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LEUKEMIA & LYMPHOMA SOCIETY

FREE TELEPHONE/WEB EDUCATION PROGRAM

LIVING WITH MULTIPLE MYELOMA

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Rye Brook, NY

BEATING CANCER IS IN OUR BLOOD.

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FREE TELEPHONE/WEB EDUCATION PROGRAM

LIVING WITH MULTIPLE MYELOMA

Noa Biran, MD
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DISCLOSURES

Living with Multiple Myeloma

Noa Biran, MD:

Grant/Research: Merck, Karyopharm, BMS, & Janssen

Consultant: Janssen, Karyopharm, BMS, Sanofi, & Oncopeptides

Speaker Bureau: Janssen, Karyopharm, BMS, Sanofi, & Oncopeptides

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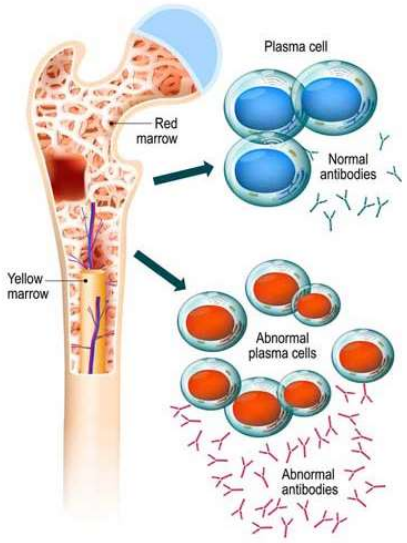
What is Multiple Myeloma?

- Blood cancer that develops in bone marrow, where blood cells are produced
- Plasma cells, a type of white blood cell, become malignant
  - Plasma cells, produce infection fighting antibodies called immunoglobulins
- Malignant plasma cells (myeloma cells)
  - Produce large quantities of abnormal antibodies: monoclonal or M proteins, light chains (Bence-Jones)
  - Crowd out and inhibit production of normal blood cells and antibodies



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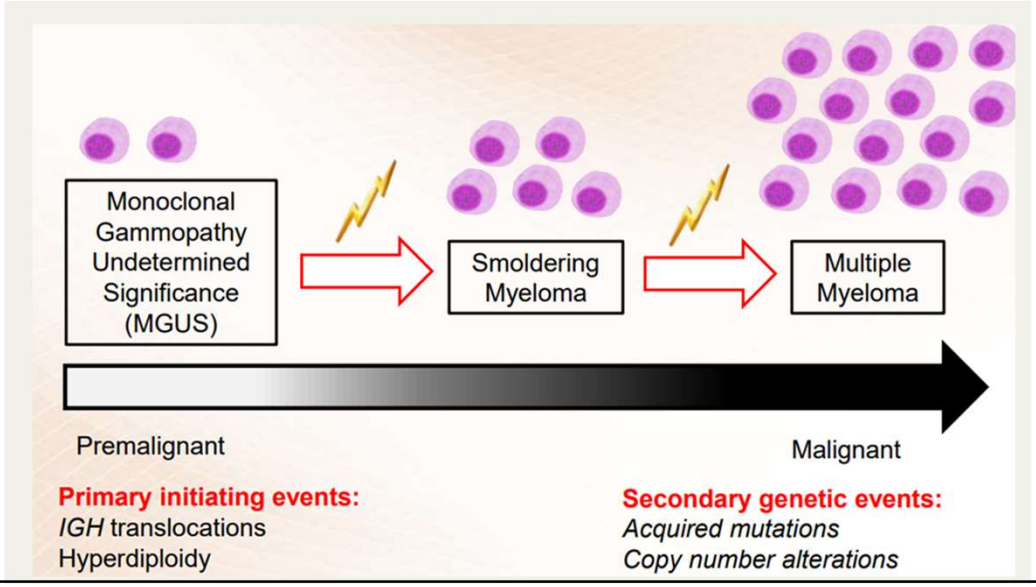
Progression to Multiple Myeloma



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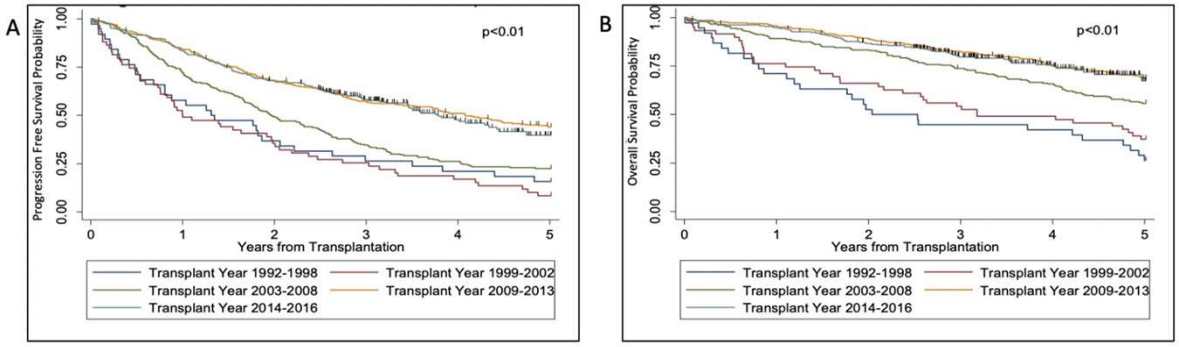
Survival Continues to Improve for Patients with Multiple Myeloma

Figure 1.



Jordan Nunnelee, BA,Qiuhong Zhao, MS,Don M. Benson, Jr., MD PhD,Ashley E. Rosko, MD,Maria Chaudhry, MD,Naresh Bumma, MD,Abdullah Mohammad Khan, MBBS,MSc,Srinivas Devarakonda, MD,Yvonne A. Efebera, MD MPH,Nidhi Sharma, PhD, Improvement in Survival of Multiple Myeloma Patients: A Long-Term Institutional Experience, Blood, 2019,

American Society of Hematology
Helping hematologists conquer blood diseases worldwide

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Triple Class Refractory Multiple Myeloma

- Disease progression while on or within 60 days of a

Proteasome inhibitor
- Bortezomib
- Carfilzomib
- Ixazomib

Immunomodulator
- Thalidomide
- Lenalidomide
- Pomalidomide

Anti-CD38 Monoclonal Antibody
- Daratumumab
- Isatuximab

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Triple-Class Refractory: When All Else Fails FDA Approved

Chemotherapy	BCMA-Directed	XPO1-inhibitor	Mono-Abs	HDAC-inhibitor	Peptide drug conjugate
KD-PACE/VDP-PACE/VDR-PACE	Belantamab mafodotin	Selinexor	Isatuximab	Panobinostat	Melflufen
Cyclophosphamide	Ide-cel		Elotuzumab	Vorinostat*	
Melphalan					
Bendamustine*					

*Not FDA approved for MM

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Triple Class Refractory: When All Else Fails Ongoing Clinical Trials

Monoclonal Antibodies and ADCs	CELMoDs/small molecule inhibitors	BiSpecifics	Cellular Therapies
TAK-079 (high-affinity CD38) TAK-169 (CD38 fused with shiga-like toxin payload) TAK-573 (CD38 fused with IFHNa2b)	Iberdomide (cereblon E3 ligase) CCC-92480 (cereblon E3 ligase) Venetoclax (bcl-2)	BCMA x CD3: AMG-701 Teclistimab CC-93269 REGN5458 Elranatamab GPRC5D x CD3 Talquetamab	Cilta-cel Orva-cel LCAR-B38M Lummicar-2 ALLO-715 Descartes-011 and -018

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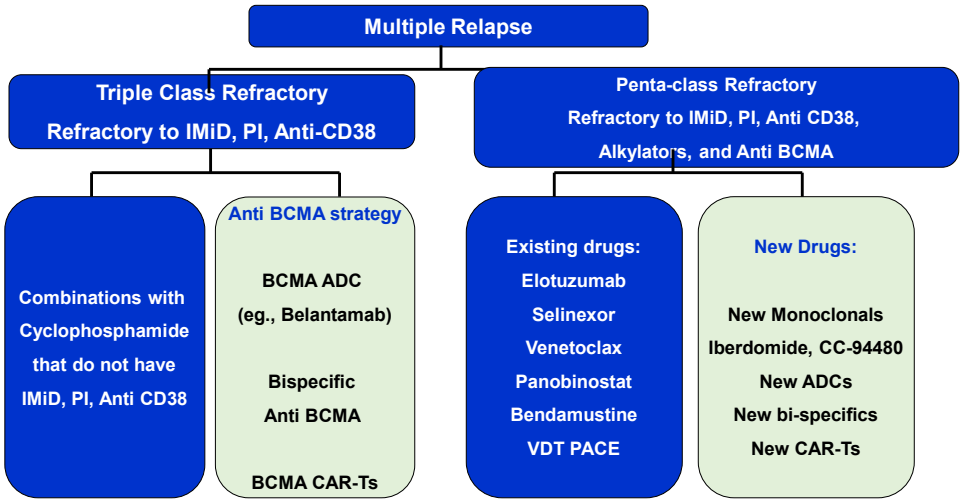
Proposed Treatment Algorithm



Rajkumar SV © 2020

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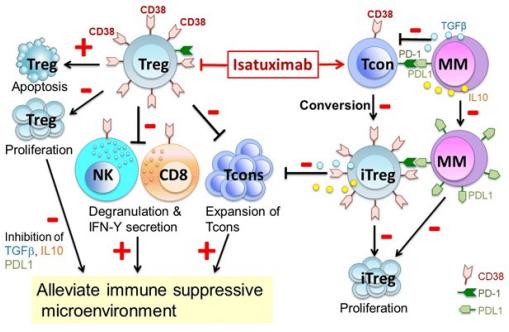
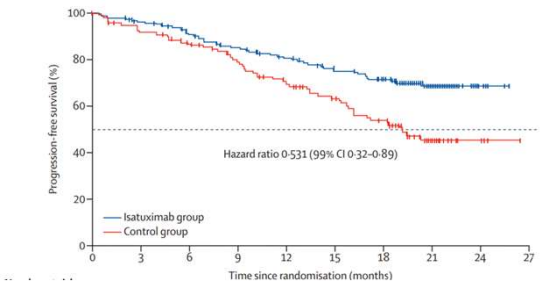
IKEMA – Isatuximab/car/dex vs car/dex

- Patients had 1-3 prior therapies
- Median 2 prior lines, 93% prior PI, 76% prior len, 20% refractory to IMId and PI.
- Median PFS NR v 19.15 months, HR = 0.53, median f/u 20.7



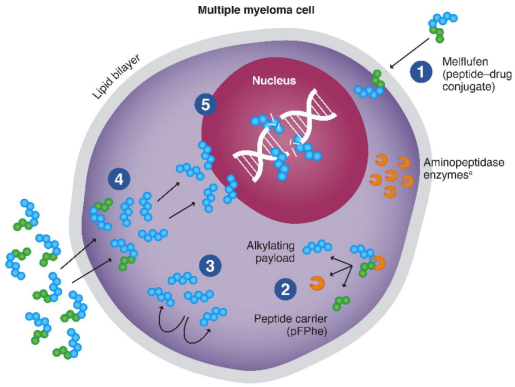


Moreau P, et al. Lancet, 2021.

12

OCEAN Study – Melphalan flufenamide +dex versus pom/dex

- 2-4 prior therapies, planned 495 patients, ongoing
- 16% v 12% triple class refractory, 51% and 48% previous ASCT



Median PFS

6.8 vs 4.9 months HR 0.79, p=0.03

No prior ASCT, 9.3 v 4.6 months HR 0.59, p <0.001.

In PRIOR ASCT, no difference in median PFS

Schjesvold, et al. IMW 2021, Abstract OAB50

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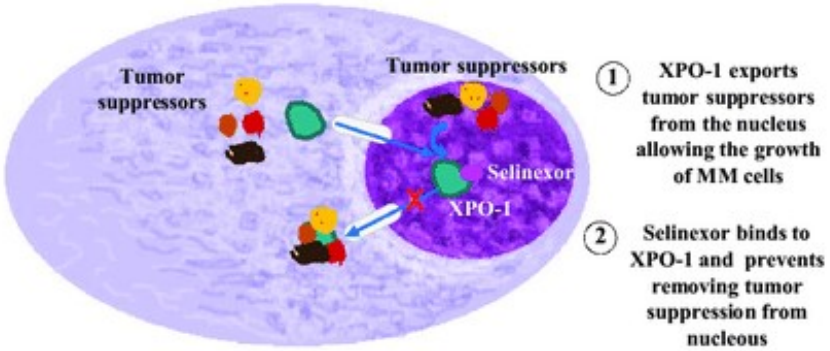
BOSTON Study – Selinexor/bortezomib/dex vs bortezomib/dex

- 1-3 prior therapies, N=402, 13 triple-class exposed, 6 triple-class refractory
- Median PFS 13.9 vs 9.5 months, HR 0.70



Groscki et al, Lancet 2020

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Antibody Drug Conjugates

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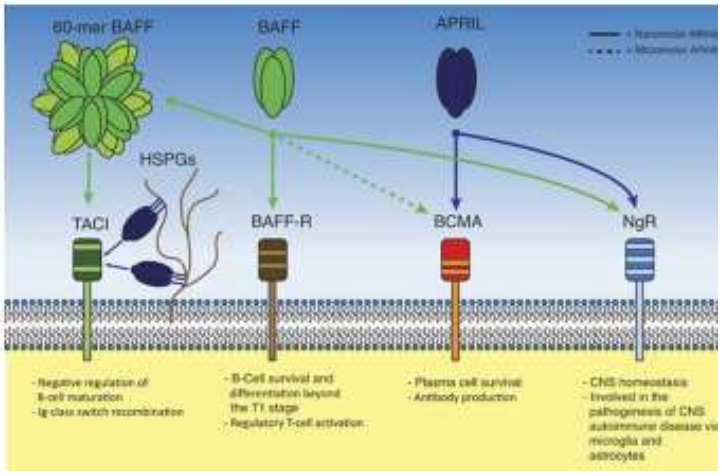
BCMA – B-cell Maturation Antigen



- Receptor for BAFF and APRIL
- Expressed on mature B cell subsets, plasma cells and plasmacytoid DCs
- Maintains plasma cell homeostasis.

Hengeveld et al Bl Cancer J 2015 ; Maus, June, Clin Can Res 2013

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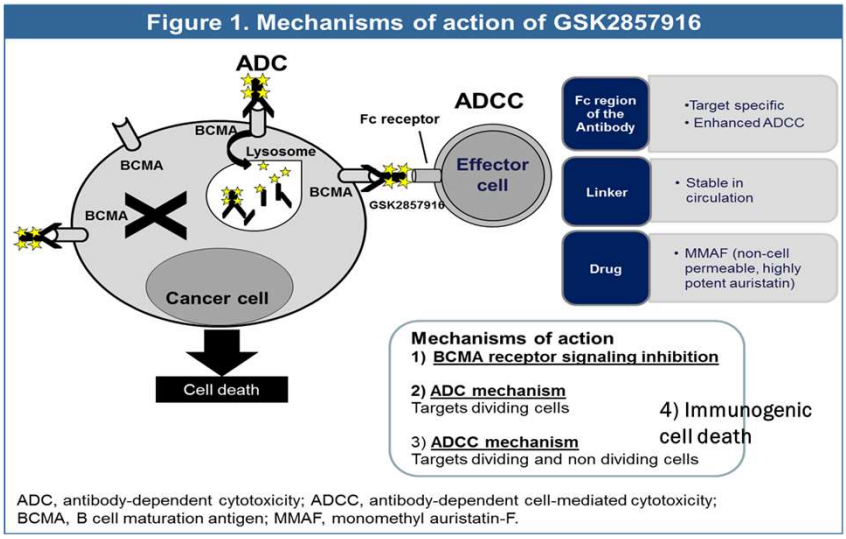
Belantamab Mafodotin



Anderson et al. AACR 2016. #CT034

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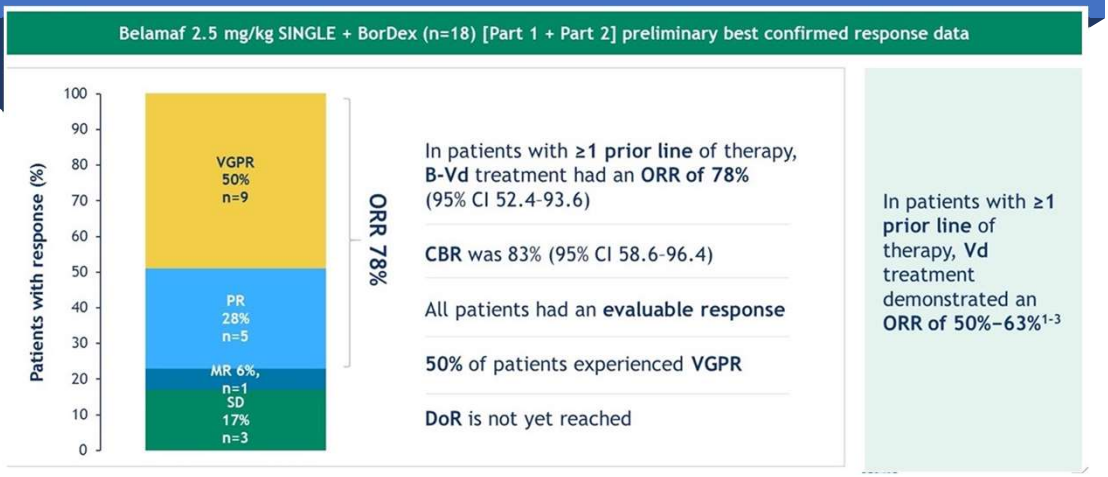
Belantamab + bortezomib + dex DREAMM-6



Nooka A, et al, ASCO, 2020.

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DREAMM-5 Belantamab in combination with 5 different novel agents

Sub-study 1: Belamaf and Anti-OX40 GSK3174998

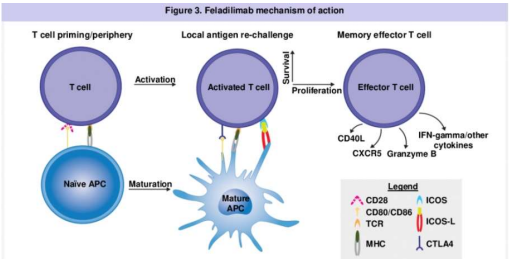
GSK3174998 is a humanized wild-type immunoglobulin G (IgG1) anti-OX40 agonistic monoclonal antibody (mAb) that binds to the co-stimulatory OX40 receptor, expressed primarily on activated $CD4^+$ and $CD8^+$ T cells. OX40 signalling promotes effector T-cell proliferation and survival, while blocking the suppressive function of T_{reg} cells, inducing a T-cell mediated immune response against cancer cells.

Combining belamaf with OX40 could increase anti-tumor activity via increased infiltration and activation of intra-tumor DCs, antigen-presenting T cells, and induce hallmarks of immunogenic cell death (ICD)[5] potentially leading to an adaptive immune response. This sub-study is now closed to accrual.

Sub-study 2: Belamaf and Feladilimab

Feladilimab (GSK3359609) is a humanized anti-ICOS IgG4 mAb selected for its nanomolar binding to, and agonist activity in, ICOS-expressing $CD4^+$ and $CD8^+$ effector T cells.[9]

Figure 3. Feladilimab mechanism of action



Holkova B A, et al, IMW 2021, Abstract ID 1072757.

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CELMoDS and Small Molecule Inhibitors

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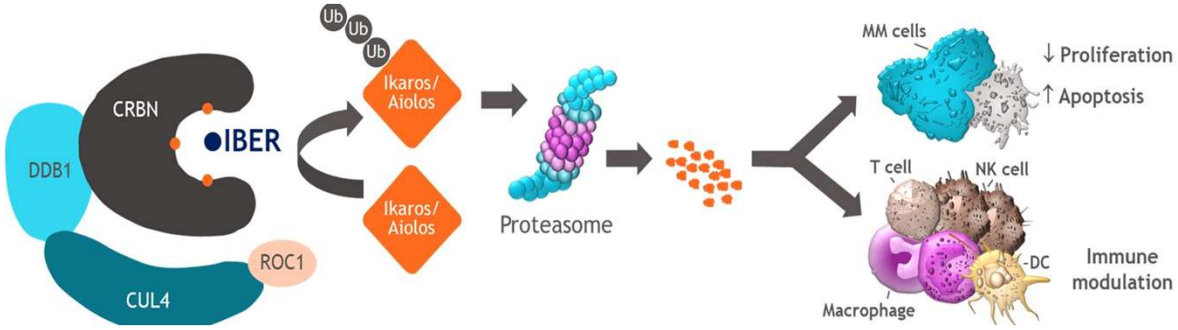
Iberdomide

- Oral, potent novel CRBN E3 ligase modulator compound that co-opts Cereblon to enable enhanced degradation of target proteins including Ikaros and Aiolos
- In preclinical models, induces potent direct antimyeloma and immune-stimulatory activity
- Active in len- and pom-resistant myeloma cell lines and enhances cell mediated killing through immune stimulation.



Matyskiela ME et al, J Med Chem 2018; 61:535-42.
Bjorklund CC, et al,. Leukemia. 2020:34:1197-1201.

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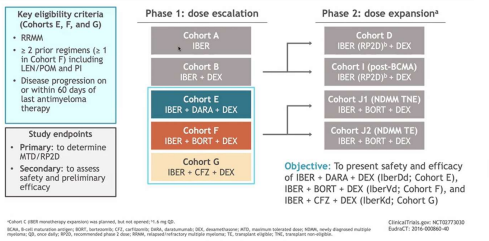
Iberdomide in combination with daratumumab, bortezomib and carfilzomib

CC-220-MM-001: study design and objective



	IberDd (N=43)	IberVd (N=25)	IberKd (N=9)
ORR	45.9%	56%	50%
Median DOR	NR	35.7 weeks	NR

Prior therapies and refractory status

Characteristic	IberDd (N = 43)	IberVd (N = 25)	IberKd (N = 9)
Prior therapies, median (range), n	4 (2-13)	5 (1-14)	6 (2-8)
ASCT, n (%)	34 (79.1)	22 (88.0)[a]	9 (100)[b]
IMiD[b] agent, n (%)	43 (100)	25 (100)	9 (100)
POM	28 (65.1)	19 (76.0)	8 (88.9)
PI, n (%)	43 (100)	25 (100)	9 (100)
BORT	41 (95.3)	24 (96.0)	9 (100)
Anti-CD38 mAb, n (%)	21 (48.8)	23 (92.0)	9 (100)
IMiD-refractory,[c] n (%)	41 (95.3)	20 (80.0)	8 (88.9)
POM	28 (65.1)	14 (56.0)	5 (55.6)
PI-refractory, n (%)	37 (86.0)	17 (68.0)	6 (66.7)
BORT	17 (39.5)	11 (44.0)	4 (44.4)
CFZ	25 (58.1)	9 (36.0)	5 (55.6)
Ixazomib	13 (30.2)	4 (16.0)	0
Anti-CD38 mAb-refractory, n (%)	16 (37.2)	20 (80.0)	7 (77.8)
Triple-class refractory,[d] n (%)	14 (32.6)	12 (48.0)	5 (55.6)

More than one-third of patients in all 3 cohorts were triple-class refractory

RP2D 1.6 mg in IberDd cohort
Dose evaluation continues in IberVd and IberKd cohorts.

Lonial et al, IMW 2021. Abstract 1087033.

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Cellular Therapies

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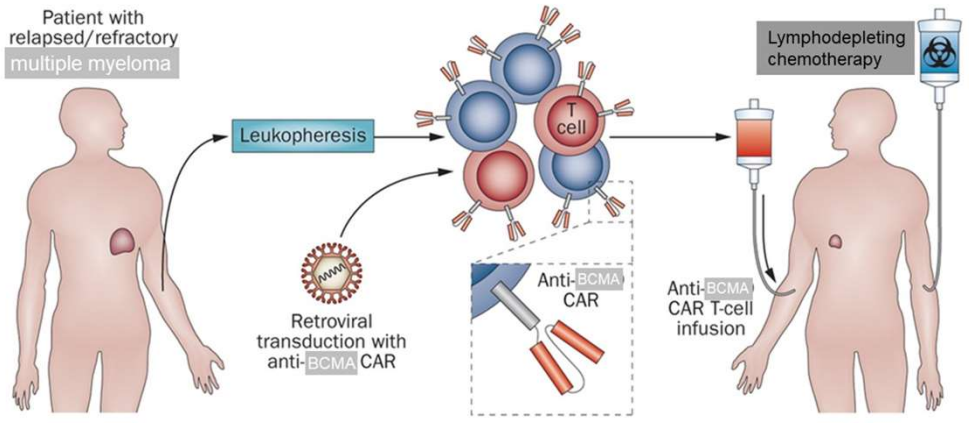
CAR-T Cell Therapy



Klebanoff et al., *Nature Rev. Clin. Oncol* 2014

In myeloma-CAR-T cells target myeloma-specific antigens, i.e. BCMA

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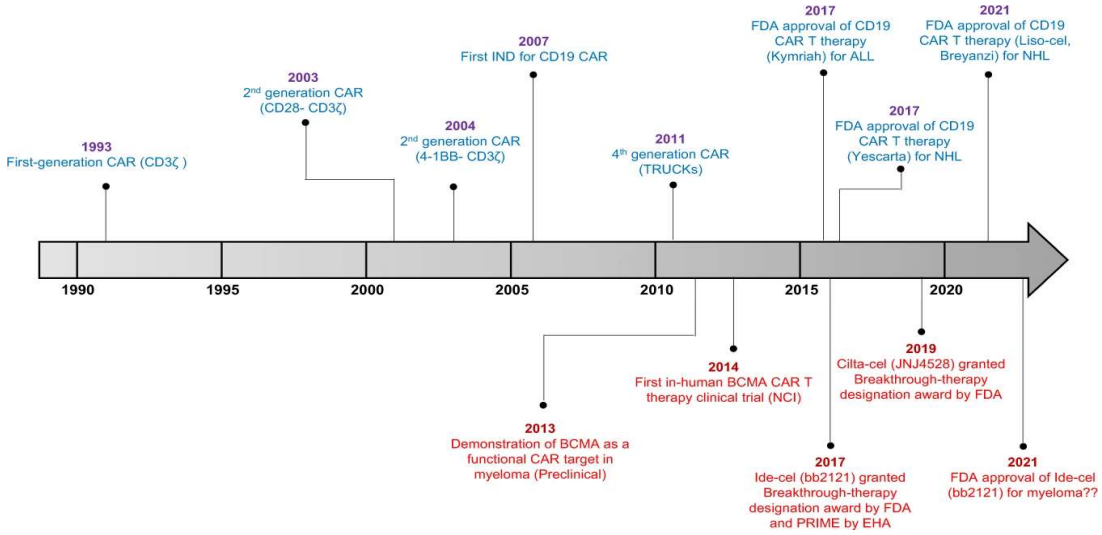
Timeline of CAR-T cell Development in Multiple Myeloma



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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Idecabtagene Vicleucel in Relapsed and Refractory Multiple Myeloma

Nikhil C. Munshi, M.D., Larry D. Anderson, Jr., M.D., Ph.D., Nina Shah, M.D., Deepu Madduri, M.D., Jesús Berdeja, M.D., Sagar Lonial, M.D., Noopur Raje, M.D., Yi Lin, M.D., Ph.D., David Siegel, M.D., Ph.D., Albert Oriol, M.D., Philippe Moreau, M.D., Ibrahim Yakoub-Agha, M.D., Ph.D., Michel Delforge, M.D., Michele Cavo, M.D., Hermann Einsele, M.D., Hartmut Goldschmidt, M.D., Katja Weisel, M.D., Alessandro Rambaldi, M.D., Donna Reece, M.D., Fabio Petrocca, M.D., Monica Massaro, M.P.H., Jamie N. Connarn, Ph.D., Shari Kaiser, Ph.D., Payal Patel, Ph.D., Liping Huang, Ph.D., Timothy B. Campbell, M.D., Ph.D., Kristen Hege, M.D., and Jesús San-Miguel, M.D., Ph.D.

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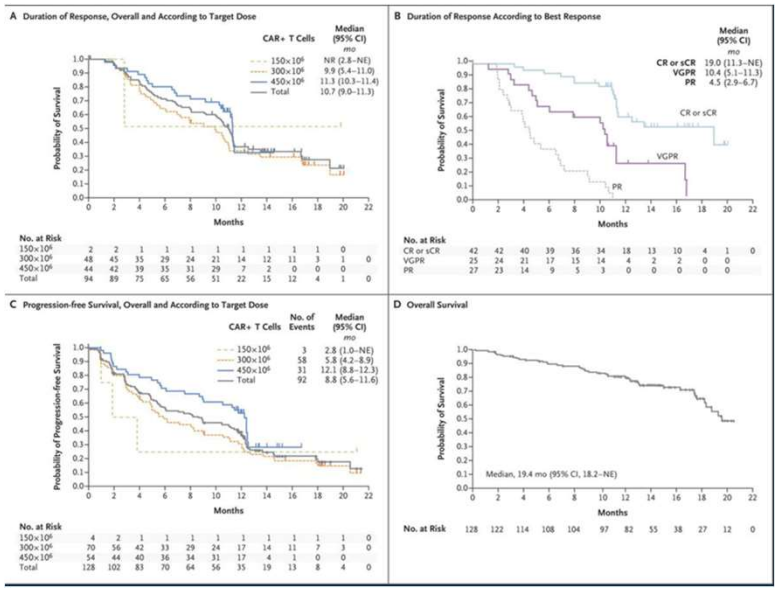
Ide-Cel – Median PFS 11.3 mos.



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2021 ASCO ANNUAL MEETING

8005. CILTACABTAGENE AUTOLEUCEL, A B-CELL MATURATION ANTIGEN–DIRECTED CHIMERIC ANTIGEN RECEPTOR T-CELL THERAPY, IN RELAPSED/REFRACTORY MULTIPLE MYELOMA: UPDATED RESULTS FROM CARTITUDE-1

Saad Z Usmani[1], Jesus G Berdeja[2], Deepu Madduri[3], Andrzej Jakubowiak[4], Mounzer Agha[5], Adam D Cohen[6], Parameswaran Hari[7], Tzu-Min Yeh[8], Yunsi Olyslager[9], Arnob Banerjee[10], Carolyn C Jackson[8], Alicia Allred[10], Enrique Zudaire[10], William Deraedt[9], Xiaoling Wu[11], Marlene J Carrasco-Alfonso[11], Muhammad Akram[11], Yi Lin[12], Thomas Martin[13], Sundar Jagannath[3]

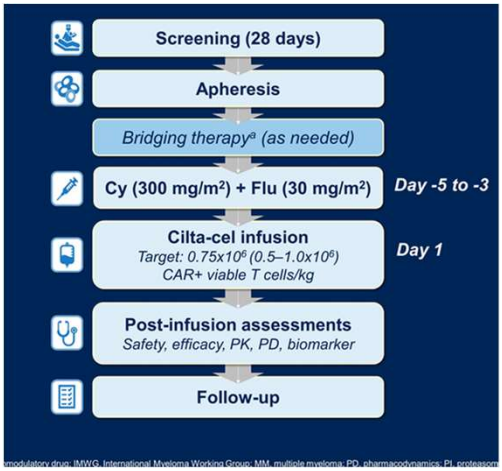
[1]Levine Cancer Institute-Atrium Health, Charlotte, NC, USA; [2]Sarah Cannon Research Institute, Nashville, TN, USA; [3]Mount Sinai Medical Center, New York, NY, USA; [4]University of Chicago, Chicago, IL, USA; [5]UPMC Hillman Cancer Center, Pittsburgh, PA, USA; [6]Abramson Cancer Center, University of Pennsylvania, Philadelphia, PA, USA; [7]Medical College of Wisconsin, Milwaukee, WI, USA; [8]Janssen R&D, Raritan, NJ, USA; [9]Janssen R&D, Beerse, Belgium; [10]Janssen R&D, Spring House, PA, USA; [11]Legend Biotech USA, Inc, Piscataway, NJ, USA; [12]Mayo Clinic, Rochester, MN, USA; [13]UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, CA, USA

Primary Objectives:
Phase 1b: Safety and RP2D
Phase 2: Efficacy

Key Eligibility:
- Progressive MM per IMWG criteria
- 3 or more prior lines of therapy OR double refractory
- Prior PI, IMiD, and anti-CD38
- ECOG PS 1 or better

Usmani S et al, ASCO 2021

Study Design:



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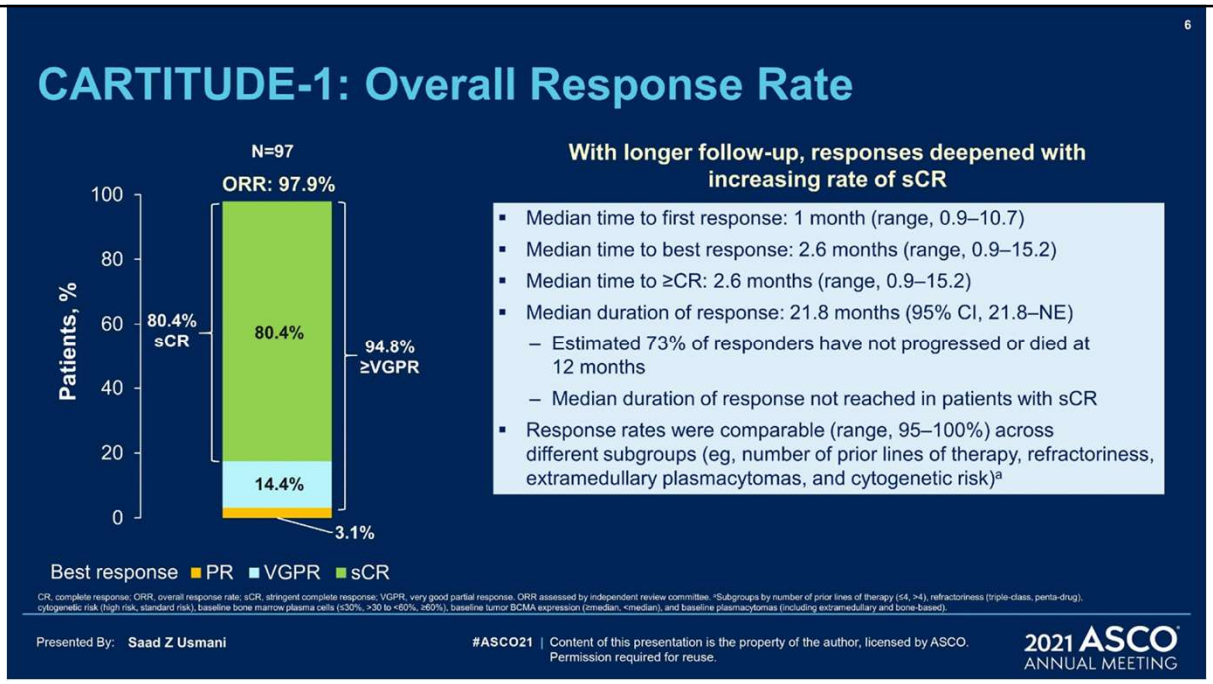

Usmani S et al, ASCO 2021

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Ide-Cel versus Cilta-Cel

CART	Ide-Cel	Cilta-Cel
Study Design	KarMMA-2 (phase 2)	CARTITUDE-1 (phase 1b/2)
Target	BCMA	BCMA
Patients, median age	n= 128, 61	n= 97, 61
Median prior lines	6 (3-6)	6 (3-8)
Triple-class/penta refractory	84%/26%	87.6%/42.3%
Tumor BCMA expression (≥50%)	85%	91.9%
CART target dose	150 – 450 × 10^6 CAR T-cells	0.75 × 10^6 CAR T-cells/kg
ORR at therapeutic dose	81% (450 × 10^6)	97.9% (0.75 × 10^6)
≥VGPR/≥CR/MRD rates	65%/39%/28%	94.8%/80.4%/57.7%
PFS/DOR	12.1(8.8 -12.3)/11.3 (10.3 -11.4)	18-month PFS - 66%/DOR - 21.8 m
OS	19.4 mo (95% CI, 18.2–NE)	18-month OS - 80.9%
CRS (any Grade/>Grade 3)	96%/6%	94.8%/5.4%
Median time to onset/duration of CRS	1 day (1-12)/5 days (1-63)	7 days (1-12)/4 days (1-97)
Neurotoxicity (any Grade/>Grade 3)	18%/3%	20.6%/10.3%
Neutropenia (any Grade/>Grade 3)	91%/89%	95.9%/94.8%
Anemia (any Grade/>Grade 3)	70%/60%	81.4%/68%
Thrombocytopenia (any Grade/>Grade 3)	63%/52%	79.4%/59.8%
Hypocalcemia	27%/8%	32%/3.1%
Hypophosphatemia (any Grade/>Grade 3)	30%/16%	30.9%/7.2%

Nooka A, ASCO 2021.

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Novel CAR-T Cell Approaches

Trial Name	Sponsor	Phase	Antigen	Co-Signaling Domain	Transfer Method	Cell Source	Response
NCT03455972	Soochow University	1-2	CD19+ BCMA	OX40/CD28+ EGFRt	Lentiviral	autologous	ORR 100%
NCT04613557	Celyad	1	BCMA	NA	NA	Allogeneic - shRNA based elimination of TCR	NA
NCT04093596	Allogene	1	BCMA	NA	N/A	Allogeneic	ORR 60% at Dose-level 3

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Incremental Cost-effectiveness Thresholds for Coverage

- Between **$50,000** and **$150,000** per QALY is generally considered to be cost-effective in the US
  - Societal willingness to pay (~1-3x per capita GDP)
  - Individual WTP (~2x annual salary)
- UK: **~$30,000**/QALY
- Sweden: **~$50,000**/QALY

Ide-Cel Cost Effective Analysis

Key Findings: Incremental cost-effectiveness

- Ide-cel
  - List Price: $419,500 per infusion
  - Total cost: $646,000
- Life years gained: 1.5
- Incremental cost-effectiveness ratio: **$319,000**/QALY
- Probabilistic sensitivity analysis
  - < $50,000 / QALY: <1%
  - < $100,000 / QALY: <1%
  - < $150,000 / QALY: 3%

CONCLUSIONS:

- Ide-cel provides net clinical benefit over historical treatment, though uncertainty is large
- The therapy is **NOT** cost effective at current prices
  - Cost/QALY >> $150,000
- Discounts from the list price of at least 37% are needed to approach reasonable willingness to pay thresholds in the US

Tice JA. ASCO 2021.

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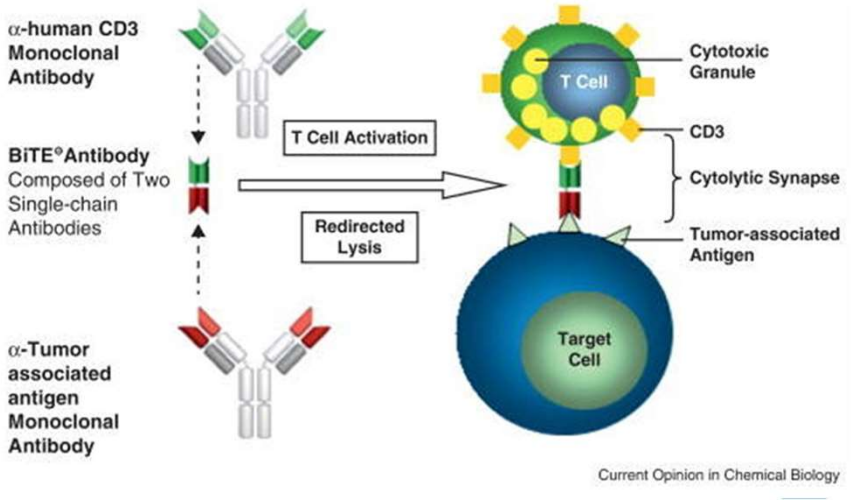

Bi-Specifics/T-cell Engagers

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BiTEs have potential advantages over CAR-T

- Off the shelf v time consuming production
- Precise dosing vs drug variability
- Broad range of specifies
- Improved tolerability with diminished rate sof CRS/ICANS/hematotoxicity.
- Retreatment has been successful
- Deepest remission after 1- 3months (CAR –T >2 months for optimal response)

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Bispecific Antibodies Summary

Bispecific	Teclistamab	Elranatamab	Talquetamab	AMG-701	CC-93269	REGN5458
Target	BCMA	BCMA	GPRC5D	BCMA	BCMA	BCMA
Treatment	Weekly SC	Weekly SC	Weekly SC	Weekly IV	Weekly IV	Weekly IV
Patients (N),	73	30	82	85	30	49
Prior lines	5	8	6	6	6	5
Triple-class refractory	79%	87%	99%	62%	90%	100%
ORR at therapeutic dose	65% (≥VGPR 58%)	83.3% (≥VGPR 66.7%)	70% (≥VGPR 60%)	83% (≥VGPR 50%)	88.9%	62.5%
Duration of Response	Median f/u 9 months – 80% continuing treatment	Not reached at 13 months	Not reached (7.2mos)	NR (6.5 months)	NR	6 months
CRS (Grade 1/2)	60%/15%	83.3%/16.7%	67%	27/28/9	76.7	39
ADA (immunogenicity)	1%	10.7%	12%			

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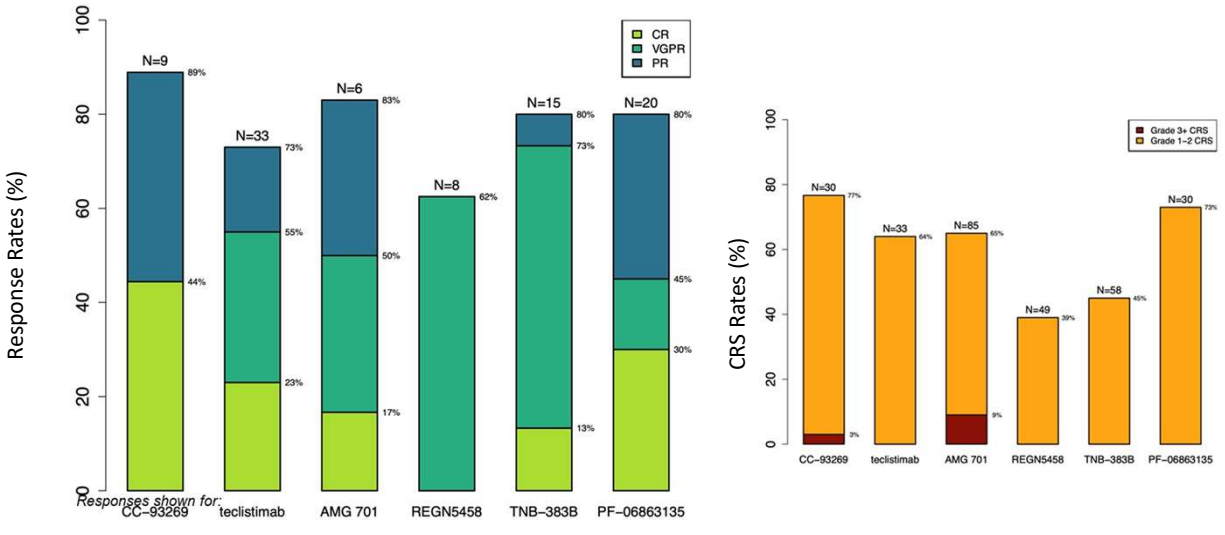
Promising Responses in Triple-Class Exposed Disease



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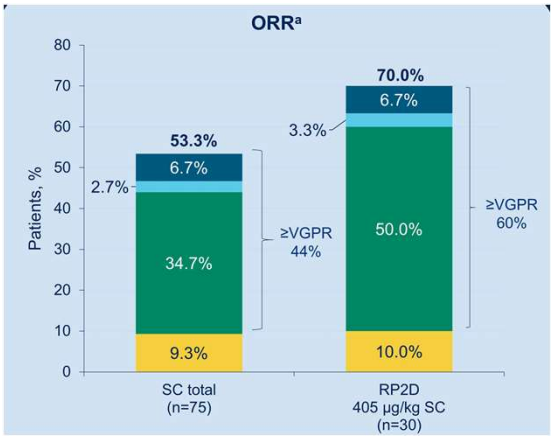
Talquetemab: GPRC5D x CD3 Bispecific

Characteristic	SC Total n=82	RP2D (405 µg/kg SC QW)[a] n=30
Prior lines of therapy, n, median (range)	6.0 (2–17)	6.0 (2–14)
Exposure status, n (%)		
Prior BCMA therapy[e]	20 (24)	8 (27)
Triple-class[f]	81 (99)	30 (100)
Penta-drug[g]	64 (78)	24 (80)
Refractory status, n (%)		
PI[h]	69 (84)	25 (83)
Carfilzomib	54 (66)	19 (63)
IMiD[i]	76 (93)	28 (93)
Pomalidomide	67 (82)	26 (87)
Anti-CD38 mAb[j]	77 (94)	30 (100)
BCMA[e]	14 (17)	5 (16)
Triple-class[f]	62 (76)	23 (77)
Penta-drug[g]	23 (28)	6 (20)
To last line of therapy	69 (84)	26 (87)



Berdeja J, et al, ASCO 2021.

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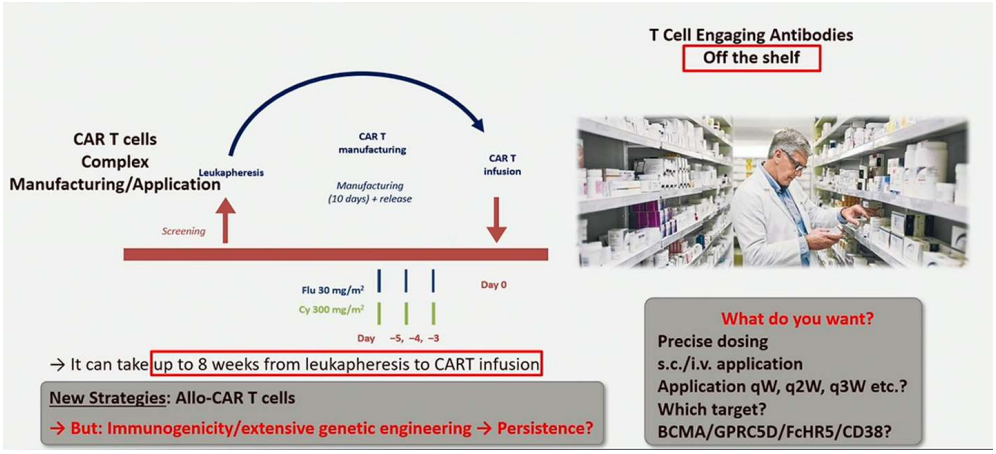
BiTes versus CAR-T



Einsele H, IMW 2021.

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BiTes versus CAR-T

Efficacy/Toxicity

	CAR T	Bispecifics
ORR	80 - 100 %	>60 - 83 %
CR	40 - 85 %	13 - 50 %
PFS	> 1 - 1,5 yrs	> 6 mo.
CRS Gr. 3	3 - 6 %	0 - 3 %
ICANS Gr. 3	3 - 10 %	0 - 1 %

Following CAR T Cell Therapy grade 3 cytopenia can last for of 2-3 months !!

→ **Hematotoxicity clearly less frequent/less severe/shorter after BiTEs vs CART cells**

Munshi N et al. NEJM 2012; Madduri D et al. ASH 2020 #177; Garfall AL et al. ASH 2020 #180; Lesokhin AM et al. ASH 2020 #3206; Madduri D et al. ASH 2020 #291; Rodriguez et al. ASH 2020 #293; Chari A et al. ASH 2020 #290; Cohen AD et al. ASH 2020 #292; Harrison S et al. ASH 2020 #181; Costello C et al. ASH 2020 #134; Kumar et al. ASH 2020 #133; Piasecki et al. ASH 2020 #2350; Colonna et al. ASH 2020 #2358.

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Goals for Treatment for Triple Refractory Myeloma

- Improve symptoms
- Obtain a deep response
- Use your best therapy rather than reserve for later
- Consider Clinical Trials

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COVID19 and MM Vaccination

From the Blood Journals | Multiple Myeloma | News | Written in Blood

Older Patients With Myeloma May Have Suboptimal Response to COVID-19 Vaccination

TUESDAY, JUNE 1, 2021

The present study shows that patients with MM seem to mount a less effective immune response to vaccination against COVID-19.

Terpos E, Trougakos IP, Gavriatopoulou M, et al. Low neutralizing antibody responses against SARS-CoV-2 in elderly myeloma patients after the first BNT162b2 vaccine dose [published online ahead of print, 2021 Apr 16] Blood. doi: 10.1182/blood.2021011904.

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COVID 19 Vaccination in Patients with Multiple Myeloma

Should I get the COVID-19 vaccine?

The IMF strongly recommends that patients with multiple myeloma (MM), smoldering multiple myeloma (SMM), or monoclonal gammopathy of undetermined significance (MGUS) receive a COVID-19 vaccination with the Pfizer or MODERNA vaccines, whichever is available. These vaccines offer excellent benefits, and in general, have very limited and brief side effects or toxicities. As of now, the efficacy of these vaccines far outweighs any toxicity concerns.

*The IMF is very pleased to note the full approval of the Pfizer-BioNTech COVID-19 vaccine. This reflects what has been both remarkable efficacy plus and an excellent safety profile. This full approval versus versus the prior Emergency Use Authorization (EUA) will encourage those with vaccine hesitancy to proceed with vaccination. In addition, doctors now have flexibility to prescribe booster shots as appropriate. In the workplace, many more vaccine mandates are now anticipated which can definitely improve safety overall.

How should I make a decision about getting the vaccine?

The decision to take the COVID-19 vaccine is best made with your doctor. PLEASE discuss the planning for vaccination with your doctor. It is possible your doctor may have additional questions or concerns depending upon your exact situation.

Do I have to get the same vaccine for both shots?

Generally speaking, most people will indeed receive the planned two-step dosing for their vaccination with the Pfizer or MODERNA vaccines. If it is feasible to take the same brand of the vaccine for both doses, then do so. If not, a slight delay to wait for the same brand of vaccine for your second dose is acceptable. Finally, the use of alternate brand of vaccine can be considered if availability is an issue, but please discuss this with your doctor.

International Myeloma Foundation, https://www.myeloma.org/covid-19-vaccination-myeloma-patients, Sept 29, 2021.

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International Myeloma Society COVID-19 and MM Data

- Patients with multiple myeloma are at increased risk of severe infection and higher mortality.
- All patients with myeloma or precursor disease (MGUS and smoldering myeloma) and AL amyloid should be candidates for COVID-19 vaccine and booster.
- Vaccine induced immune response may decrease infection rate and decrease severity of illness.

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Timing of Vaccine

- If patient's myeloma is stable, and holding therapy is not a concern, then the vaccine should be administered between the courses of therapy.
- An ideal situation would be to hold treatment 7 days before 1st dose to 7 days after 2nd dose. This would mean holding MM therapy for around 5-6 weeks, depending upon type of vaccine and the interval between doses.
- Keeping importance of maintaining MM therapy in mind, when such long pause is not possible, consider giving 1st dose of the vaccine 2-7 days after the last dose of MM therapy and up to 10 days before restarting MM therapy, with 2nd vaccination given at the appropriate interval.
- Wait 3 months after auto-SCT.
- Ideal antibody testing is 7-21 days after 2nd vaccination.

WWW.Myeloma.Org

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Supportive Care/Quality of Life

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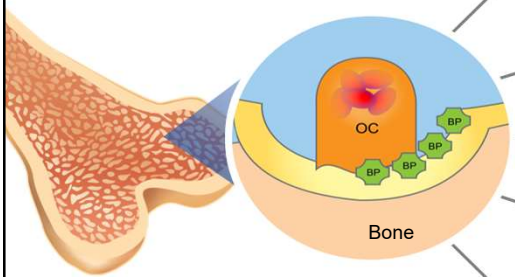
Bisphosphonates for Myeloma Bone Disease



How they work
- Prevent bone disease from getting worse

Benefits
- Decreases pain and reduces skeletal related fractures

Dosing
- IV infusion in doctor's office every 3–4 weeks
- Kidney function can alter dosing or choice of drug

Medication types
- Zometa (zoledronic acid): 15-minute infusion
- Aredia (pamidronate): 2-hour infusion

Side effects
- Reduced kidney function
- Fracture of the femur
- Osteonecrosis of the jaw (ONJ)
- Low calcium levels (hypocalcemia)

OC, osteoclast (inhibited, halting bone breakdown); BP, bisphosphonate

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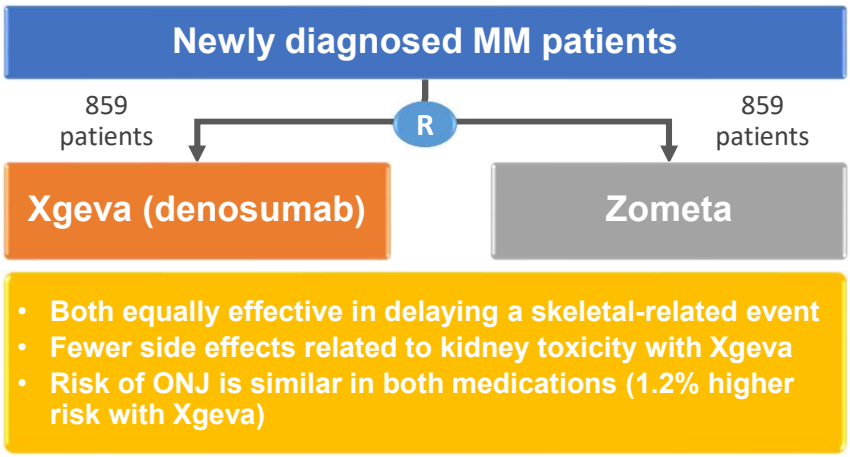
Newly Approved Xgeva (denosumab) for Bone Loss



Raje NS et al. *J Clin Oncol*. 2017;35: Abstract 8005.
Terpos E et al. *Haematologica*. 2017;102: Abstract S782.

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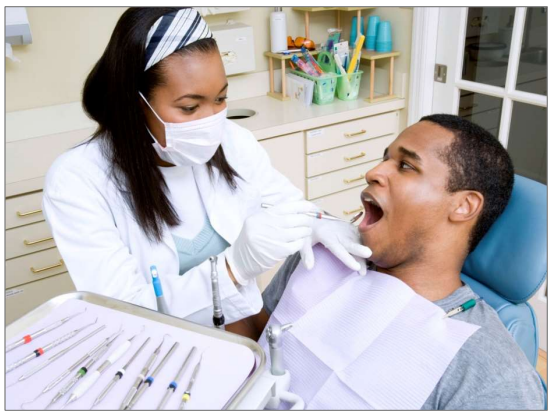
Reducing the Risk of ONJ: Oral Health Recommendations

- Complete major dental work before beginning bisphosphonate therapy
- Practice good oral hygiene
- Schedule regular dental visits
- Let your dentist know that you are receiving bisphosphonates
- Keep your doctor informed of dental issues/need for dental work
- Be attentive! ONJ seems to be related to the length of time patients are on bisphosphonates



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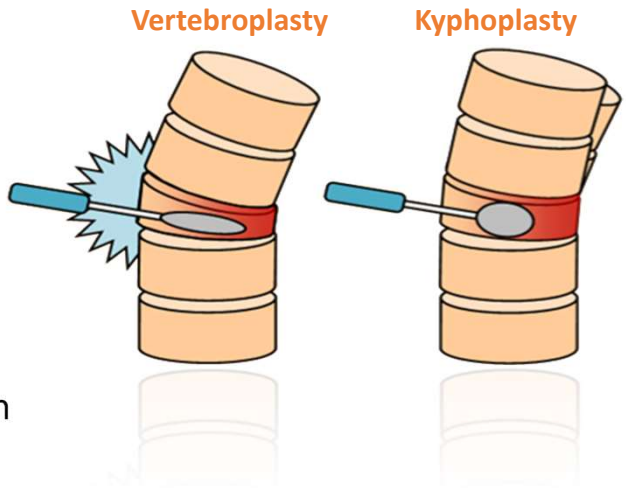
Orthopedic Procedures to Stabilize the Spine

- Minimally invasive procedures
- Can be performed without hospitalization
- Small incision
- Cement filler stabilizes bone
- Potential for relatively rapid symptom relief (approximately 1 month with kyphoplasty)



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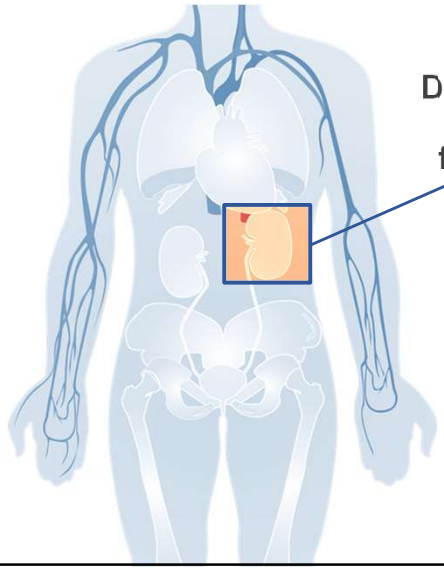
Effects of Myeloma: Decreased Kidney Function



- Detection
  - Decreased amount of urine
  - Increase in creatinine and other proteins
- Other causes beside myeloma
  - Hypertension
  - Diabetes
  - Some medications
  - Dehydration
- Treatment
  - Fluids
  - Avoid nonsteroidal anti-inflammatory drugs such as Aleve, Advil/Motrin
  - Plasmapheresis
  - Treat other causes
  - Dialysis (severe)

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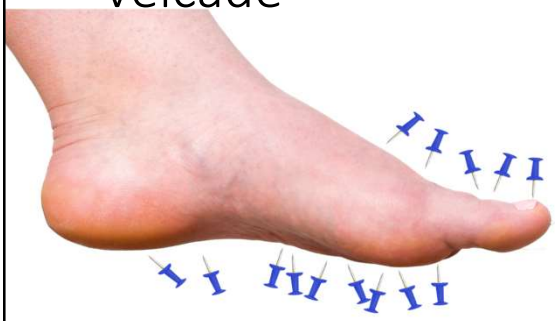
Side Effects of Commonly Used Treatments: Velcade



Don't forget to discuss side effects with your provider!

Peripheral Neuropathy

Potential causes

- Monoclonal protein deposits on nerves
- Previous use of: Velcade, Thalidomide, Vincristine, melphalan
- Vitamin deficiency

Signs/Symptoms

- Weakness
- Numbness/tingling
- Burning
- Muscle cramping

Treatment

- Proper foot care/support
- Treat underlying cause
- Medications: oral and topical
- Physical therapy
- Potential neurology consult for further evaluation and treatment
- Dose schedule modifications!

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Side Effects of Commonly Used Treatments: Lenalidomide (Revlimid)

Fatigue

- Stay active: exercise, exercise, exercise!
- Healthy, well-balanced diet
- Stay hydrated
- Healthy sleep habits

Diarrhea

- Increase fluids
- Fiber-binding agents: Metamucil
- Anti-diarrheal medications: Imodium, Cholestyramine
- Diet management

Muscle cramps

- Tonic water
- Increase hydration
- Stretching/massage
- Assess for other causes (electrolytes, low calcium)
- Decrease dose

Rash

- Antihistamines: loratadine, cetirizine , Benadryl
- Over-the-counter anti-itch creams – hydrocortisone or Benadryl
- Potential referral to dermatology

Don't forget to discuss side effects with your provider!

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Side Effects of Commonly Used Treatments: Carfilzomib (Kyprolis)

Common side effects

- Fatigue
- In minority of patients: trouble breathing or shortness of breath, drop in blood counts

Infrequently observed but potentially serious side effects

- Concerns: heart and lung toxicities
- Side effects: reversible and manageable

Signs to watch for

- Shortness of breath, difficulty breathing
- Chest pain
- Elevated blood pressure
- Headache

Treatment

- Manage blood pressure: low sodium diet, BP control
- Heart evaluation: EKG and echocardiogram
- Lung evaluation: Pulmonary function testing
- Dose changes

Don't forget to discuss side effects with your provider!

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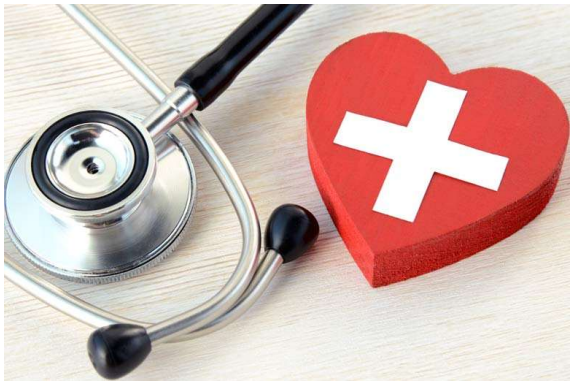
Side Effects of Commonly Used Treatments: Daratumumab (Darzalex)



- Infusion-related reactions
- Fatigue
- Nausea
- Back pain
- Fever
- Changes in blood counts (anemia, thrombocytopenia, neutropenia)

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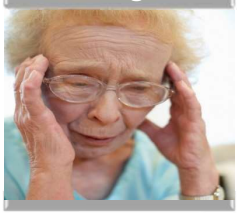
Side Effects of Commonly Used Treatments: Steroids (Dexamethasone)

Insomnia	Fluid retention	Mood changes	Dyspepsia–heartburn	Elevation in glucose
				
• Healthy sleep habits • Timing • Medication to assist with sleeping as needed	• Monitor for swelling of extremities and "puffy" face • Monitor weight changes/gain • Reduce dose	• Irritable, anxiety, difficulty concentrating • Severe cases → depression, euphoria	• Dietary modifications (spicy, acidic foods) • Avoid NSAIDs • Acid-blocking medications • Take steroid with food; use enteric-coated aspirin with food	• Monitor glucose and refer/treat as needed

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Lifestyle Enhancements

- Eat a well-balanced diet
- Get more exercise
- Regular sleep/rest periods
- Decrease alcohol consumption
- Give up tobacco
- Minimize or eliminate stress
- Take care of your emotional/ mental well-being as well as your physical health!

OPTIMISTIC OUTLOOK!

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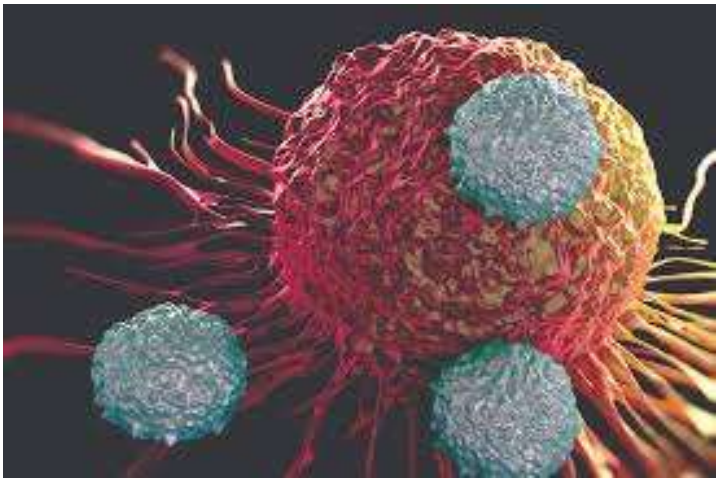
Thank you!

Questions??



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QUESTION & ANSWER

Living with Multiple Myeloma

- **Ask a question by phone:**
  - Press star (*) then the number 1 on your keypad.
- **Ask a question by web:**
  - Type your question
  - Click Enter

Due to time constraints, we can only take one question per person.
Once you've asked your question, the operator will transfer you back into the audience line.

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LEUKEMIA & LYMPHOMA SOCIETY®

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LLS EDUCATION & SUPPORT RESOURCES

HOW TO CONTACT US:

To contact an **Information Specialist** about disease, treatment and support information, resources and clinical trials:

Call: (800) 955-4572
Monday to Friday, 9 a.m. to 9 p.m. ET

Chat live online: www.LLS.org/InformationSpecialists
Monday to Friday, 10 a.m. to 7 p.m. ET

Email: www.LLS.org/ContactUs
All email messages are answered within one business day.

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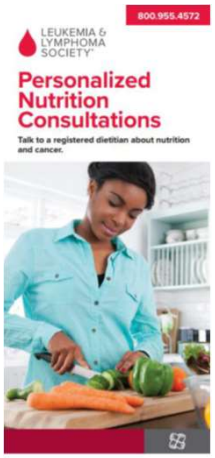
CLINICAL TRIAL SUPPORT CENTER

Work one-on-one with an LLS Clinical Trial Nurse Navigator who will help you find clinical trials and personally assist you throughout the entire clinical-trial process. www.LLS.org/Navigation



NUTRITION CONSULTATIONS

Our registered dietitian has expertise in oncology nutrition and provides free one-on-one consultations by phone or email. www.LLS.org/Consult.

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LLS EDUCATION & SUPPORT RESOURCES

Online Chats

Online Chats are free, live sessions, **moderated by oncology social workers**.

Banding Together Fridays Online Chat is specifically addressing questions and concerns about living with a blood cancer during COVID-19. Register now at **www.LLS.org/Chat**

Education Videos

View our free education videos on disease, treatment, and survivorship. To view all patient videos, please visit **www.LLS.org/EducationVideos**.

Patient Podcast

The Bloodline with LLS is here to remind you that after a diagnosis comes hope. To listen to an episode, please visit **www.TheBloodline.org**.

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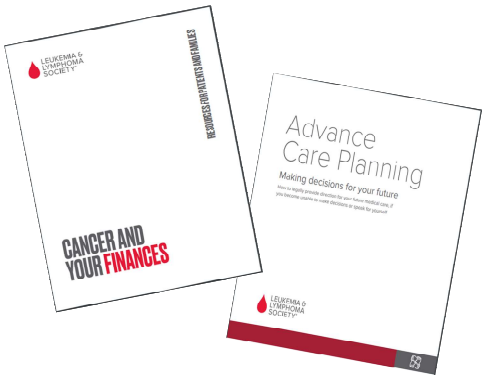
LLS EDUCATION & SUPPORT RESOURCES

BEATING CANCER IS IN OUR BLOOD.

The Leukemia & Lymphoma Society (LLS) offers the following financial assistance programs to help individuals with blood cancer: **www.LLS.org/Finances**



To order free materials: **www.LLS.org/Booklets**

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