% sCR
- Median time to first response: 1 month (range, 1-3 months)
- 90% (26 of 29 patients) remained progression-free at median follow up of 9 months



BCMA = B-cell maturation antigen; CAR-T = chimeric antigen receptor T cell; CR = complete response; IMiD = immunomodulary agent; MM = multiple myeloma; ORR = overall response rate; PI = proteasome inhibitor; PR = partial response; sCR = stringent complete response; VGPR = very good partial response.

Madduri D, et al. ASH 2019. Abstr #577. Berdja JG, et al. ASCO 2020. Abstr #8505.

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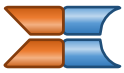
T-Cell Engagers: Combine mAb Targeting With a T-Cell Activation Domain

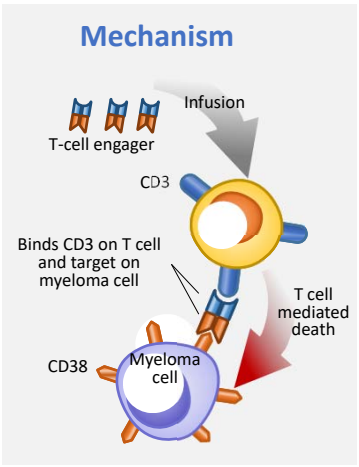
Bispecific T-cell Engagers: BITEs™

AMG424: CD38 + CD3



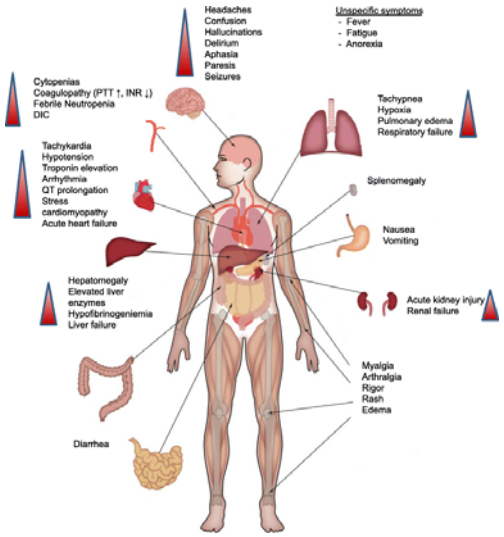
AMG420: CD269 (BCMA) + CD3

AMG701: CD269 (BCMA) + CD3
Half-life enhanced



BCMA = B-cell maturation antigen; mAb = monoclonal antibody.
Zuch de Zafra CL, et al. *Clin Cancer Res.* 2019;25(13):3921-3933. Cho S-F, et al. ASH 2019. Abstr #135. Topp MS, et al ASH 2018. Abstr #1010.

Cytokine Release Syndrome: Possible Adverse Reaction With CAR-T and T-Cell Engagers



WATCH FOR

- New clinical data on CAR-T and T-cell engagers, promising new therapies in early-stage development for patients with multiple myeloma
- Learning opportunities for understanding/managing CRS

CAR-T = chimeric antigen receptor T cell; CRS = cytokine release syndrome.
Shimabukuro-Vornhagen, et al. *J Immunother Cancer.* 2018;6:56.

Belantamab Mafodotin (GSK2857916) Is a Newly-Approved Humanized Monoclonal Antibody Drug Conjugate

NOW APPROVED

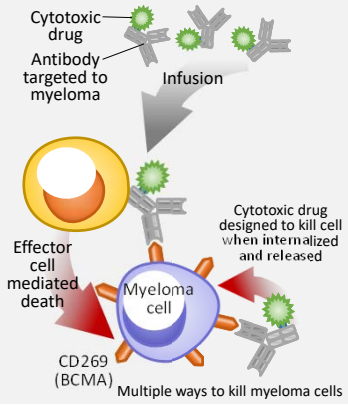
For adult patients with R/R MM who have received at least 4 prior therapies, including an anti-CD38 mAb, proteasome inhibitor, and an immunomodulatory agent

GSK2857916
- GSK'916 is a humanized IgG1 antibody targeting BCMA (B-cell maturation antigen)
  - Linked to the antimitotic agent MMAF
  - Afucosylated to enhance ADCC

Target
- BCMA plays a key role in plasma cell survival
- It is found on the surfaces of plasma cells and is overexpressed on malignant plasma cells
- Not expressed in healthy tissues

Key Attributes
- New modality in multiple myeloma: first ADC
- Easy and convenient to administer: 1-hour infusion q3w
- No premedication for infusion reactions
- New mechanism enabling diverse combinations

Mechanism



ADC = antibody-drug conjugate; ADCC = antibody-dependent cell-mediated cytotoxicity; BCMA = B-cell maturation antigen; Ig = immunoglobulin; mAb = monoclonal antibody; MM = multiple myeloma; MMAF = monomethylauristatin-F; q = every; w = week; R/R = relapsed refractory.

Trudel S, et al. *Blood Cancer J.* 2019;9:37.

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DREAMM-2 Phase 2 Clinical Trial: Belantamab Mafodotin (GSK2857916)

Design

196 patients with R/R MM
- Progressive disease
- Refractory to IMiDs and PIs and refractory/intolerant to anti-CD38

	2.5 mg/kg (n=97) (safety population n=95)	3.4 mg/kg (n=99) (safety population n=99)
ORR	31%	34%
Most-common Grade 3/4 AEs		
Keratopathy	27%	29%
Thrombocytopenia	20%	33%
Anemia	20%	25%
Any SAE	40%	47%

Conclusion: Single-agent belantamab mafodotin shows anti-myeloma activity with a manageable safety profile in patients with R/R MM

Clinical Pearls
- Convenient dosing: 1-hour infusion q3w
- New mechanism, new AE profile (keratopathy)

NEW DATA at ASCO 2020

DREAMM-6 clinical trial
- Combination belantamab + Vd in patients with MM and ≥1 prior therapy line was safe

WATCH FOR
- FDA approval
- Learning opportunities about this novel antibody-drug conjugate

AE = adverse event; ASCO = American Society of Clinical Oncologists; FDA = US Food and Drug Administration; IMiD = immunomodulary agent; mAb = monoclonal antibody; MM = multiple myeloma; ORR = overall response rate; PI = proteasome inhibitor; q = every; R/R = relapsed/refractory; SAE = serious adverse event; Vd = bortezomib dexamethasone; w = week.

Lonial S, et al. *Lancet Oncol.* 2020:21(2):207-221. Nooka AK, et al. ASCO 2020. Abstr #8502.

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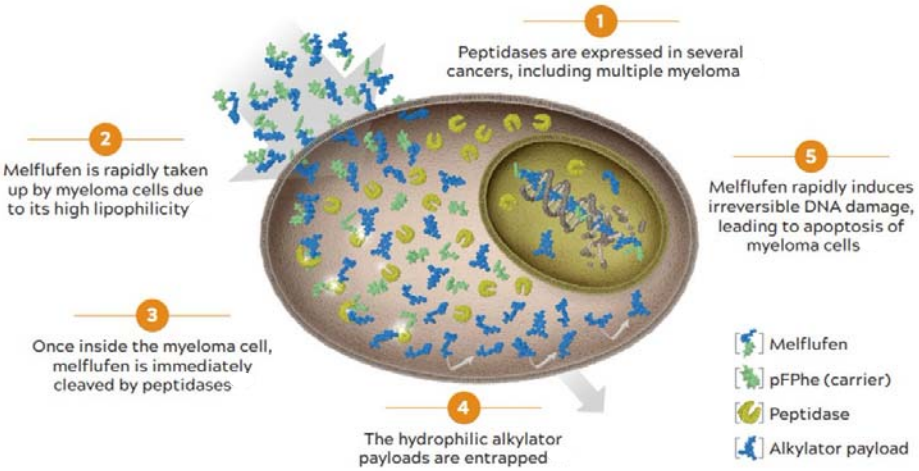
Melphalan Flufenamide: Mechanism of Action



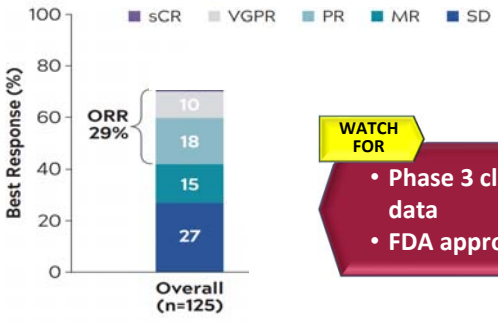
pFPhe = p-Fluorophenylalanine.
Mateo MV. ASH 2019. Abstr #1883. Oncopeptides website. https://oncopeptides.se/en/mechanism-of-action/. Accessed May 1, 2020.

Horizon Phase 2 Clinical Trial: Melphalan Flufenamide + Dex

Design
- 154 patients with R/R MM
  - Progressive disease at study entry
  - Median lines of prior therapy: 5 (2-12)
  - 57% refractory to IMiD and PI
  - 51% refractory to anti-CD38 mAb
  - 46% triple-class refractory

Results
- 83% of patients had a reduction of M-protein
- 29% ORR
- 21% ORR in patients with high-risk cytogenetics
- Most-common Grade 3/4 AEs: cytopenias
- SAEs: infection, febrile neutropenia, thrombocytopenia, neutropenia

Clinical Pearls
- Melphalan flufenamide: IV drug with encouraging activity
- Grade 3/4 AEs were mostly hematologic



WATCH FOR
- Phase 3 clinical data
- FDA approval

AE = adverse event; dex = dexamethasone; FDA = US Food and Drug Administration; IMiD = immunomodulary agent; IV = intravenous; M-protein = monoclonal protein; mAb = monoclonal antibody; MM = multiple myeloma; MR = minimal response; ORR = overall response rate; PI = proteasome inhibitor; PR = partial response; R/R = relapsed/refractory; SAE = serious adverse event; sCR = stringent complete response; SD = stable disease; VGPR = very good partial response.
Mateo MV. ASH 2019. Abstr #1883.

CASE #5:

Carl*

- 73-year-old man diagnosed with MM in 2010
- Treatment history:
  - High risk: gain(1q)
  - Thal/dex
  - Bortezomib/dex then transplant + len maintenance
  - Carfilzomib on clinical trial
  - Elo/pom/dex
  - Daratumumab/bortezomib/dex
- Now: selinexor (3 months)
  - Antiemetics
  - Bone-strengthening agents
  - Care plan: venetoclax future option

*HIPAA-compliant, stock photo (not actual patient).

dex = dexamethasone; Elo = elotuzumab; HIPAA = Health Insurance Portability and Accountability Act; MM = multiple myeloma; pom = pomalidomide; Thal = thalidomide.

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Nursing Implications of New Myeloma Treatments

- New drugs and drug classes mean HCPs need education
  - When and how to use
  - How to manage patients—new and potentially unfamiliar AEs
  - How to educate patients

WATCH FOR Learning opportunities as new drugs for MM are approved

AE = adverse event; HCP = health care provider; MM = multiple myeloma.

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IMF's Research Initiatives: Black Swan and iStopMM Search for Myeloma Cure

Black Swan Research Program

- Develop sensitive MRD testing: Next-generation flow: 10^{-6} level
- Standardize testing across laboratories
- CURE Trials: patients with high-risk SMM treated to achieve MRD-negative status
- Studying "resistant" disease in patients not achieving MRD-negative status

BLACK SWAN RESEARCH INITIATIVE®
Signature Project of the International Myeloma Foundation

iStopMM (one of the Black Swan trials)

iStopMM (Iceland Screens, Treats, or Prevents Multiple Myeloma) clinical study

- 80,000 individuals screened: MGUS, SMM, and MM identified
- deCODE genetics available for all participants
- Now: analyzing data to understand clues to possible causes for MGUS, SMM, and MM
- Now: understanding how early MGUS begins

IMF = International Myeloma Foundation; MGUS = monoclonal gammopathy of unknown significance; MM = multiple myeloma; MRD = minimal residual disease; SMM = smoldering multiple myeloma.

Durie B; International Myeloma Foundation. IMF website. https://www.myeloma.org/cure-blog/black-swan-research-projects-forge-ahead-2020. Accessed June 8, 2020.

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Resources to Enhance Your Ability to Care for Your Patients With MM: Download or Receive a USB Drive by Mail

…and Much, Much More

Instructions for accessing these resources are provided in the post-course evaluation

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