

A close-up photograph of two women embracing. The woman on the left is younger with blonde hair, smiling broadly with her eyes closed. The woman on the right is older with grey hair, smiling gently with her eyes closed. They are outdoors, with soft sunlight filtering through the background.

Investor Conference Call: American Society of Hematology (ASH) 2020

December 8, 2020

Forward-looking Statements and Other Important Information

This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking statements include those regarding Karyopharm's expectations and plans relating to XPOVIO for the treatment of patients with relapsed or refractory multiple myeloma or relapsed or refractory diffuse large B-cell lymphoma; commercialization of XPOVIO or any of its drug candidates and the commercial performance of XPOVIO; submissions to, and the review and potential approval of selinexor by, regulatory authorities, including the Company's regulatory strategy, the anticipated availability of data to support such submissions, timing of such submissions and actions by regulatory authorities and the potential availability of accelerated approval pathways; the expected design of the Company's clinical trials; the therapeutic potential of and potential clinical development plans for Karyopharm's drug candidates, especially selinexor. Such statements are subject to numerous important factors, risks and uncertainties, many of which are beyond Karyopharm's control, that may cause actual events or results to differ materially from Karyopharm's current expectations. For example, there can be no guarantee that Karyopharm will successfully commercialize XPOVIO; that regulators will agree that selinexor qualifies for conditional approval in the E.U. as a result of data from the STORM study or confirmatory approval in the U.S. or E.U. based on the BOSTON study in patients with multiple myeloma or that any of Karyopharm's drug candidates, including selinexor, will successfully complete necessary clinical development phases or that development of any of Karyopharm's drug candidates will continue. Further, there can be no guarantee that any positive developments in the development or commercialization of Karyopharm's drug candidate portfolio will result in stock price appreciation. Management's expectations and, therefore, any forward-looking statements in this press release could also be affected by risks and uncertainties relating to a number of other factors, including the following: the risk that the COVID-19 pandemic could disrupt Karyopharm's business more severely than it currently anticipates, including by negatively impacting sales of XPOVIO, interrupting or delaying research and development efforts, impacting the ability to procure sufficient supply for the development and commercialization of selinexor or other product candidates, delaying ongoing or planned clinical trials, impeding the execution of business plans, planned regulatory milestones and timelines, or inconveniencing patients; the adoption of XPOVIO in the commercial marketplace, the timing and costs involved in commercializing XPOVIO or any of Karyopharm's drug candidates that receive regulatory approval; the ability to retain regulatory approval of XPOVIO or any of Karyopharm's drug candidates that receive regulatory approval; Karyopharm's results of clinical trials and preclinical studies, including subsequent analysis of existing data and new data received from ongoing and future studies; the content and timing of decisions made by the U.S. Food and Drug Administration and other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies, including with respect to the need for additional clinical studies; the ability of Karyopharm or its third party collaborators or successors in interest to fully perform their respective obligations under the applicable agreement and the potential future financial implications of such agreement; Karyopharm's ability to obtain and maintain requisite regulatory approvals and to enroll patients in its clinical trials; unplanned cash requirements and expenditures; development of drug candidates by Karyopharm's competitors for indications in which Karyopharm is currently developing its drug candidates; and Karyopharm's ability to obtain, maintain and enforce patent and other intellectual property protection for any drug candidates it is developing. These and other risks are described under the caption "Risk Factors" in Karyopharm's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, which was filed with the Securities and Exchange Commission (SEC) on November 2, 2020, and in other filings that Karyopharm may make with the SEC in the future. Any forward-looking statements contained in this presentation speak only as of the date hereof, and, except as required by law, Karyopharm expressly disclaims any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise. Karyopharm regularly uses its website to post information regarding its business, drug development programs and governance. Karyopharm encourages investors to use www.karyopharm.com, particularly the information in the section entitled "Investors," as a source of information about Karyopharm. References to www.karyopharm.com in this presentation are not intended to, nor shall they be deemed to, incorporate information on www.karyopharm.com into this presentation by reference. Unless otherwise noted, this presentation contains data that are interim and unaudited based on site reports. In addition, data included in this presentation have not been updated and are as of the cutoff date for the applicable medical conference presentation. Other than the accelerated approval of XPOVIO, selinexor, eltanexor, KPT-9274 and verdinexor are investigational drugs that have not been approved by the FDA or any other regulatory agency, and the safety and efficacy of these drugs has not been established by any agency.

On Today's Call



Prepared Remarks

- **Michael G. Kauffman, MD, PhD**, *Chief Executive Officer, Karyopharm*
- **Jatin Shah, MD**, *Executive Vice President, Chief Medical Officer, Karyopharm*



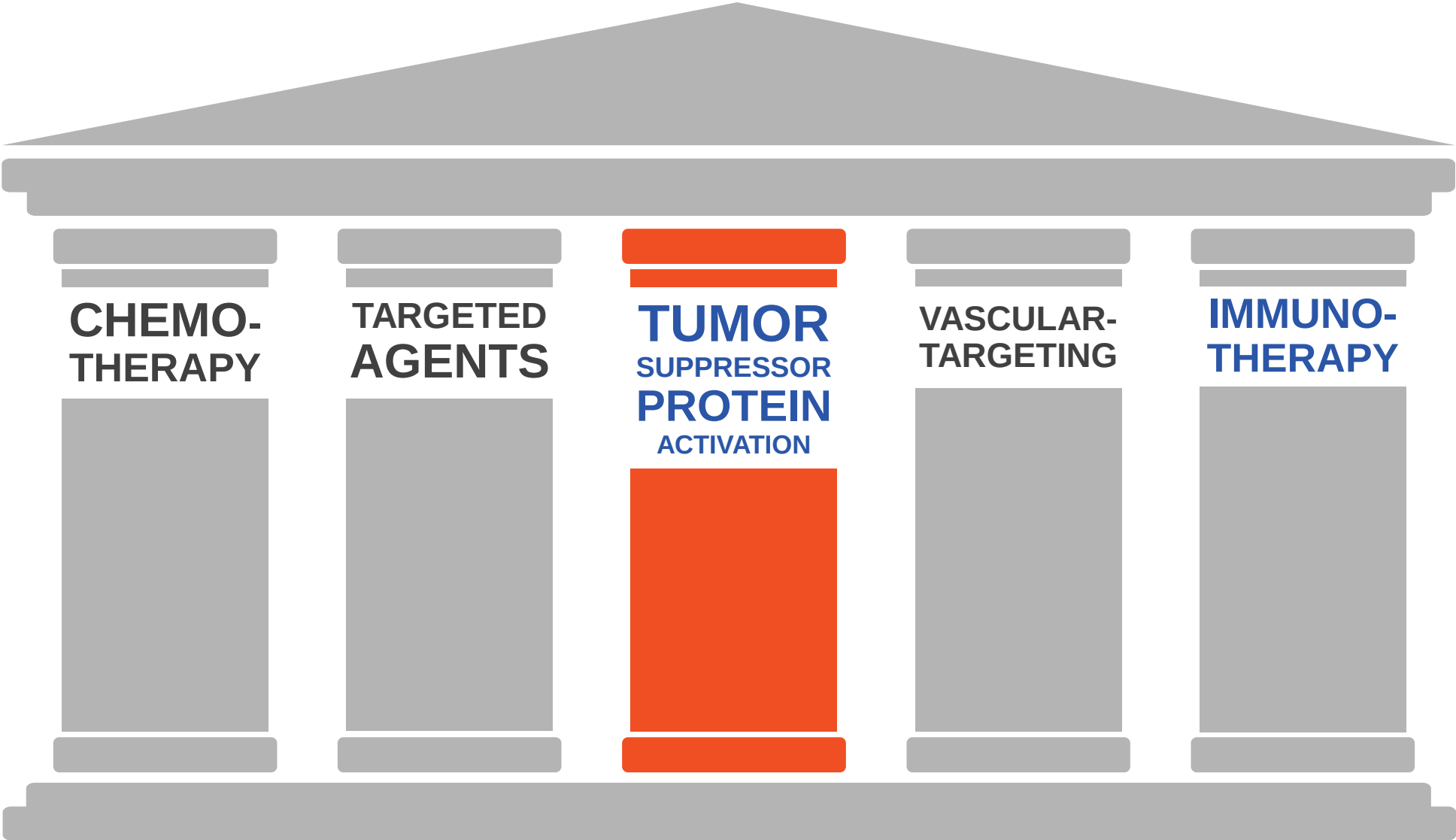
Providing Key Insights and Joining for Q&A Session

- **James Berenson, MD**, *Founder, President and Medical and Scientific Director of the Institute for Myeloma and Bone Cancer Research*
- **Timothy Pardee, MD, PhD, FACP**, *Director, Leukemia Program, Wake Forest School of Medicine*
- **Sharon Shacham, PhD**, *President and Chief Scientific Officer, Karyopharm*

Agenda

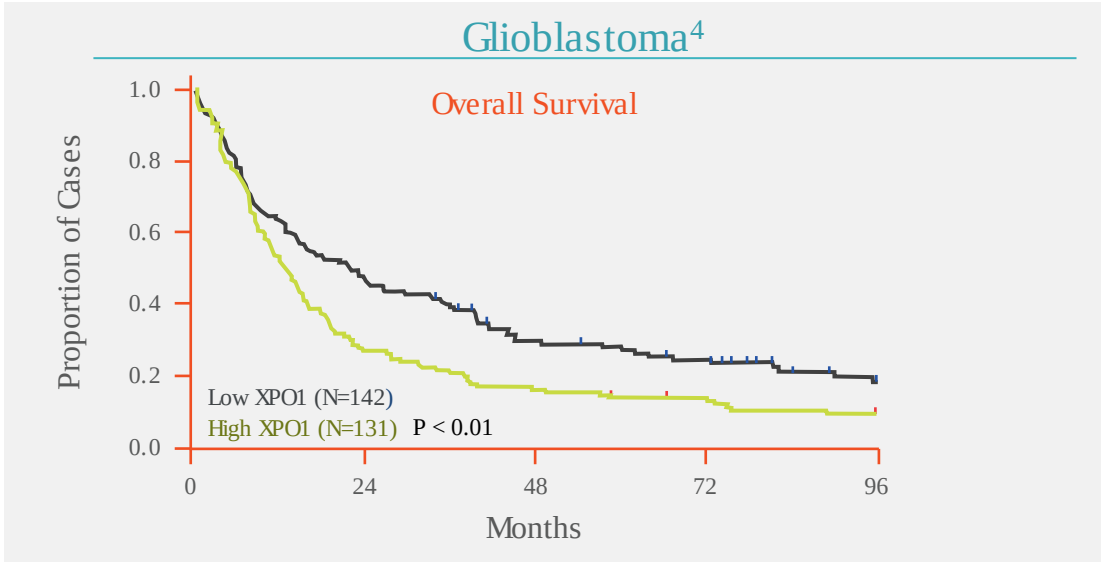
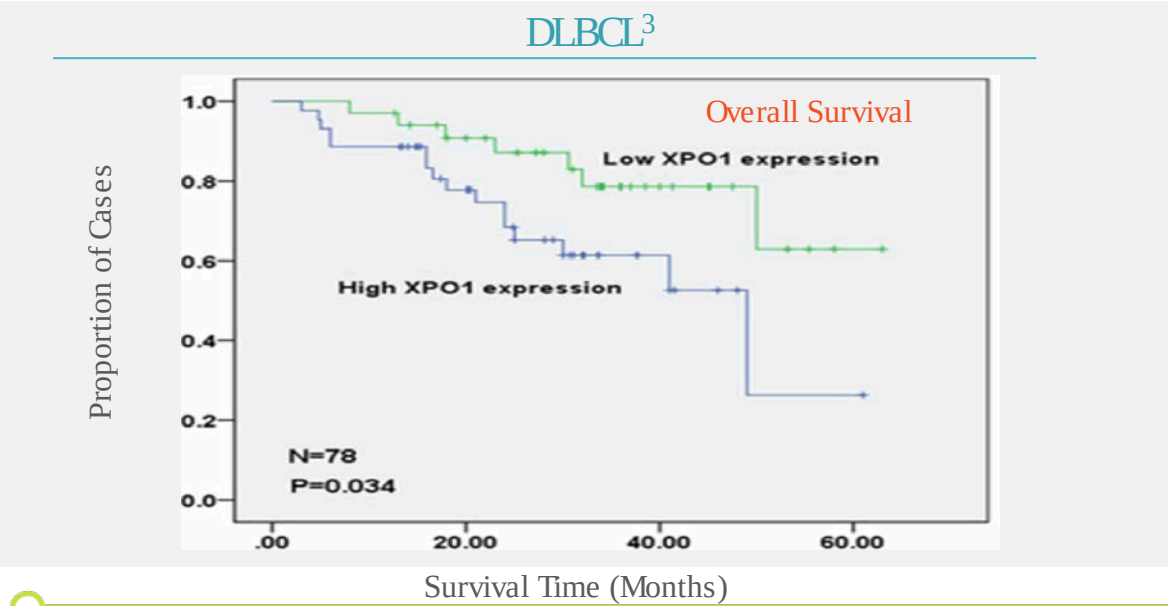
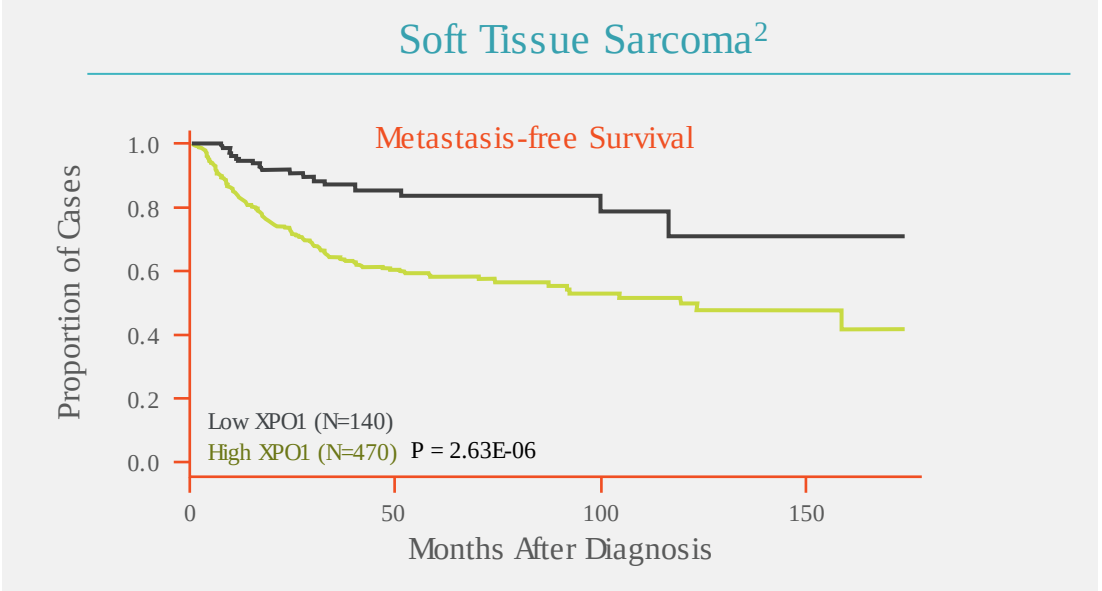
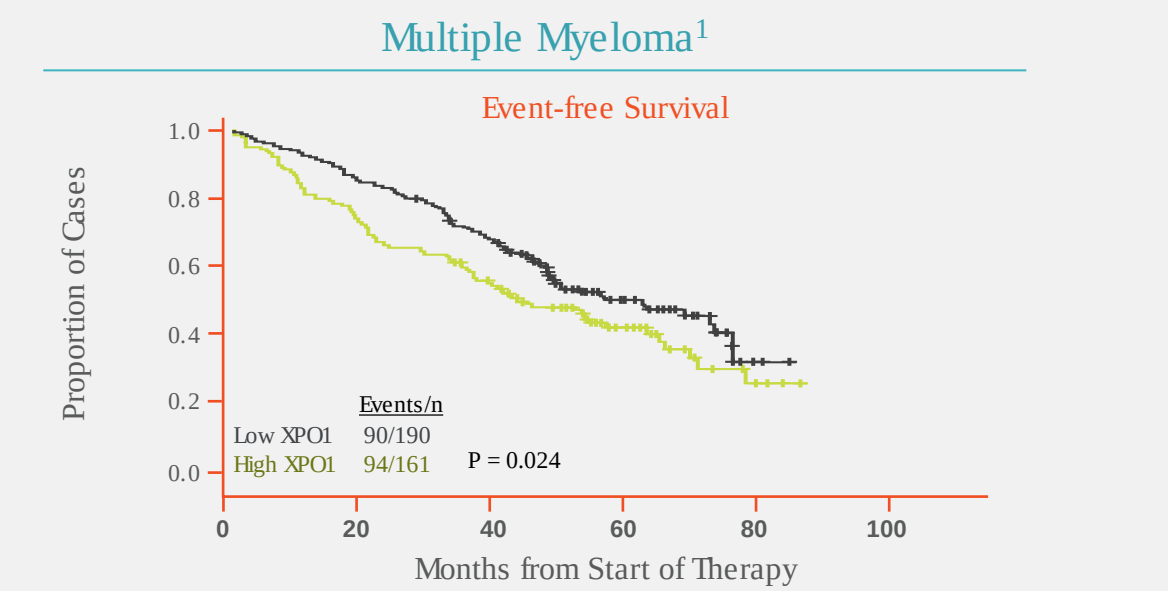
Topic	Speaker
Inhibition of XPO1	Dr. Michael Kauffman
Multiple Myeloma (MM) Treatment Landscape	Dr. Michael Kauffman
MM Data Presented at ASH	Dr. Jatin Shah followed by Insights from Dr. James Berenson
DLBCL Treatment Landscape	Dr. Jatin Shah
DLBCL Data Presented at ASH	Dr. Jatin Shah
AML Data Presented at ASH	Dr. Timothy Pardee
Summary and Q&A	Dr. Michael Kauffman

Core Pillars of Cancer Drug Therapy



Harnessing the body's own natural defense mechanisms

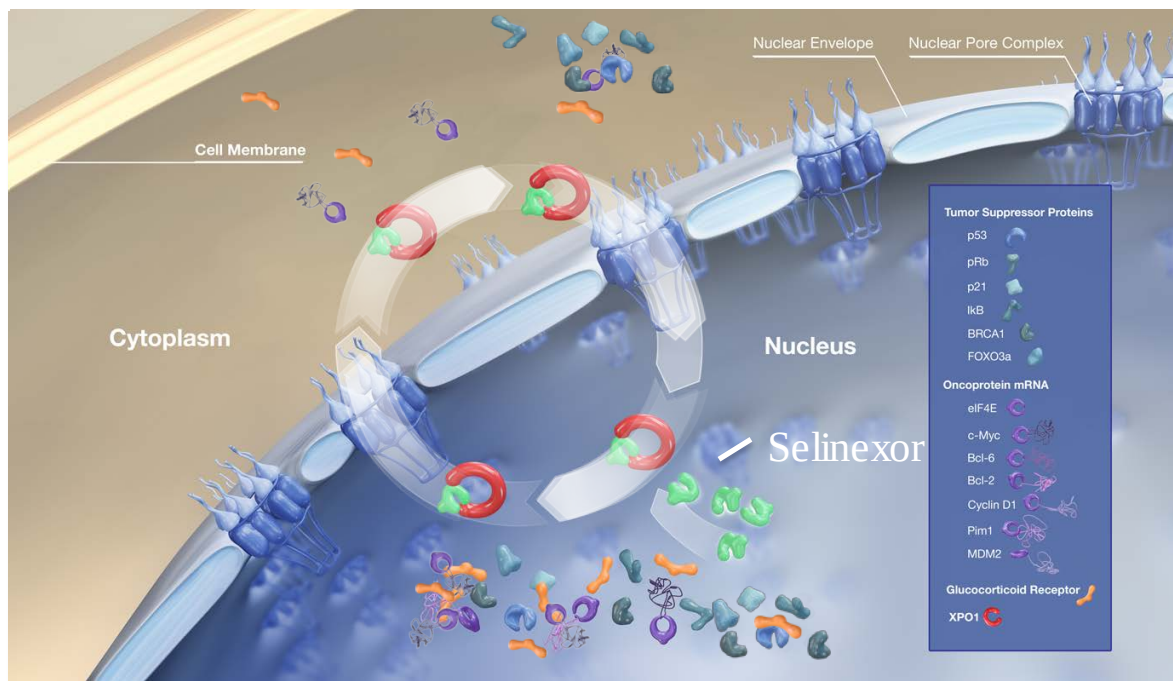
High XPO1 Levels Are Correlated With Poor Cancer Prognosis for Patients



XPOVIO® (selinexor) / SINE Mechanism of Action: Inhibition of XPO1¹⁻⁴

XPO1 overexpression

1. Enables cancer cells to escape tumor suppressor proteins (TSPs) mediated cell cycle arrest and induction of apoptosis
2. Correlates with poor prognosis and drug resistance



Inhibition of XPO1 impacts tumor cells via 3 core mechanisms

1. Increases nuclear levels and activation of TSPs
2. Traps oncoprotein mRNA in the nucleus leading to reduced oncoprotein levels
3. Retains activated glucocorticoid receptor in the nucleus

XPOVIO is an oral selective XPO1 inhibitor that:

- Reactivates multiple TSPs relevant to many cancer types, inhibits NF-κB signaling and reduces c-Myc levels
- Inhibits oncoprotein translation
- Reactivates Glucocorticoid Receptor (GR) signaling in presence of dexamethasone
- Demonstrates synergistic activity in combination with bortezomib, pomalidomide and lenalidomide, and other anti-cancer drugs in vitro and in vivo

¹ Gupta A, et al. J Thorac Oncol. 2017. ² Sun Q, et al. Signal Transduct Target Ther. 2016. ³ Gandhi UH, et al. Clin Lymphoma Myeloma Leuk. 2018. ⁴ Gravina GL, et al. J Hematol Oncol. 2014

Ongoing and Planned XPOVIO Company-Sponsored Studies in Hematologic Cancers

	Ongoing Hematologic Cancer Studies	Planned Hematologic Cancer Studies
Multiple Myeloma	• STOMP study evaluating XPOVIO in combination with backbone therapies in patients with previously treated multiple myeloma / Phase 1b/2 • BOSTON and STORM studies now complete	• XPORT-MM-031 study evaluating XPOVIO in combination with pomalidomide and dexamethasone in patients with previously treated multiple myeloma / Phase 3
DLBCL	• XPORT-DLBCL-030 study evaluating XPOVIO in combination with-gemcitabine-dexamethasone-platinum (R-GDP) / Phase 2/3 • XPORT-DLBCL-025 study evaluating XPOVIO in combination with backbone treatments or novel therapies in patients with relapsed or refractory DLBCL / Phase 1/2 • SADAL study now complete	
Myelofibrosis	• XPORT-MF-034 study in combination with ruxolitinib in treatment naïve patients / Phase 1/2 • XPORT-MF-035 study in previously treated patients / Phase 2	

Note: DLBCL = diffuse large B-cell lymphoma

Ongoing and Potential Future XPOVIO Company-Sponsored Studies in Solid Tumors

	Current Solid Tumor Studies	Exploring Future Solid Tumor Studies
Gynecological Cancer	• Endometrial: SIENDO Study in frontline maintenance setting (single agent vs. placebo) / Phase 3	• Ovarian: Resistant or refractory to platinum in combination with paclitaxel • Endometrial and Ovarian: Multiple arms and combinations
Lung Cancer	• NSCLC: 2nd and 3rd line settings (KRAS mutant and wildtype) in combination with either docetaxel / Phase 1	• NSCLC: 2nd line setting in combination with docetaxel • NSCLC: 1st line in combination with check-point inhibitors
Brain Cancer	• GBM: 1st and 2nd line settings with radiation + / - temozolomide, or lomustine / Phase 1/2	• GBM: Combinations with other active drugs to be conducted through our CRADA partnership
Colorectal Cancer	• CRC: 2nd and 3rd line settings in combination with pembrolizumab / Phase 1	• CRC: 1st line setting in combination with FOLFOX and 2nd line in combination with FOLFIRI
Melanoma		• Melanoma: 1st line in combination with pembrolizumab • Melanoma: Multiple arms and combinations

Note: NSCLC = non-small cell lung cancer, GBM = glioblastoma, CRC = colorectal cancer

Background on the Treatment of Multiple Myeloma

- **Main classes of MM drugs used across lines of therapy include:**
 - Proteasome inhibitors (PIs): Velcade® (bortezomib), Kyprolis® (carfilzomib)
 - Immunomodulatory agents (IMiDs): Revlimid® (lenalidomide), Pomalyst® (pomalidomide)
 - Monoclonal antibodies (mAbs): Darzalex® (daratumumab), Empliciti® (elotuzumab)
 - Nuclear export inhibitor: XPOVIO® (selinexor) is the only drug in this class and is currently approved in heavily pretreated patients
- **Drugs with proven single-agent clinical activity are generally preferred by physicians, even when used in 2-4 drug-combination regimens**
 - Single agent (± steroids) activity: Revlimid®, Pomalyst®, Darzalex®, Velcade®, Kyprolis®, XPOVIO®
 - Used in combination: Alkylators, Glucocorticoids, Empliciti®

Patients and physicians demand new options with increasing efficacy and novel mechanisms of action

“Recipe for Success for a Myeloma Agent – Post 2015”

1. Significant single agent activity – over 20%
2. Demonstrate efficacy in heavily pretreated disease
3. Compatibility to pair with drugs from other classes
4. Tolerable and manageable side effects (minimal overlap toxicity)
5. Robust phase 3 data to support earlier line use
6. Ability to continue agent indefinitely until relapse
7. The potential to use in frontline regimen

Slide adapted from October 2020 Webinar presented by Dr. Joseph Mikhael, MD – International Myeloma Foundation:
<https://www.karyopharm.com/webinars/going-nuclear-the-role-of-xpo1-in-multiple-myeloma/>

BOSTON Regimen, If Approved, Offers Potential to Provide Important Advance in Treatment Paradigm

- Potential to be the first new mechanism approved since 2016 as early as first relapse
- Potential to be only approved, once weekly Velcade combination regimen
- Regimen demonstrated a rapid and sustained response, despite the large percentage of patients with high-risk cytogenetics in Phase 3 BOSTON study
- Exploits completely novel mechanism of action with synergistic properties combining an XPO1 inhibitor with a proteasome inhibitor
 - In early-line multiple myeloma, treating with different mechanisms as early as possible may be vital for success

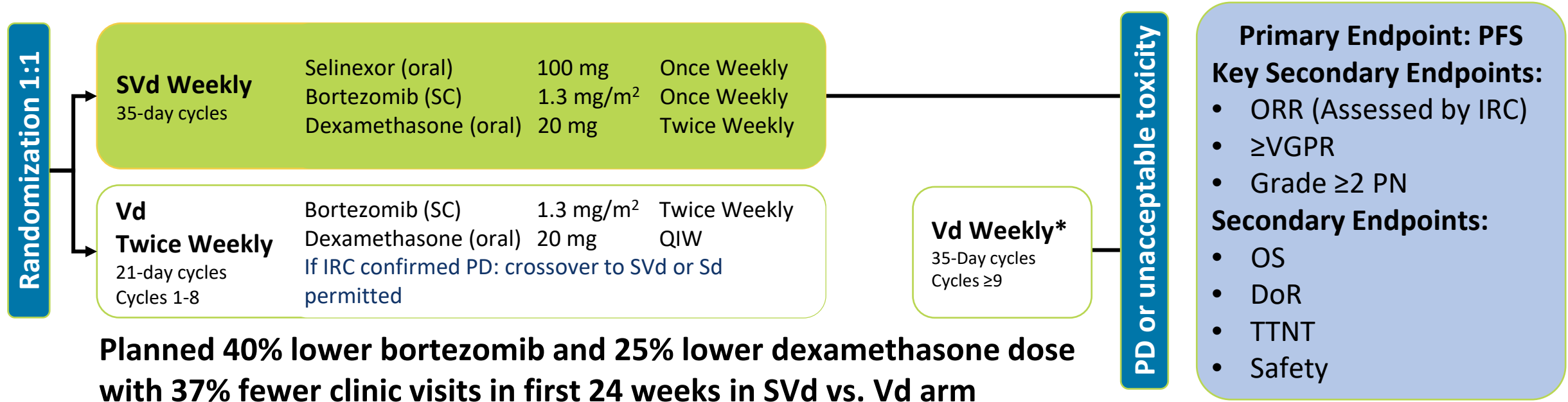
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BOSTON PRESENTATIONS

BOSTON Study Trial Design

BOSTON Trial: Phase 3, Global, Randomized, Open Label, Controlled Study in Patients with MM who had Received 1–3 Prior Therapies



Stratifications:

Prior PI therapies (Yes vs No); Number of prior anti-MM regimens (1 vs >1); R-ISS stage at study entry (Stage III vs Stage I/II)
 5HT-3 prophylactic recommended in SVd arm

Grosicki *et al*, The Lancet 2020;396(10262):1563-1573

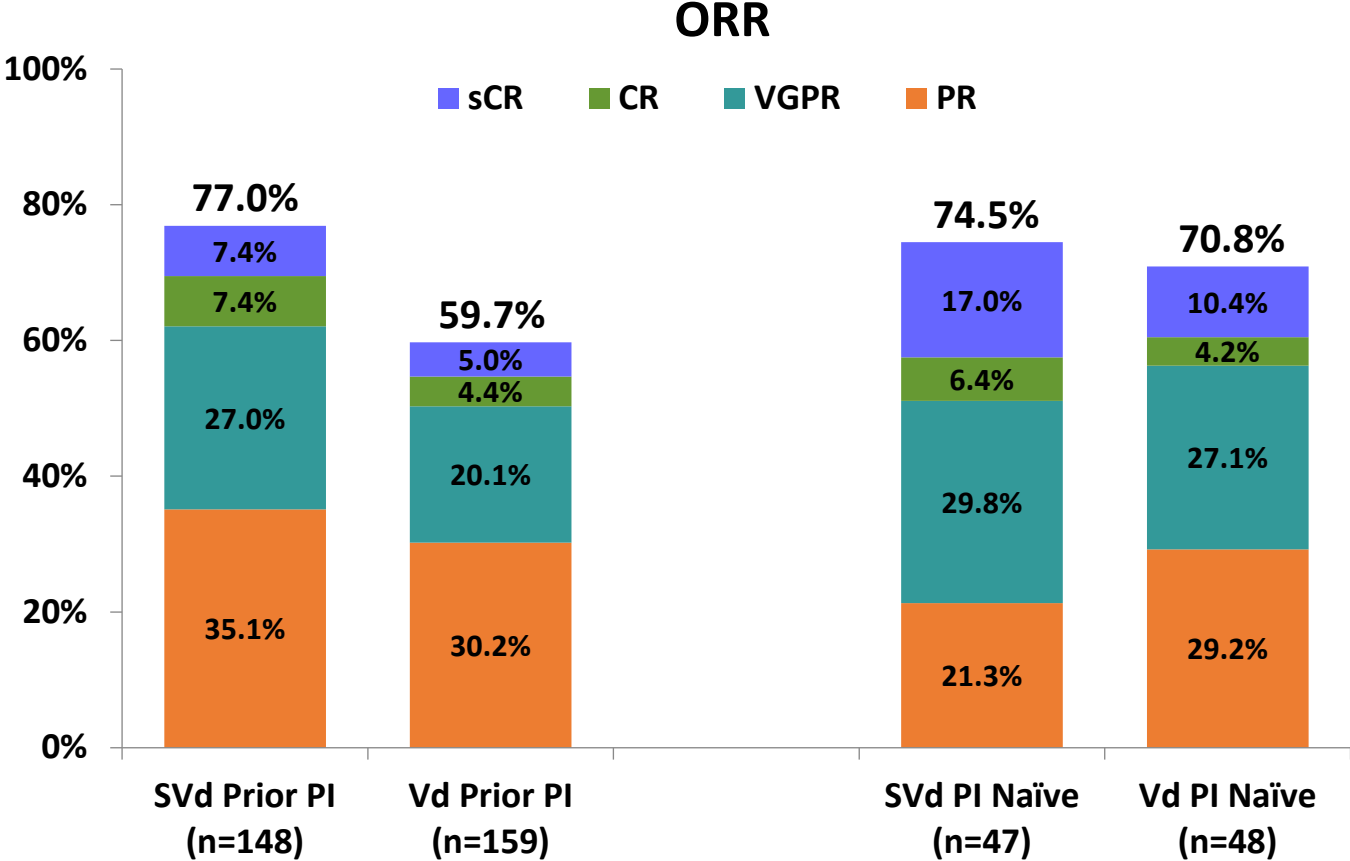
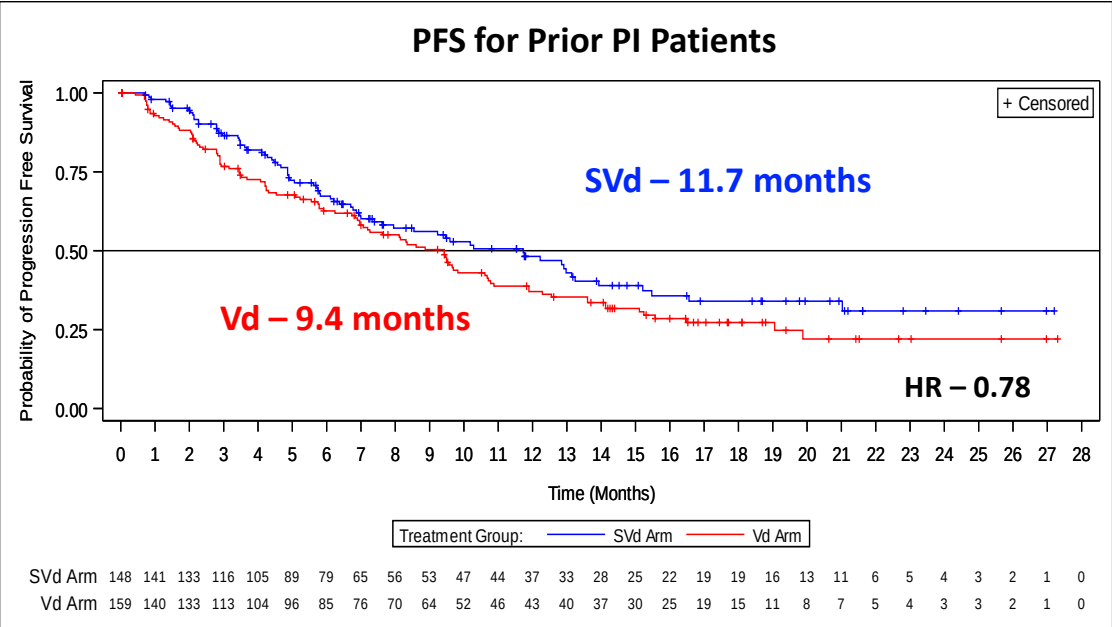
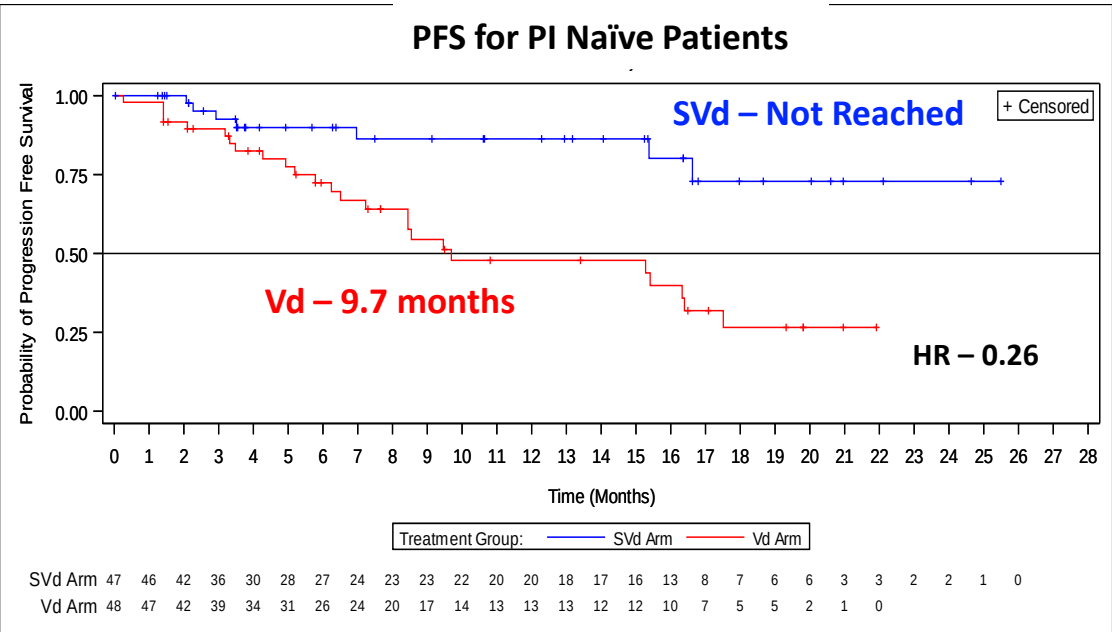
CR= complete response, DoR = duration of response, IMWG = International Myeloma Working Group, IRC = Independent Review Committee, OS = overall survival, PD = progressive disease, PFS = progression free survival, PR = partial response, PN = peripheral neuropathy, sCR = stringent complete response, TTNT = time to next therapy, VGPR = very good partial response. PFS defined as: Time from date of randomization until the first date of progressive disease, per IMWG response criteria, or death due to any cause, whichever occurred first, as assessed by IRC. ORR: Any response ≥PR (ie, PR, VGPR, CR, or sCR) based on the IRC's response outcome assessments, according to IMWG response criteria (Kumar et al. Lancet oncology 2016). All changes in MM disease assessments were based on baseline MM disease assessments. *Vd weekly dosing and schedule for cycles ≥ 9 as per SVd arm description.

Effect of Prior Treatment with Proteasome Inhibitors on the Efficacy and Safety of Once-Weekly Selinexor, Bortezomib, and Dexamethasone in Comparison with Twice-Weekly Bortezomib and Dexamethasone in Relapsed or Refractory Multiple Myeloma: Subgroup Analysis from the BOSTON Study

Maria V Mateos¹, Maria Gavriatopoulou², Thierry Facon³, Holger Auner⁴, Xavier Leleu⁵, Roman Hájek⁶, Meletios A. Dimopoulos⁷, Sosana Delimpasi⁸, Maryana Simonova⁹, Ivan Špička¹⁰, Luděk Pour¹¹, Iryna Kriachok¹², Halyna Pylypenko¹³, Vadim Doronin¹⁴, Ganna Usenko¹⁵, Reuben Benjamin¹⁶, Tuphan K Dolai¹⁷, Dinesh K Sinha¹⁸, Christopher Venner¹⁹, Mamta Garg²⁰, Don A Stevens²¹, Hang Quach²², Sundar Jagannath²³, Philippe Moreau²⁴, Moshe Levy²⁵, Ashraf Z. Badros²⁶, Larry A. Anderson²⁷, Nizar J Bahlis²⁸, Dr Michele Cavo²⁹, Yi Chai³⁰, Melina Arazy³⁰, Jatin Shah³⁰, Sharon Shacham³⁰, Michael G Kauffman³⁰, Paul G Richardson³¹, Sebastian Grosicki³²

¹Hospital Universitario de Salamanca, Salamanca, Spain; ²Alexandra Hospital, School of Medicine, National and Kapodistrian University of Athens, Athens, Greece; ³CHU Lille Service des Maladies du Sang F-59000, Lille, France; ⁴Imperial College London, London, UK; ⁵Department of Hematology, CHU la Miletie and Inserm CIC 1402, Poitiers, France; ⁶University Hospital Ostrava, Department of Hematooncology, Ostrava Czech Republic; ⁷National and Kapodistrian University of Athens, Athens Greece; ⁸General Hospital Evangelismos, Athens Greece; ⁹Institute of Blood Pathology and Transfusion Medicine of NAMS of Ukraine, Lviv Ukraine; ¹⁰Charles University and General Hospital, Prague, Czech Republic; ¹¹University Hospital Brno, Brno, Czech Republic; ¹²National Cancer Institute, Kiev, Ukraine; ¹³Cherkassy Regional Oncological Center, Cherkassy, Ukraine; ¹⁴City Clinical Hospital #40, Moscow, Russian Federation; ¹⁵City Clinical Hospital No.4 of Dnipro City Council, Dnipro Ukraine; ¹⁶Kings College Hospital NHS Foundation Trust, London, UK; ¹⁷Nil Ratan Sircar Medical College and Hospital, Kolkata, India; ¹⁸State Cancer Institute, Indira Gandhi Institute of Medical Sciences, Patna, India; ¹⁹Cross Cancer Institute, University of Alberta, Edmonton, Alberta, Canada; ²⁰University Hospitals of Leicester NHS Trust, Leicester UK; ²¹Norton Cancer Institute, St. Matthews Campus, Louisville, KY; ²²University of Melbourne, St Vincent's Hospital, Melbourne, Victoria Australia; ²³Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai, New York, NY; ²⁴University Hospital, Hotel-Dieu, Nantes, France; ²⁵Baylor University Medical Center, Dallas, TX; ²⁶University of Maryland, Greenebaum Comprehensive Cancer Center, Baltimore, MD; ²⁷Simmons Comprehensive Cancer Center, UT Southwestern Medical Center, Dallas, TX; ²⁸University of Calgary, Charbonneau Cancer Research Institute, Calgary, AB; ²⁹Seràgnoli Institute of Hematology, Bologna University School of Medicine, Bologna, Italy; ³⁰Karyopharm Therapeutics Inc, Newton, MA; ³¹Dana Farber Cancer Institute, Boston, MA; ³²Medical University of Silesian, Katowice, Poland

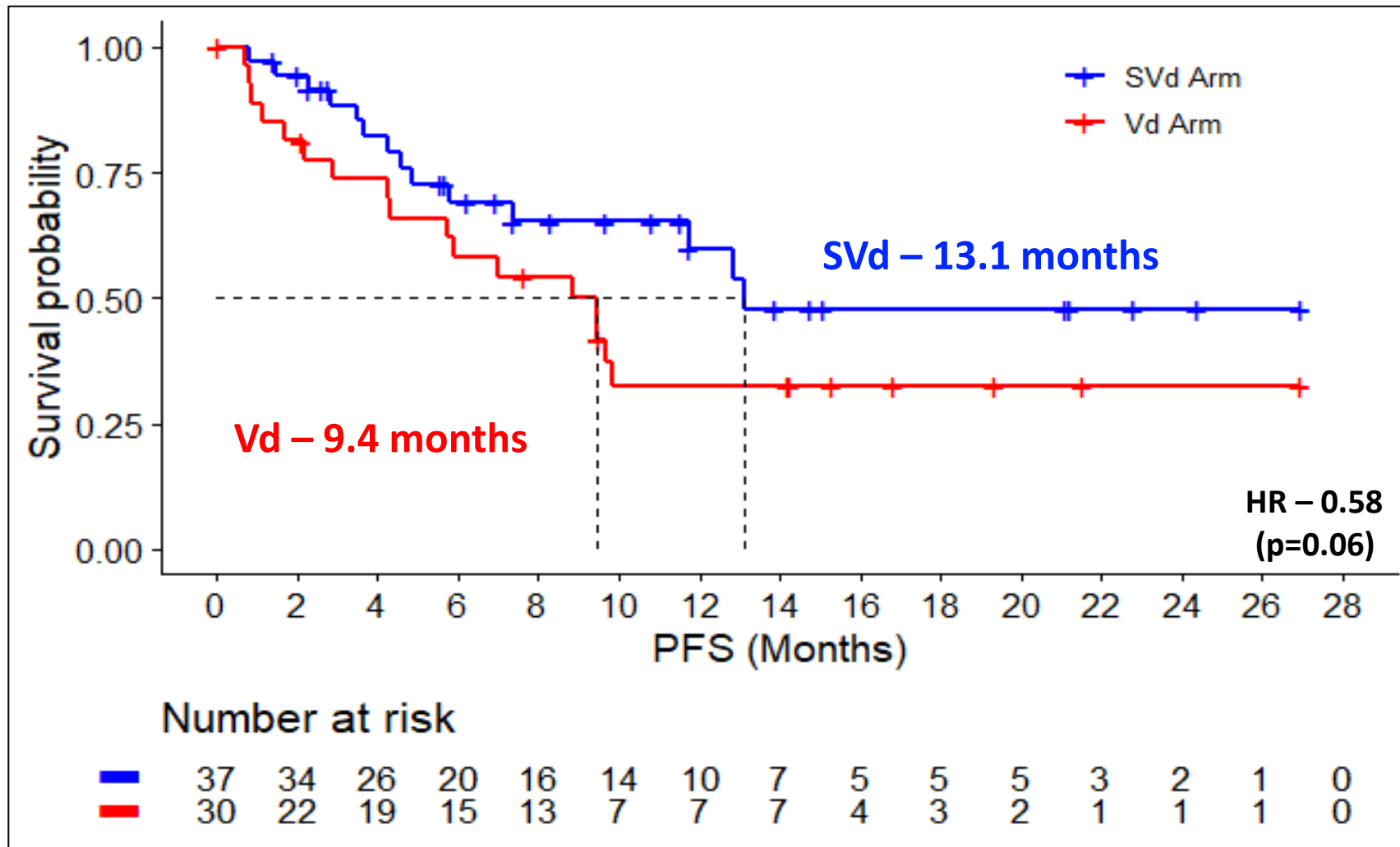
SVd is Effective (PFS, ORR) in Patients with Prior PI Treatment or PI Naïve



- PFS was prolonged in both PI groups with SVd compared to Vd. In prior PI, PFS was 11.7 vs 9.4 months (HR, 0.78; [95% CI, 0.58-1.06]; p=0.057) and in PI naïve, PFS was not reached vs 9.7 months (HR, 0.26; [95% CI, 0.11-0.60]; p=0.0003).
- The ≥VGPR rate was 41.9% in patients on SVd versus 29.6% on Vd (p=0.012) and 53.2% on SVd versus 41.7% on Vd (p=0.131) in the prior PI and PI naïve groups, respectively.

SVd is Effective Among Patients that Received Bortezomib Prior to ASCT as Induction Therapy – PFS, ORR

PFS for Bort-Treated Prior to ASCT



Related Adverse Events, All Grades, ≥10% Overall

	Prior PI Treatment Categories			
	SVd – Prior PI (n=148)	SVd – PI Naïve (n=47)	Vd – Prior PI (n=156)	Vd – PI Naïve (n=48)
Thrombocytopenia	85 (57.4)	25 (53.2)	38 (24.4)	9 (18.8)
Neuropathy Peripheral	47 (31.8)	14 (29.8)	67 (42.9)	26 (54.2)
Nausea	69 (46.6)	24 (51.1)	10 (6.4)	2 (4.2)
Fatigue	56 (37.8)	13 (27.7)	10 (6.4)	9 (18.8)
Decreased Appetite	45 (30.4)	18 (38.3)	5 (3.2)	2 (4.2)
Diarrhea	26 (17.6)	11 (23.4)	21 (13.5)	8 (16.7)
Anemia	28 (18.9)	15 (31.9)	11 (7.1)	6 (12.5)
Insomnia	22 (14.9)	7 (14.9)	20 (12.8)	7 (14.6)
Asthenia	30 (20.3)	8 (17.0)	8 (5.1)	3 (6.3)
Weight Decreased	29 (19.6)	9 (19.1)	7 (4.5)	1 (2.1)
Constipation	14 (9.5)	4 (8.5)	17 (10.9)	7 (14.6)
Vomiting	23 (15.5)	11 (23.4)	5 (3.2)	--
Cataract	22 (14.9)	10 (21.3)	2 (1.3)	2 (4.2)

- AEs of ≥grade 3 occurred in 71% of patients in the PI naïve subgroup (SVd 77%, Vd 65%) and 74% of patients in the prior PI treatment subgroup (SVd 88%, Vd 60%). Thrombocytopenia was more frequent in patients in the SVd arms as was anemia and fatigue. Rate of grade ≥2 peripheral neuropathy was less frequent in the SVd than Vd treatment arms (PI naïve: 25.5%, Vd 43.8%, p=0.03; prior PI: SVd 19.6%, Vd 31.4%, p=0.009).

Conclusions

- Patients who only had bortezomib based induction regimen prior to ASCT had a benefit with SVd
 - PFS improvement of 13.1 vs 9.4 months; HR 0.58, (p=0.06)
- Among patients who were PI treated or PI naïve, SVd improved PFS relative to Vd
 - PI Treated PFS; 11.7 months vs 9.4 months; HR 0.78, (p=0.057)
 - PI Naïve PFS; *Not Reached* vs 9.7 months; HR 0.26, (p=0.0003)
- ORR was significantly improved with SVd in patients with prior PI therapy (77.0% vs 59.7%; p=0.0006)
- Non-PN AEs were higher with in SVd than Vd therapy, but most of the AEs were reversible and treatable.

Once weekly SVd is a active, convenient regimen and may be an important treatment option for patients with relapsed myeloma who had a bortezomib based induction or those who were PI naïve.

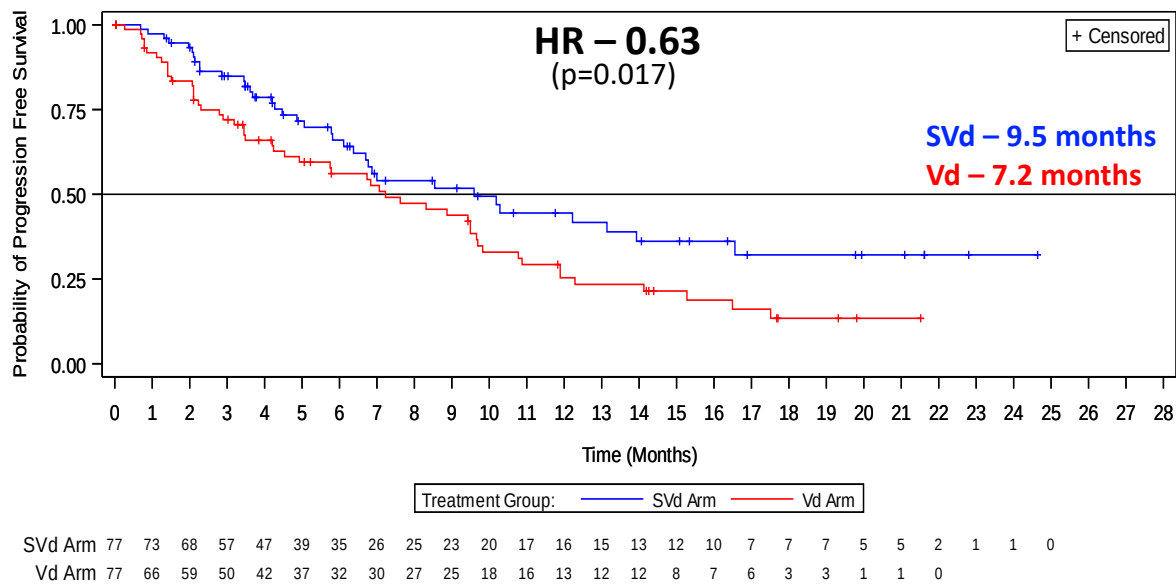
Impact of Prior Therapies on The Safety and Efficacy of Once-Weekly Selinexor, Bortezomib, and Dexamethasone Compared with Twice-Weekly Bortezomib and Dexamethasone in Relapsed or Refractory Multiple Myeloma: Results from the BOSTON Study

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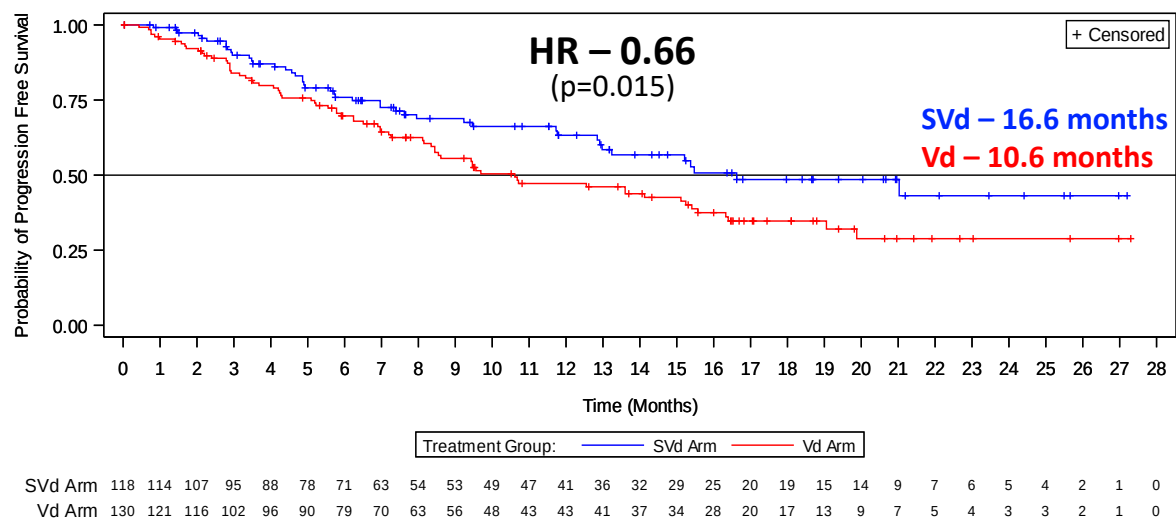
¹Hospital Universitario de Salamanca, Salamanca, Spain; ²Icahn School of Medicine at Mount Sinai, New York City, NY; ³General hospital Evangelismos, Athens, Greece; ⁴Institute of Blood Pathology and Transfusion Medicine of NAMS of Ukraine, Lviv, Ukraine; ⁵Charles University and General Hospital in Prague, Czech Republic; ⁶University Hospital Brno, Brno, Czech Republic; ⁷National Cancer Institute, Kiev, Ukraine; ⁸Alexandra Hospital, School of Medicine, National and Kapodistrian University of Athens, Athens, Greece; ⁹National and Kapodistrian University of Athens, Athens, Greece; ¹⁰Cherkassy Regional Oncological Center, Cherkassy, Ukraine; ¹¹Imperial College London, London, UK; ¹²Department of Hematology, CHU la Milettrie and Inserm CIC 1402, Poitiers, France; ¹³City Clinical Hospital #40, Moscow, Russian Federation; ¹⁴City Clinical Hospital No.4 of Dnipro City Council, Dnipro, Ukraine; ¹⁵University Hospital Ostrava, Department of Hematooncology, Ostrava, Czech Republic; ¹⁶Kings College Hospital NHS Foundation Trust, London, UK; ¹⁷Nil Ratan Sircar Medical College and Hospital, Kolkata, India; ¹⁸State Cancer Institute, Indira Gandhi Institute of Medical Sciences, Patna, India; ¹⁹Cross Cancer Institute, Edmonton, University of Alberta, Edmonton, Alberta, Canada; ²⁰University Hospitals of Leicester NHS Trust, Leicester, UK; ²¹Norton Cancer Institute, St. Matthews Campus, Louisville, KY; ²²University of Melbourne, St Vincent's Hospital, Melbourne, Victoria, Australia; ²³University Hospital, Hotel-Dieu, Nantes, France; ²⁴Baylor University Medical Center Dallas, TX; ²⁵University of Maryland, Greenebaum Comprehensive Cancer Center, Baltimore, MD; ²⁶Simmons Comprehensive Cancer Center, UT Southwestern Medical Center, Dallas, TX; ²⁷University of Calgary, Charbonneau Cancer Research Institute, Calgary, AB; ²⁸CHU Lille Service des Maladies du Sang F-59000, Lille, France; ²⁹Seràgnoli Institute of Hematology, Bologna University School of Medicine, Bologna, Italy; ³⁰Karyopharm Therapeutics Inc, Newton, MA; ³¹Dana-Farber Cancer Institute, Boston, MA; ³²Medical University of Silesia, Katowice, Poland;

SVd is Effective (PFS, ORR) in Patients with or without Prior Len Treatment

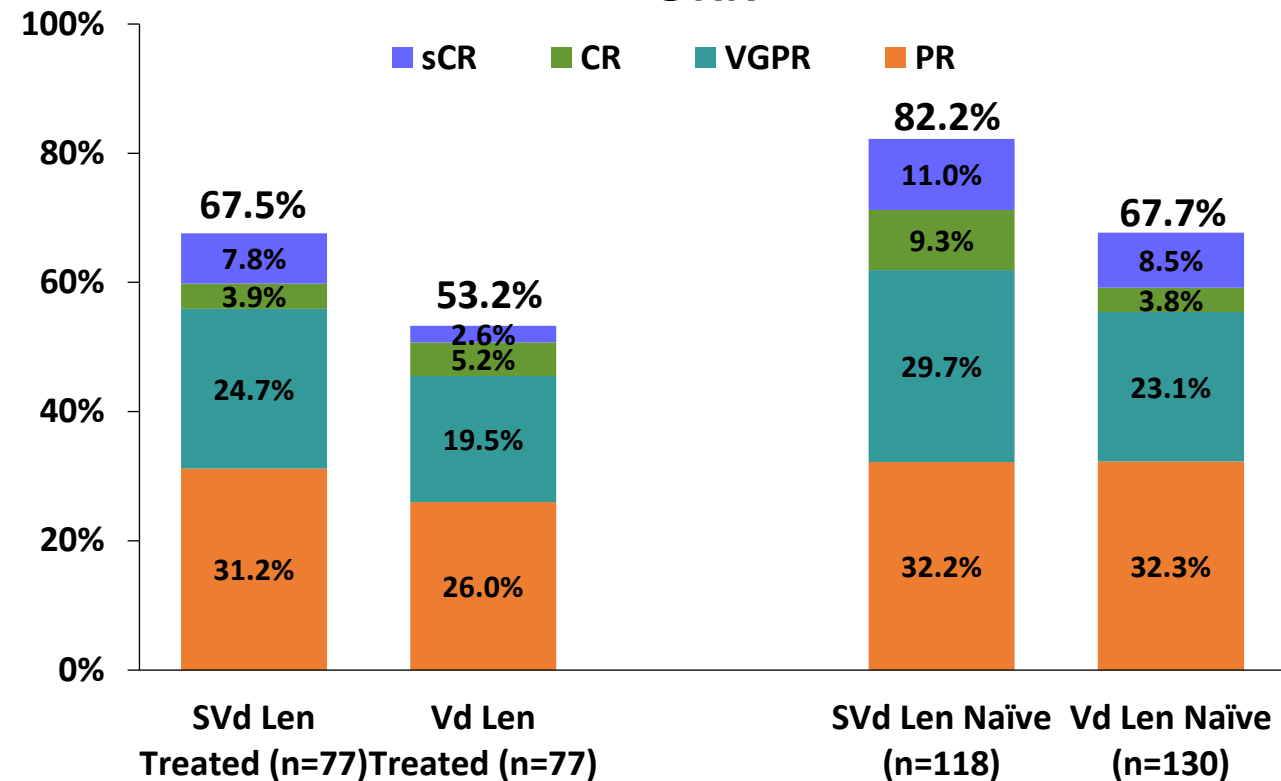
PFS for Len Treated Patients



PFS for Len Naïve Patients

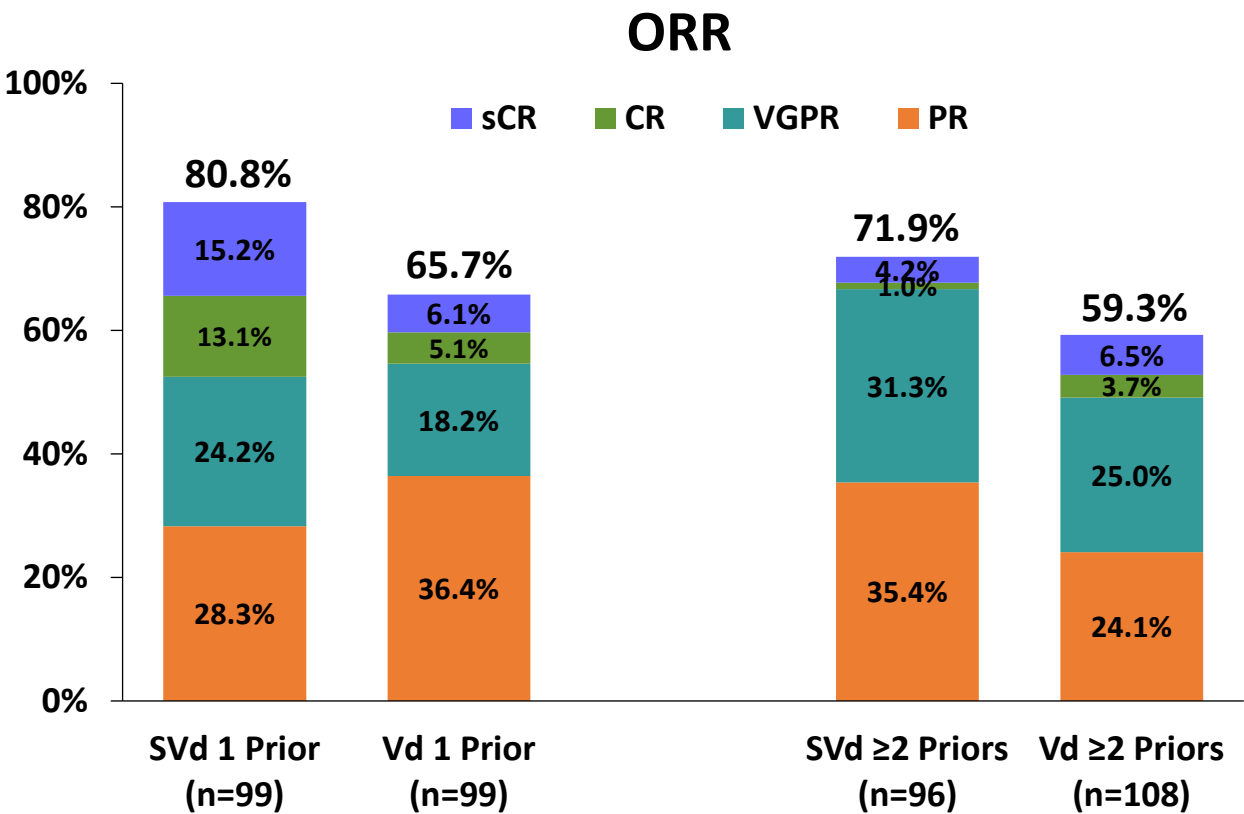
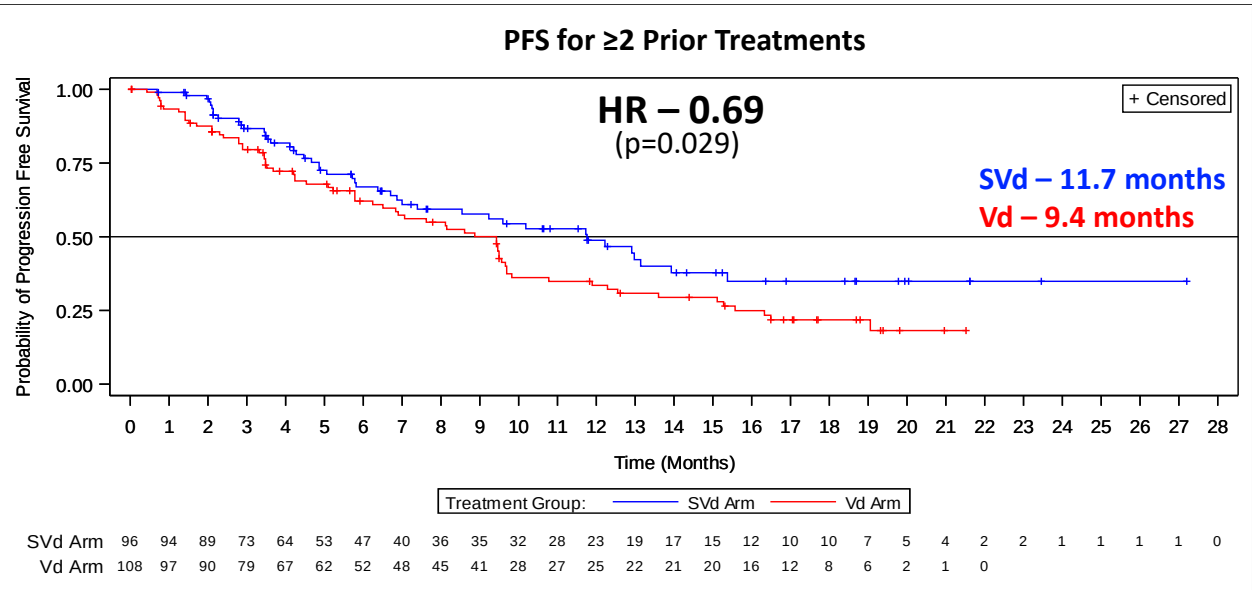
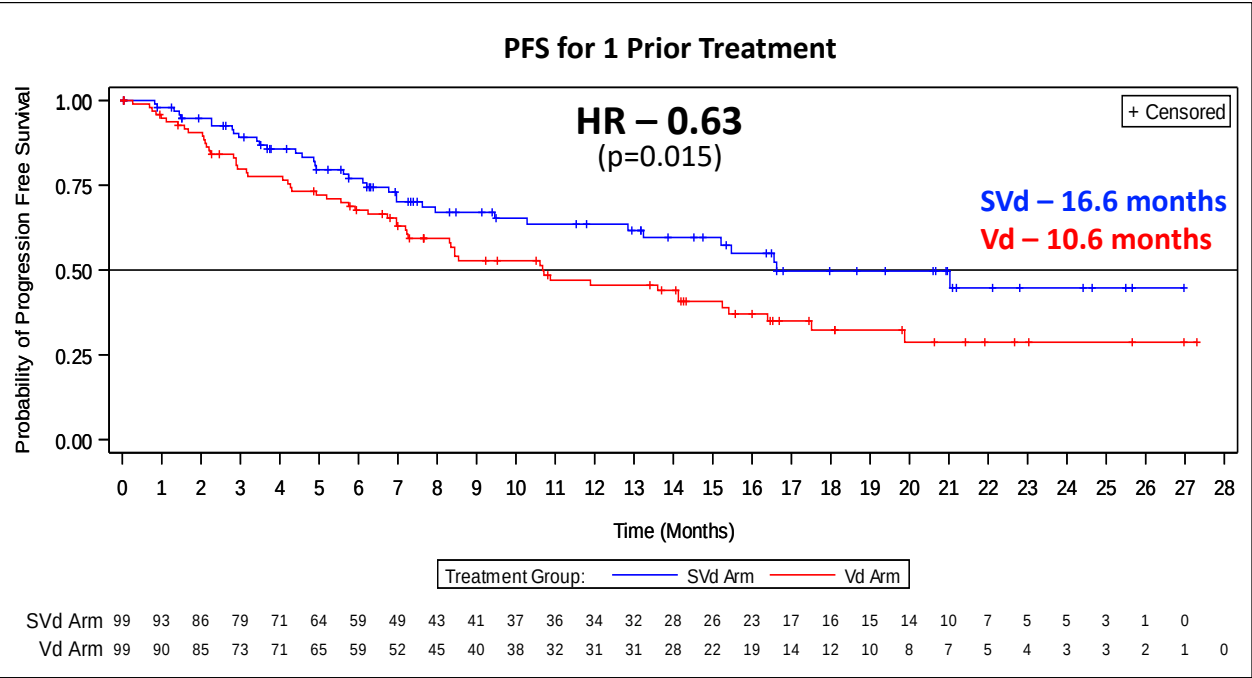


ORR



- PFS was significantly prolonged in both Len groups with SVd compared to Vd. In Len treated patients, PFS was 9.5 vs 7.2 months (HR, 0.63; 95% CI, 0.41-0.97; p=0.017) and in Len naïve, PFS was 16.6 vs 10.6 months (HR, 0.66; 95% CI, 0.45-0.96; p=0.015)
- The ORR significantly improved with SVd in Len treated (67.5% vs 53.2%; p=0.035) and Len naïve (82.2% vs 67.7%, p=0.004). The ≥VGPR rate was also higher in SVd compared to Vd.

SVd is Effective (PFS, ORR) in Patients with 1 Prior or ≥2 Prior Treatments



- PFS was significantly prolonged in both prior treatment groups with SVd compared to Vd. In patients with 1 prior, PFS was 16.6 vs 10.6 months (HR, 0.63; 95% CI, 0.41-0.96; p=0.015) and ≥2 priors, PFS was 11.7 vs 9.4 months (HR, 0.69; 95% CI, 0.48-1.01; p=0.029)
- The ORR significantly improved with SVd in patients with 1 prior (80.8% vs 65.7%; p=0.008) and ≥2 priors (71.9% vs 59.3%, p=0.029). The ≥VGPR rate was also higher in SVd compared to Vd.

≥Grade 3 Adverse Events, ≥5% Overall

AE Term	SVd – Len Naïve (n=118)	SVd – 1 Prior (n=99)	Vd – Len Naïve (n=129)	Vd – 1 Prior (n=98)	SVd – Len Treated (n=77)	SVd – ≥2 Priors (n=96)	Vd – Len Treated (n=75)	Vd – ≥2 Priors (n=106)
Thrombocytopenia	40 (33.9)	39 (39.4)	17 (13.2)	17 (17.3)	37 (48.1)	38 (39.6)	18 (24.0)	18 (17.0)
Anemia	15 (12.7)	10 (10.1)	15 (11.6)	11 (11.2)	16 (20.8)	21 (21.9)	6 (8.0)	10 (9.4)
Pneumonia	13 (11.0)	9 (9.1)	15 (11.6)	10 (10.2)	9 (11.7)	13 (13.5)	7 (9.3)	12 (11.3)
Fatigue	14 (11.9)	12 (12.1)	1 (0.8)	1 (1.0)	12 (15.6)	14 (14.6)	1 (1.3)	1 (0.9)
Neuropathy Peripheral	7 (5.9)	6 (6.1)	13 (10.1)	9 (9.2)	2 (2.6)	3 (3.1)	5 (6.7)	9 (8.5)
Asthenia	14 (11.9)	11 (11.1)	5 (3.9)	6 (6.1)	2 (2.6)	5 (5.2)	4 (5.3)	3 (2.8)
Neutropenia	12 (10.2)	8 (8.1)	4 (3.1)	3 (3.1)	5 (6.5)	9 (9.4)	3 (4.0)	4 (3.8)
Cataract	7 (5.9)	8 (8.1)	2 (1.6)	1 (1.0)	10 (13.0)	9 (9.4)	1 (1.3)	2 (1.9)
Nausea	8 (6.8)	8 (8.1)	--	--	7 (9.1)	7 (7.3)	--	--
Hypertension	4 (3.4)	5 (5.1)	3 (2.3)	3 (3.1)	4 (5.2)	3 (3.1)	3 (4.0)	3 (2.8)
Diarrhea	5 (4.2)	5 (5.1)	1 (0.8)	--	7 (9.1)	7 (7.3)	--	1 (0.9)
Hypokalemia	6 (5.1)	6 (6.1)	1 (0.8)	3 (3.1)	2 (2.6)	2 (2.1)	4 (5.3)	2 (1.9)
Hypophosphatemia	5 (4.2)	4 (4.0)	1 (0.8)	--	5 (6.5)	6 (6.3)	2 (2.7)	3 (2.8)

- AEs of ≥Grade 3 were more commonly reported in the SVd treatment arm than in the Vd arm, LEN treated (83% SVd, 57% Vd), LEN-naïve (76% SVd, 55% Vd), 1 prior line (77% SVd, 56% Vd), 2-3 prior lines (81% SVd, 56% Vd), and were mostly managed with dose modification and/or supportive treatment. Grade ≥2 peripheral neuropathy occurred less frequently across all SVd subgroups compared with Vd: LEN treated (21% SVd, 37% Vd, p=0.0166); LEN-naïve (21% SVd, 33% Vd, p=0.0252), 1 prior line (21% SVd, 33% Vd, p=0.0501); 2-3 prior lines (21% SVd, 36% Vd, p=0.0107).

Conclusions

- **Regardless of prior lenalidomide, the combination of SVd was active with a PFS HR of 0.63 among patients with prior lenalidomide treatment who received SVd compared to Vd**
- **Regardless of prior treatment, SVd treatment led to significantly improved ORR and PFS with the highest PFS of 16.6 months in first relapse**
- **Regardless of prior treatments SVd was associated with significantly reduced rates of $\geq$ grade 2 peripheral neuropathy (PN) compared with Vd**
- **AEs of $\geq$ Grade 3 were more commonly reported in the SVd treatment arm than in the Vd arm, but most non-PN AEs were reversible and treatable; major organ toxicities were not common**

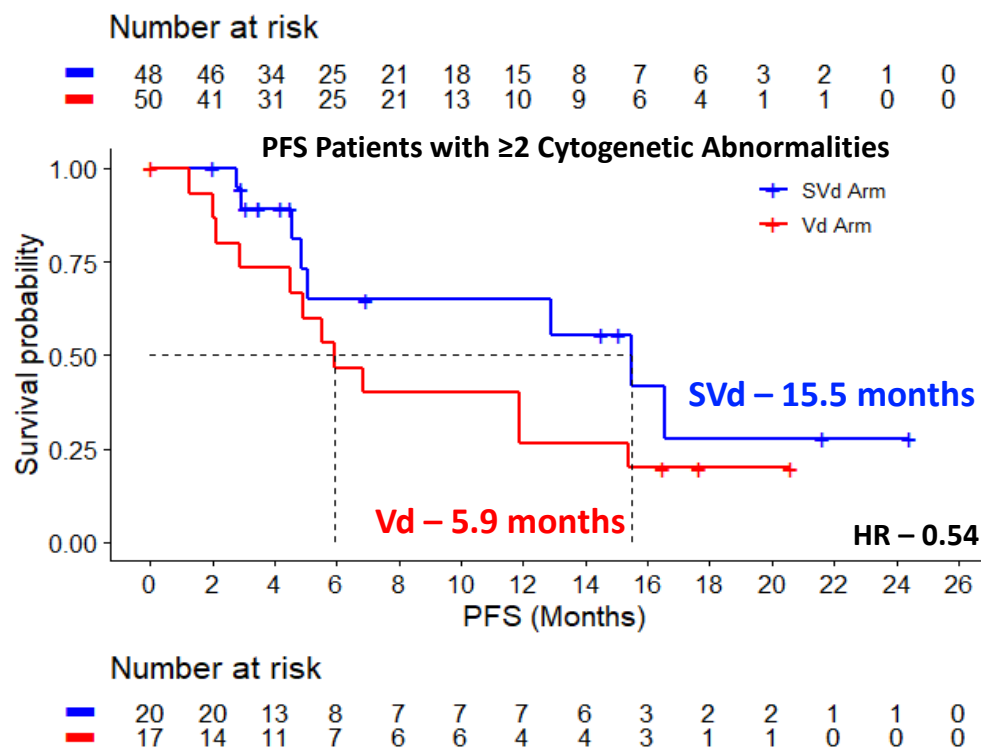
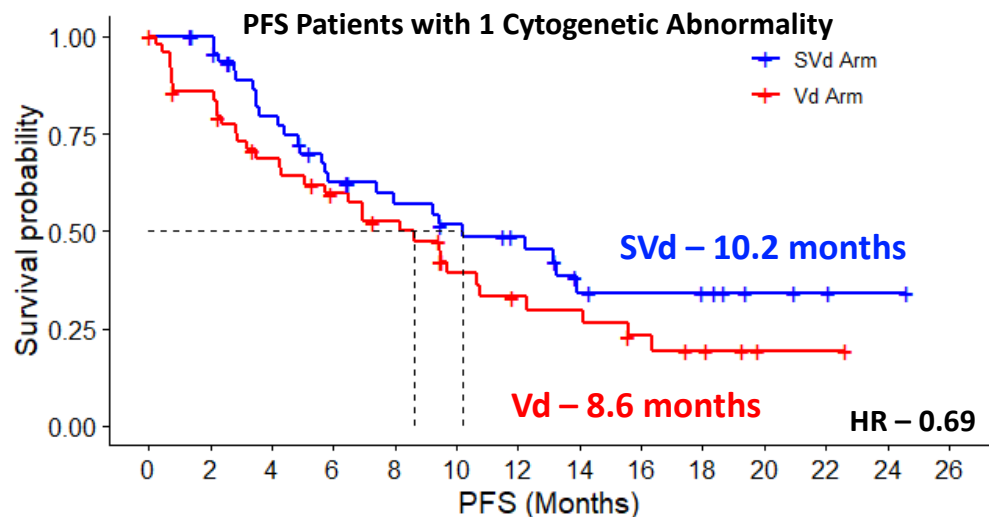
Once weekly SVd is effective and a convenient treatment option for patients with previously treated MM, including those who have been treated with Lenalidomide

Once Weekly Selinexor, Bortezomib, and Dexamethasone (SVd) Versus Twice Weekly Bortezomib and Dexamethasone (Vd) in Relapsed or Refractory Multiple Myeloma: High-Risk Cytogenetic Risk Planned Subgroup Analyses from the Phase 3 BOSTON Study

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SVd is Effective (PFS, ORR) in Patients with High or Standard Risk Cytogenetics



Abnormality Type	del(17p)		t(4;14)		t(14;16)	
Arm	SVd (n=21)	Vd (n=16)	SVd (n=22)	Vd (n=27)	SVd (n=7)	Vd (n=11)
PFS, months	12.22	5.91	13.24	8.33	4.57	11.89
HR, (p value)	0.38 (0.008)		0.70 (0.18)		1.46 (0.75)	
ORR%	76.2%	37.5%	90.9%	74.1%	85.7%	54.5%
(p value)	(0.0096)		(0.07)		(0.09)	

Abnormality Type	amp(1q21) ≥4 copies		All High Risk		Standard Risk	
Arm	SVd (n=43)	Vd (n=39)	SVd (n=70)	Vd (n=71)	SVd (n=125)	Vd (n=136)
PFS, months	12.91	8.15	12.91	8.61	16.62	9.46
HR, (p value)	0.63 (0.07)		0.73 (0.08)		0.61 (0.004)	
ORR%	76.7%	61.5%	78.6%	57.7%	75.2%	64.7%
(p value)	(0.07)		(0.004)		(0.03)	

- SVd significantly improved PFS relative to Vd in the high-risk (12.9 vs 8.6 months; HR, 0.73; 95% CI, 0.47-1.14; p=0.08) and standard-risk (16.6 vs 9.5 months; HR, 0.61; 95% CI, 0.42-0.88; p=0.004). Patients with 1 cytogenetic abnormality PFS (10.2 vs 8.6, HR 0.69, 95% CI (0.41–1.15); p=0.08). Patients with ≥2 cytogenetic abnormalities PFS (15.5 vs 5.9, HR 0.54, 95% CI (0.22-1.33) p=0.09)
- The ORR was significantly improved with SVd in the high-risk group (78.6% vs 57.7%; p=0.004) and in the standard-risk group (75.2% vs 64.7%; p=0.03). The ≥VGPR rate was 41.4% in patients on SVd versus 29.6% on Vd and 46.4% on SVd versus 33.8% on Vd in the high-risk and standard-risk groups, respectively.

Related Adverse Events, All Grades, ≥10% Overall

AE Term	Cytogenetic Risk Categories			
	SVd – High (n=70)	SVd – Standard (n=125)	Vd – High (n=70)	Vd – Standard (n=134)
Thrombocytopenia	49 (70.0)	62 (49.6)	20 (28.6)	28 (20.9)
Neuropathy Peripheral	25 (35.7)	36 (28.8)	34 (48.6)	60 (44.8)
Nausea	34 (48.6)	59 (47.2)	2 (2.9)	10 (7.5)
Fatigue	27 (38.6)	42 (33.6)	6 (8.6)	13 (9.7)
Decreased appetite	19 (27.1)	44 (35.2)	1 (1.4)	7 (5.2)
Diarrhea	9 (12.9)	29 (23.2)	8 (11.4)	22 (16.4)
Anemia	13 (18.6)	31 (24.8)	6 (8.6)	12 (9.0)
Insomnia	14 (20.0)	15 (12.0)	10 (14.3)	17 (12.7)
Asthenia	15 (21.4)	23 (18.4)	--	11 (8.2)
Weight decreased	16 (22.9)	22 (17.6)	2 (2.9)	6 (4.5)
Constipation	5 (7.1)	13 (10.4)	11 (15.7)	13 (9.7)
Vomiting	10 (14.3)	24 (19.2)	--	5 (3.7)
Cataract	9 (12.9)	24 (19.2)	2 (2.9)	3 (2.2)
Neutropenia	14 (20.0)	12 (9.6)	4 (5.7)	2 (1.5)

- The safety profiles of SVd and Vd in the high-risk and standard-risk groups were consistent with the overall population. Rate of grade ≥2 peripheral neuropathy was lower with SVd compared with Vd in both the high-risk (25.7% vs 35.7%; p=0.100) and standard-risk groups (18.4% vs 33.6%; p=0.003).

Conclusions

- **SVd is superior to Vd in patients with MM including high-risk disease:**
 - **Patients with high risk cytogenetics; PFS (12.9 vs 8.6, HR 0.73 p=0.08)**
 - **Patients with 1 cytogenetic abnormality; PFS (10.2 vs 8.6, HR 0.69, p=0.08)**
 - **Patients with ≥ 2 cytogenetic abnormalities; PFS (15.5 vs 5.9, HR 0.54, p=0.09)**
 - **Patients with del17p; PFS (12.2 vs 5.9, HR 0.38, p=0.009)**
- **Patients with high risk cytogenetics including del17p need new options with novel mechanism of action**
- **Selinexor's novel mechanism, reactivating TSP and reducing levels of oncoproteins may be particularly suited for high risk disease**
- **Non-PN AEs were higher with SVd and most of the AEs were reversible**

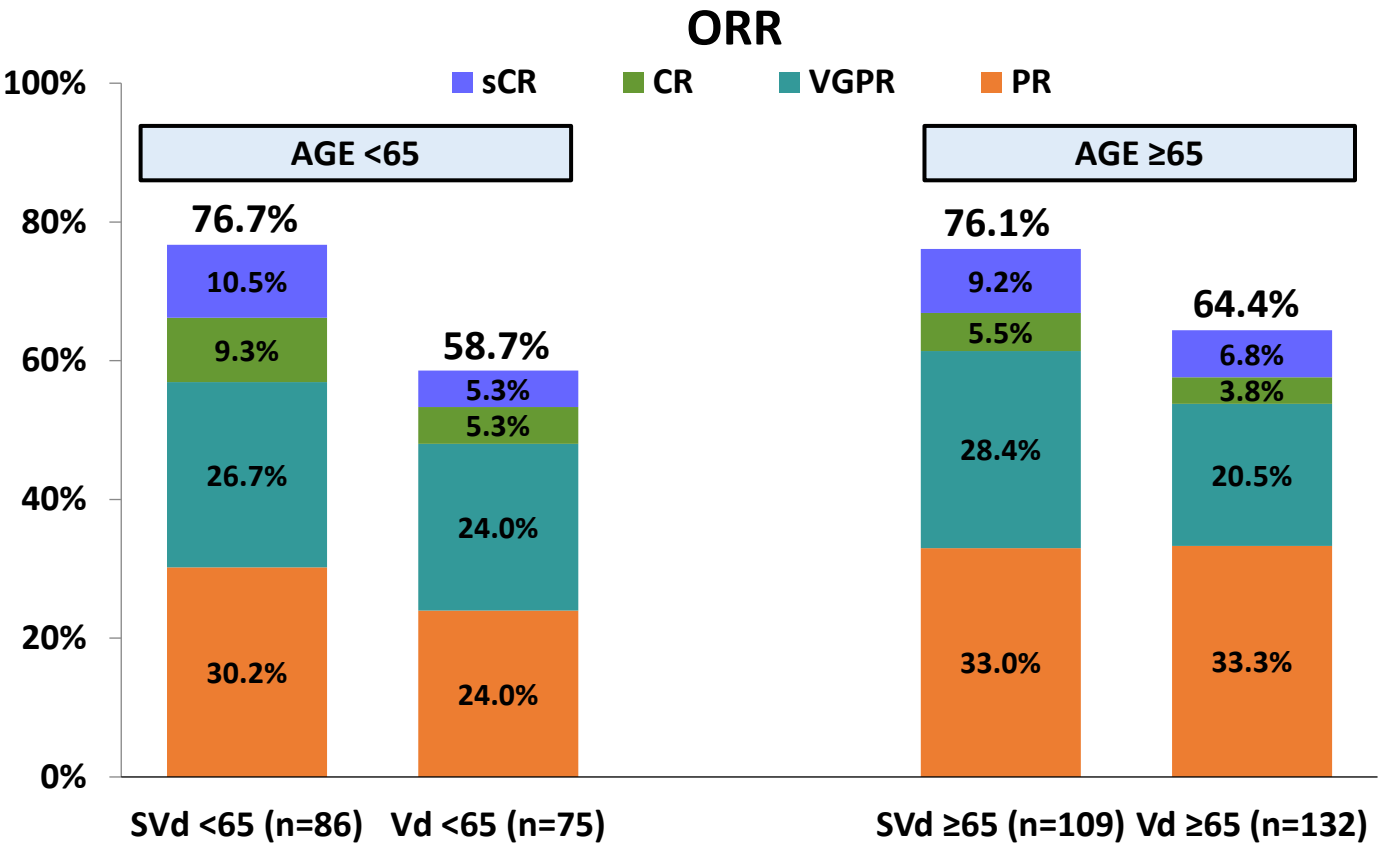
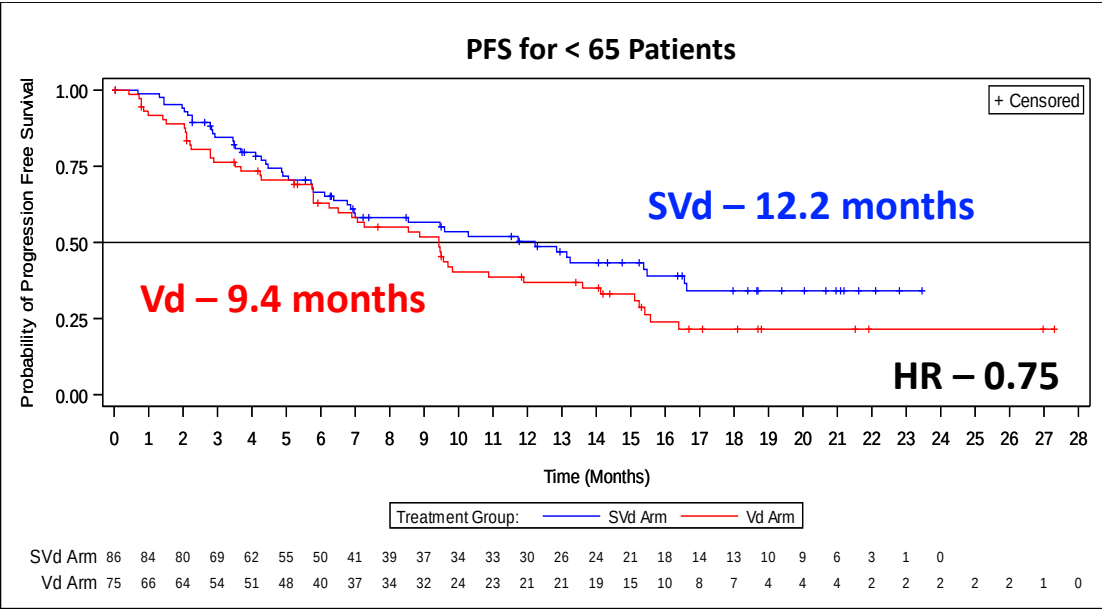
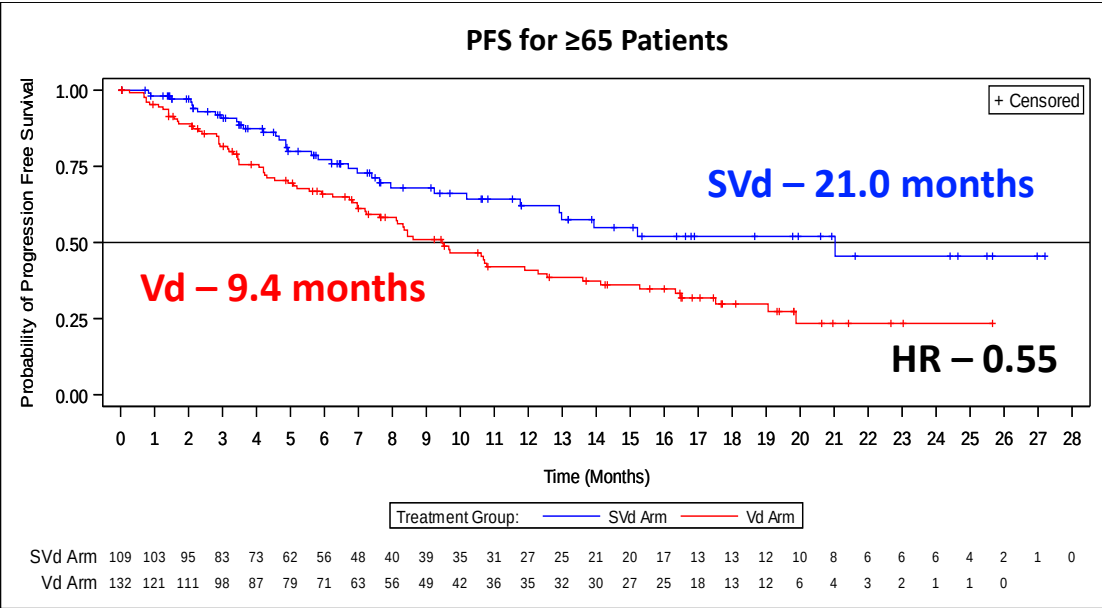
Once weekly SVd is an effective and safe regimen and may be an important treatment option for patients with high risk MM

Once Weekly Selinexor, Bortezomib, and Dexamethasone Versus Twice Weekly Bortezomib and Dexamethasone in Relapsed or Refractory Multiple Myeloma: Age and Frailty Subgroup Analyses from the Phase 3 BOSTON Study

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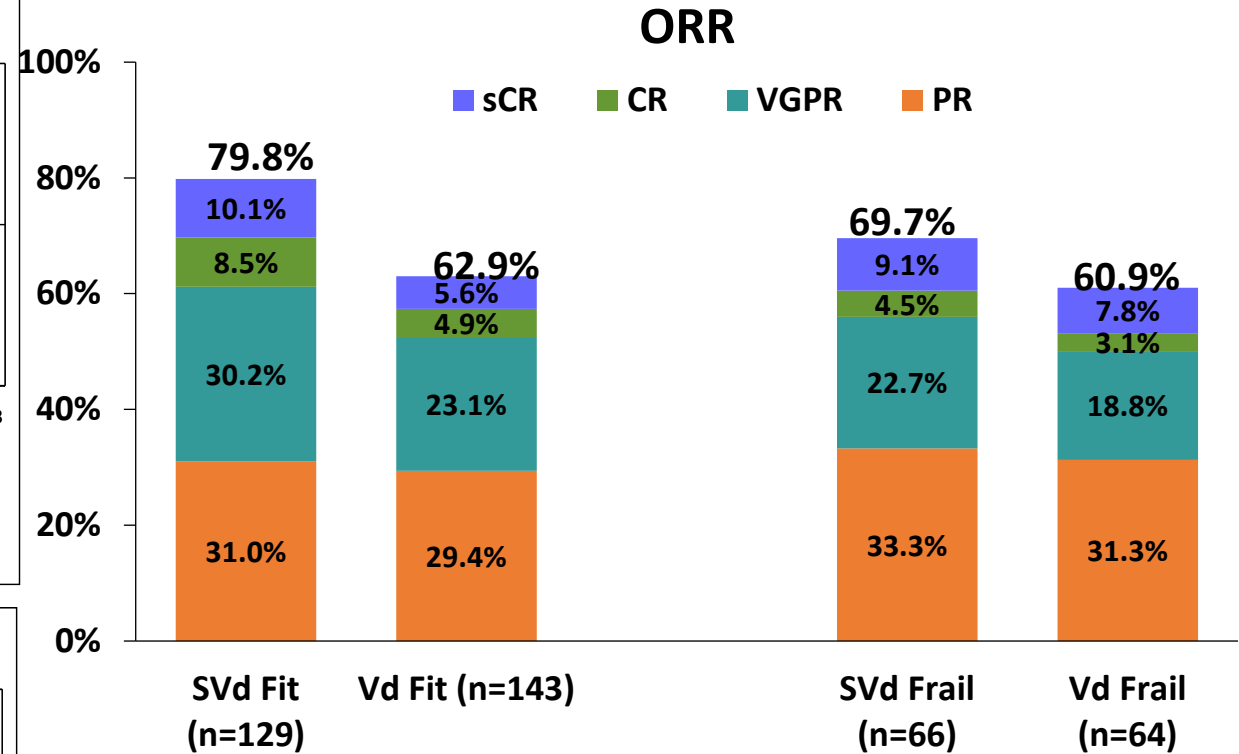
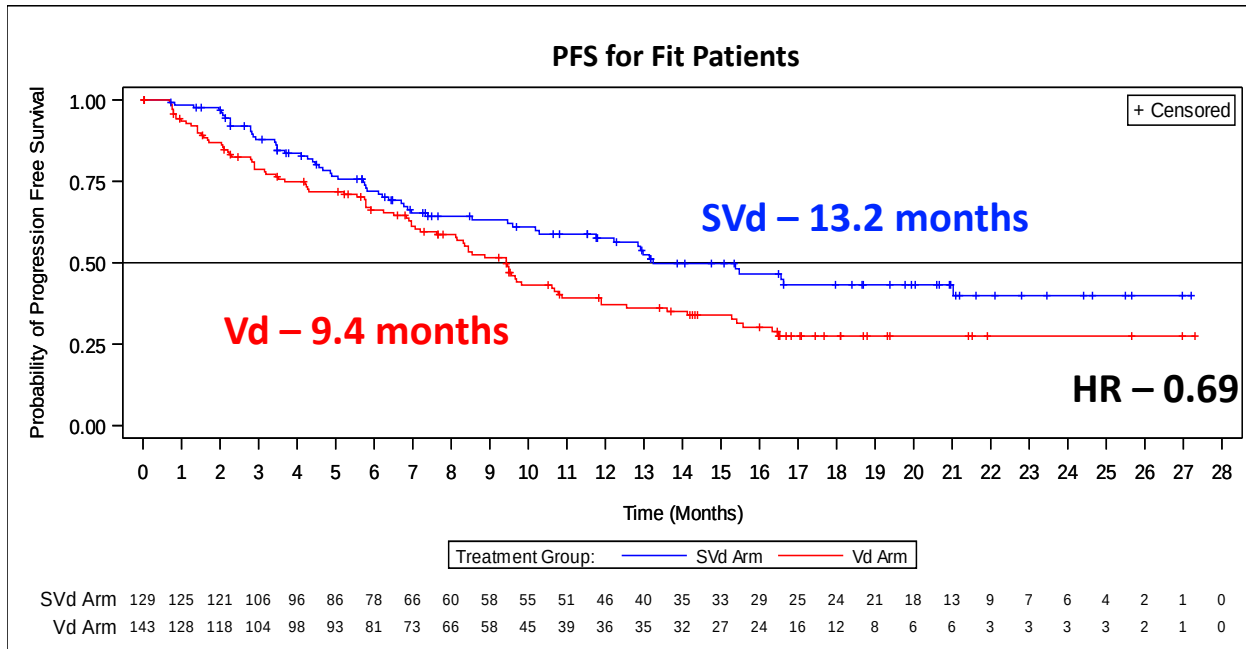
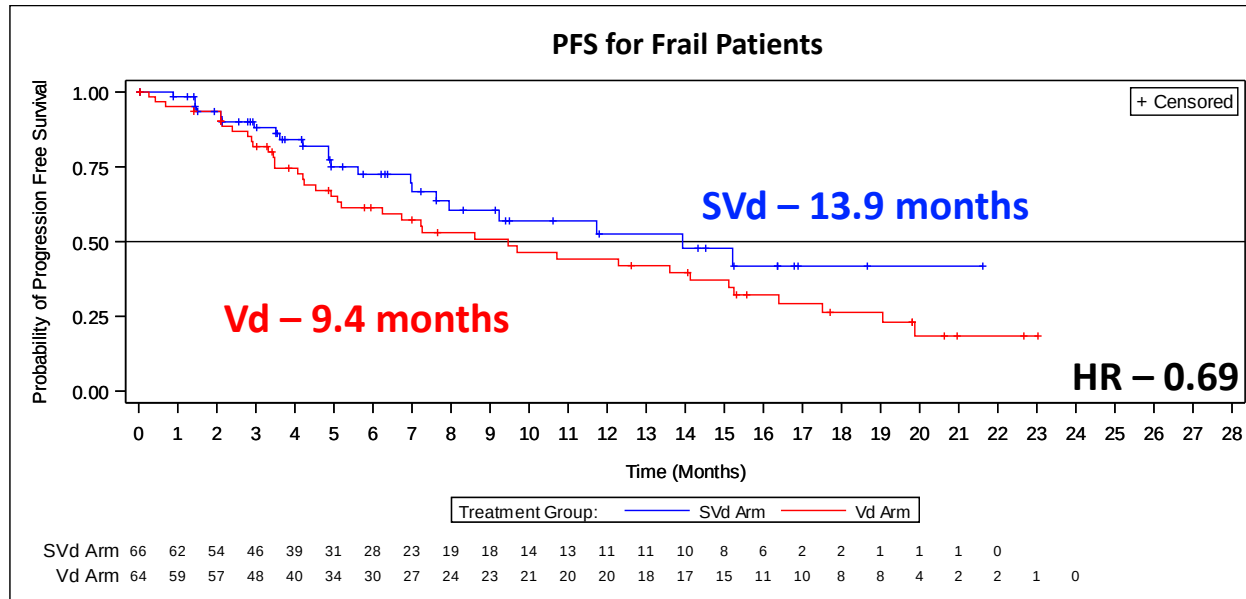
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SVd is Effective (PFS, ORR) in Patients <65 and ≥65 Years



- PFS was prolonged in both age groups with SVd compared to Vd. In ≥65, PFS was 21.0 vs 9.4 months (HR, 0.55; 95% CI, 0.37-0.83; p=0.002) and in <65, PFS was 12.2 vs 9.4 months (HR, 0.74; 95% CI, 0.41-1.10; p=0.07).
- The ORR significantly improved with SVd in those ≥65 (76.1% vs 64.4%; p=0.0243) and <65 (76.7% vs 58.7%, p=0.0071). The ≥VGPR rate was also higher in SVd compared to Vd.

SVd is Effective (PFS, ORR) in Frail and Fit Patients



- The PFS benefit of SVd was sustained and comparable in the frail pts: 13.9 vs 9.4 months (HR, 0.69; 95% CI, 0.40-1.17; p=0.08); and in the fit pts: 13.2 vs 9.4 months (HR, 0.66; 95% CI, 0.47-0.93; p=0.008).
- The ORR were higher with SVd in frail (69.7% vs 60.9%; p=0.1479) and fit patients (79.8% vs 62.9%, p=0.001). The $\geq$ VGPR rate was also higher in SVd compared to Vd.

Related Adverse Events, All Grades, ≥10% Overall

AE Term	SVd – <65 (n=86)	SVd – Fit (n=129)	Vd – <65 (n=75)	Vd – Fit (n=142)	SVd – ≥65 (n=109)	SVd – Frail (n=66)	Vd – ≥65 (n=129)	Vd – Frail (n=62)
Thrombocytopenia	47 (54.7)	78 (60.5)	18 (24.0)	33 (23.2)	63 (57.8)	32 (48.5)	29 (22.5)	14 (22.6)
Neuropathy Peripheral	27 (31.4)	45 (34.9)	35 (46.7)	62 (43.7)	34 (31.2)	16 (24.2)	58 (45.0)	31 (50.0)
Nausea	37 (43.0)	62 (48.1)	6 (8.0)	8 (5.6)	56 (51.4)	31 (47.0)	6 (4.7)	4 (6.5)
Fatigue	26 (30.2)	49 (38.0)	8 (10.7)	14 (9.9)	43 (39.4)	20 (30.3)	11 (8.5)	5 (8.1)
Decreased Appetite	27 (31.4)	44 (34.1)	6 (8.0)	7 (4.9)	36 (33.0)	19 (28.8)	1 (0.8)	--
Diarrhea	21 (24.4)	25 (19.4)	10 (13.3)	19 (13.4)	16 (14.7)	12 (18.2)	19 (14.7)	10 (16.1)
Anemia	18 (20.9)	30 (23.3)	6 (8.0)	12 (8.5)	25 (22.9)	13 (19.7)	11 (8.5)	5 (8.1)
Insomnia	9 (10.5)	20 (15.5)	14 (18.7)	26 (18.3)	20 (18.3)	9 (13.6)	13 (10.1)	1 (1.6)
Asthenia	17 (19.8)	20 (15.5)	5 (6.7)	7 (4.9)	21 (19.3)	18 (27.3)	6 (4.7)	4 (6.5)
Weight Decreased	15 (17.4)	23 (17.8)	5 (6.7)	7 (4.9)	23 (21.1)	15 (22.7)	3 (2.3)	1 (1.6)
Constipation	10 (11.6)	16 (12.4)	9 (12.0)	19 (13.4)	8 (7.3)	2 (3.0)	15 (11.6)	5 (8.1)
Vomiting	18 (20.9)	22 (17.1)	1 (1.3)	4 (2.8)	16 (14.7)	12 (18.2)	4 (3.1)	1 (1.6)
Cataract	21 (24.4)	29 (22.5)	2 (2.7)	3 (2.1)	11 (10.1)	3 (4.5)	2 (1.6)	1 (1.6)

- Similar to the overall population, the most common grade ≥3 AEs were thrombocytopenia, anemia, and fatigue. In the SVd arm, the incidence of AEs was comparable across subgroups except for a higher incidence of fatigue in ≥65 vs <65 (17% vs 8%) and pneumonia in the frail versus fit (19% vs 7%). There were more deaths in the ≥65 (30% [SVd 23%, Vd 36%]) and frail groups (35% [SVd 26%, Vd 44%]) compared with the <65 (23% [SVd 26%, Vd 20%]) and fit groups (24% [SVd 23%, Vd 24%]).

Conclusions

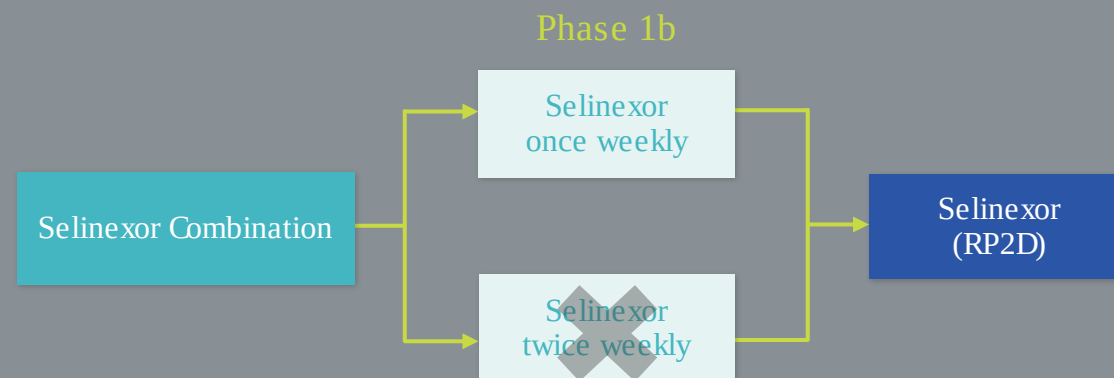
- Both elderly and frail patients benefit from SVd compared to Vd
- Activity of SVd was preserved in patients ≥ 65 with a mPFS of 21 months and HR of 0.55
- SVd had similar PFS benefit in Fit vs Frail pts (13.2 vs 13.9 months with SVd)
- Once weekly SVd led to prolonged PFS, improved response rates and lower rates of PN regardless of age and frailty score compared to standard twice weekly Vd
- Non-PN AEs were higher with in SVd than Vd therapy, but most of the AEs were reversible and treatable

Once weekly SVd is an effective and safe treatment option for patients with previously treated MM, including those who are ≥ 65 years old or frail

STOMP ABSTRACTS

STOMP: Study Overview & Objectives

Selinexor and backbone **T**reatments **O**f multiple **M**yeloma **P**atients (STOMP): Multi-center, open-label, dose escalation (Phase 1) and expansion (Phase 2) study to assess the MTD, efficacy, and safety of selinexor in patients with RRMM



Note: MTD, maximum tolerated dose; RP2D, recommended phase 2 dose; NDMM, newly diagnosed multiple myeloma.



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Selinexor in Combination with Pomalidomide and Dexamethasone (SPd) for Treatment of Patients with Relapsed Refractory Multiple Myeloma (RRMM)

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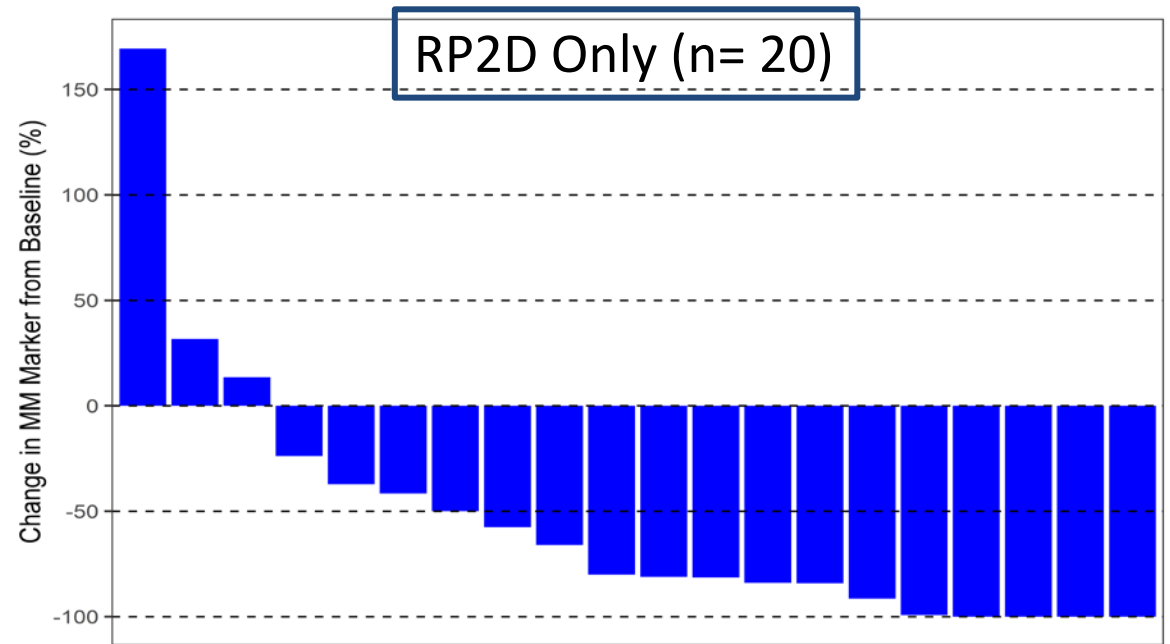
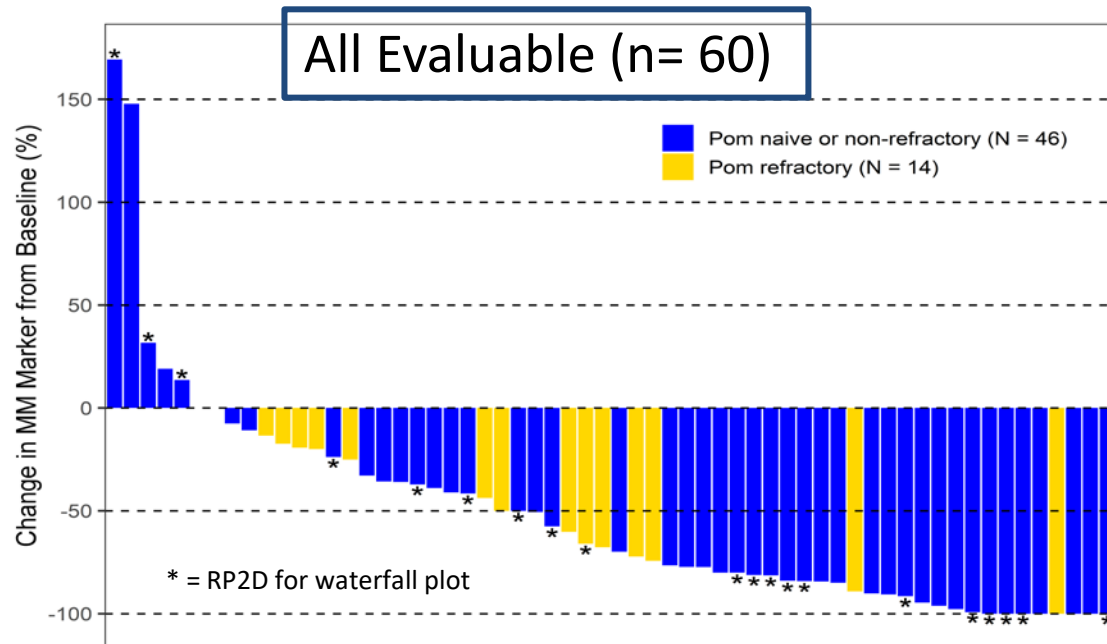
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SPd Efficacy (as of November 14, 2020)

Best Responses in Evaluable SPd Patients

	N	ORR (%)	CBR (%)	CR (%)	VGPR (%)	PR (%)	MR (%)	SD (%)	PD (%)
Pom naïve or non-refractory	46	25 (54.3)	33 (71.7)	1 (2.2)	[†] 9 (19.6)	[‡] 15 (32.6)	*8 (17.4)	10 (21.7)	3 (6.5)
Pom Refractory	14	5 (35.7)	9 (64.3)	--	1 (7.1)	4 (28.6)	4 (28.6)	5 (35.7)	-
RP2D: Selinexor 60 mg QW + Pom 4 mg	20	12 (60.0)	15 (75.0)	0	[†] 6 (30.0)	[‡] 6 (30.0)	*3 (15.0)	3 (15.0)	2 (10.0)

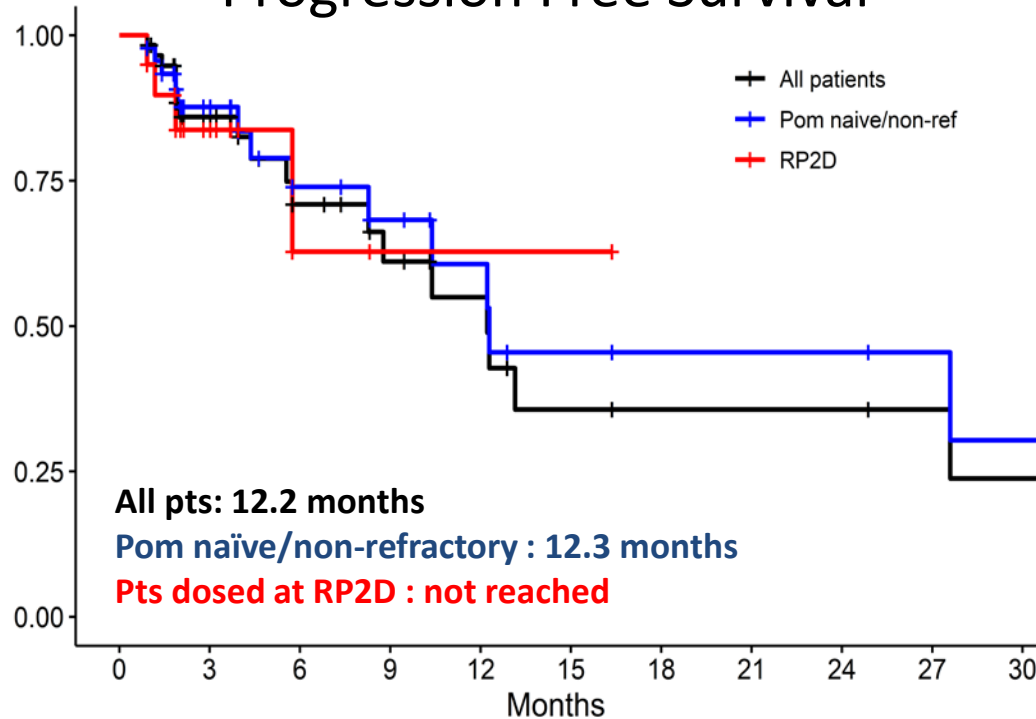
Responses were determined according to the International Myeloma Working Group (IMWG) criteria. [†] 2 VGPRs were unconfirmed. [‡] 1 PR was unconfirmed. *1 MR was unconfirmed. Responses as of November 14, 2020 based on interim unaudited data.



SPd highly active with prolonged PFS and DOR:

PFS in Pom-naïve/non-refractory MM was 12.3 months

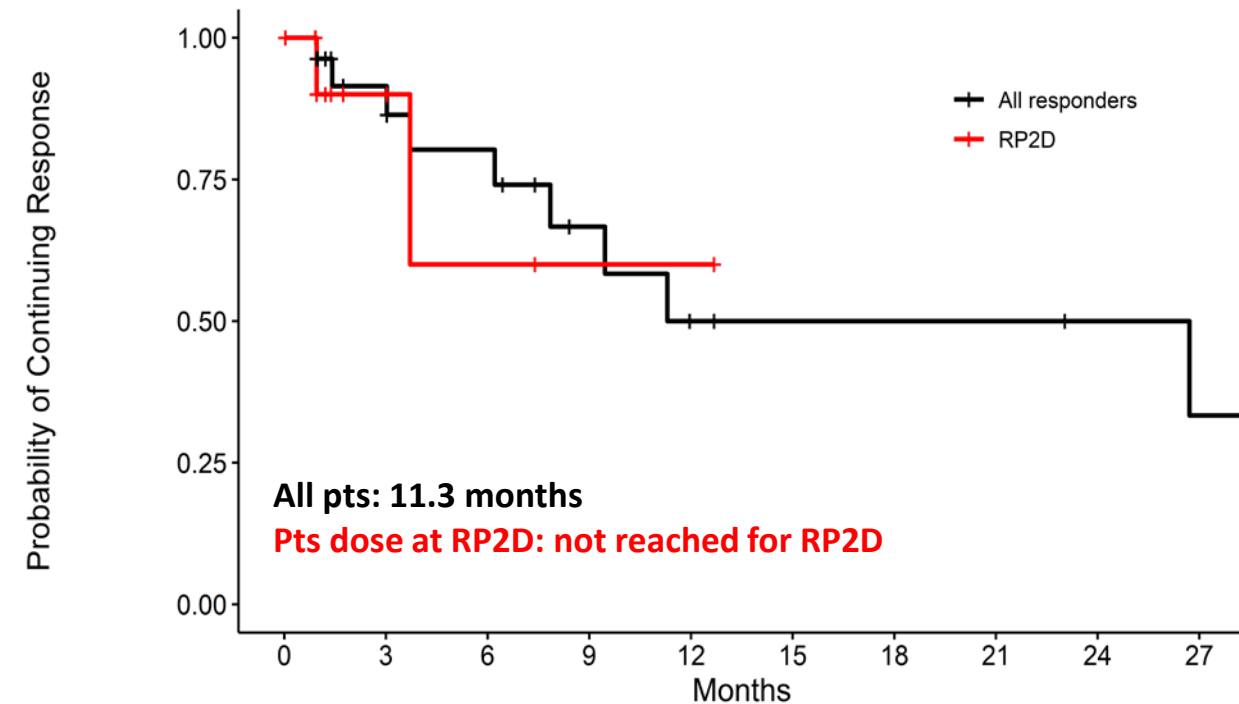
Progression Free Survival



Number at risk

All patients	60	31	17	12	9	5	4	4	4	3	2
Pom naïve/non-ref	46	25	14	11	8	5	4	4	4	3	2
RP2D	20	9	2	1	1	1	0	0	0	0	0

Duration of Response



Number at risk

All responders	30	18	13	8	5	4	4	4	3	2
RP2D	12	4	2	1	1	0	0	0	0	0

Selinexor QW + Pom/Dex Treatment-Related Adverse Events

AEs (≥20% Patients) n=63 (as of Oct 1, 2020)		
Hematologic	Any Grade	Grade 3/4
Neutropenia	38 (60.3)	34 (54.0)
Anaemia	34 (54.0)	21 (33.3)
Thrombocytopenia	34 (54.0)	20 (31.7)
Leukopenia	15 (23.8)	8 (12.7)
Gastrointestinal		
Nausea	38 (60.3)	1 (1.6)
Decreased appetite	28 (44.4)	1 (1.6)
Diarrhea	18 (28.6)	0
Dysgeusia	13 (20.6)	0
Vomiting	13 (20.6)	1 (1.6)
Constitutional		
Fatigue	32 (50.8)	6 (9.5)
Weight decreased	24 (38.1)	0

Summary and Conclusions

Selinexor, once-weekly, can be safely combined with pomalidomide and low-dose dexamethasone (SPd) in patients with heavily pretreated MM

- **RP2D is selinexor 60 mg QW (pomalidomide 4 mg QD + dexamethasone 40 mg QW)**
- **The most common TRAEs were: nausea, neutropenia, anemia, thrombocytopenia, fatigue**
 - **Expected and can be managed with appropriate supportive care and/or dose modifications**

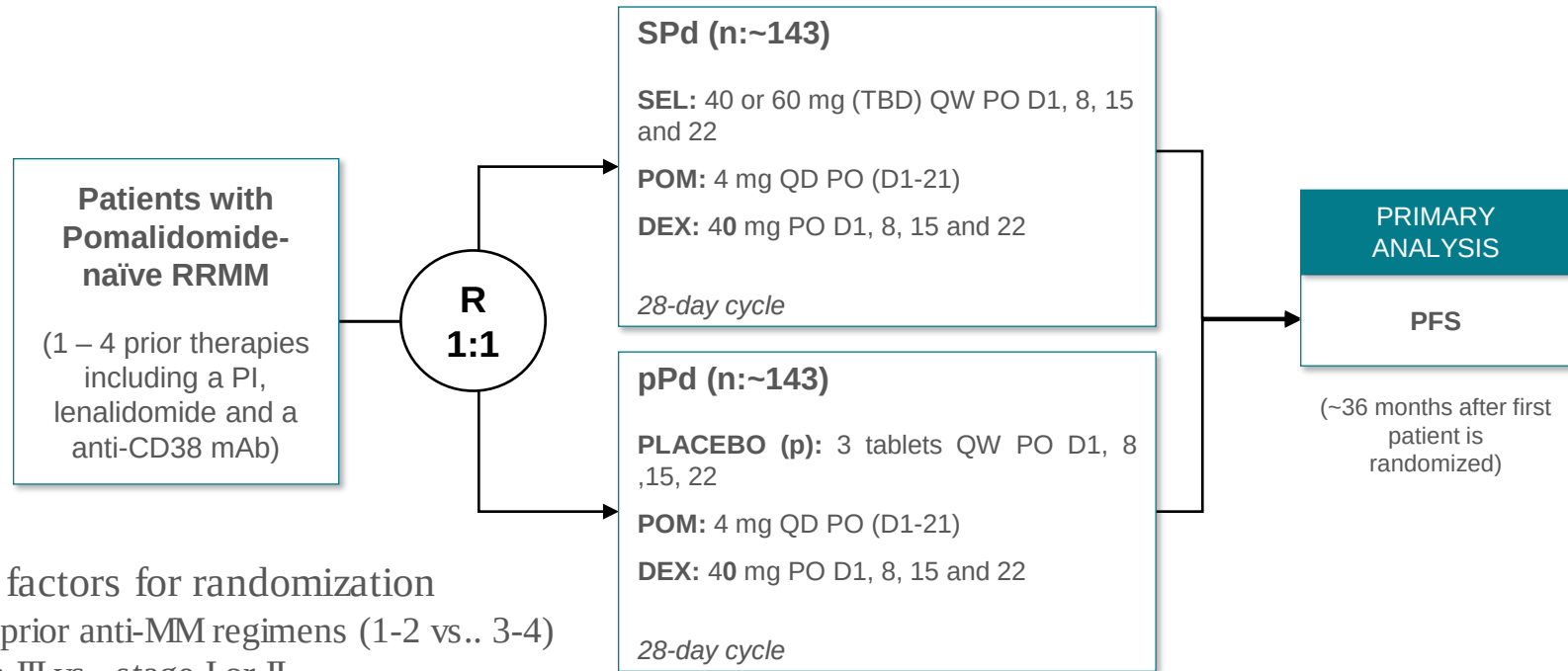
The all oral SPd combination is very active and responses are durable

- **ORR 60% ($\geq$ VGPR 30%) at the RP2D (compared to expected ORR $\leq$ 30% for pomalidomide + dex)**
- **CBR was 70% across all patient at RP2D**
- **PFS was 12.2 months for all patients and not reached for RP2D**

Data support planned phase 3 study of all oral combination of SPd vs Pd in patients with a prior PI, Imid and CD-38 mAb (XPORT-MM-031)

XPORT-MM-031: Selinexor + Pomalidomide + Dexamethasone (SPd)

Trial Design - Randomized, placebo-controlled, phase 3 trial



Stratification factors for randomization

- Number of prior anti-MM regimens (1-2 vs.. 3-4)
- R-ISS stage III vs.. stage I or II

Inclusion Criteria

- Histologically confirmed MM with measurable disease per IMWG guidelines
- Received at least 1 and no more than 4 prior anti-MM regimens, including ≥ 2 cycles of lenalidomide, a proteasome inhibitor and a anti-CD38 mAb
- ECOG performance status of ≤ 2



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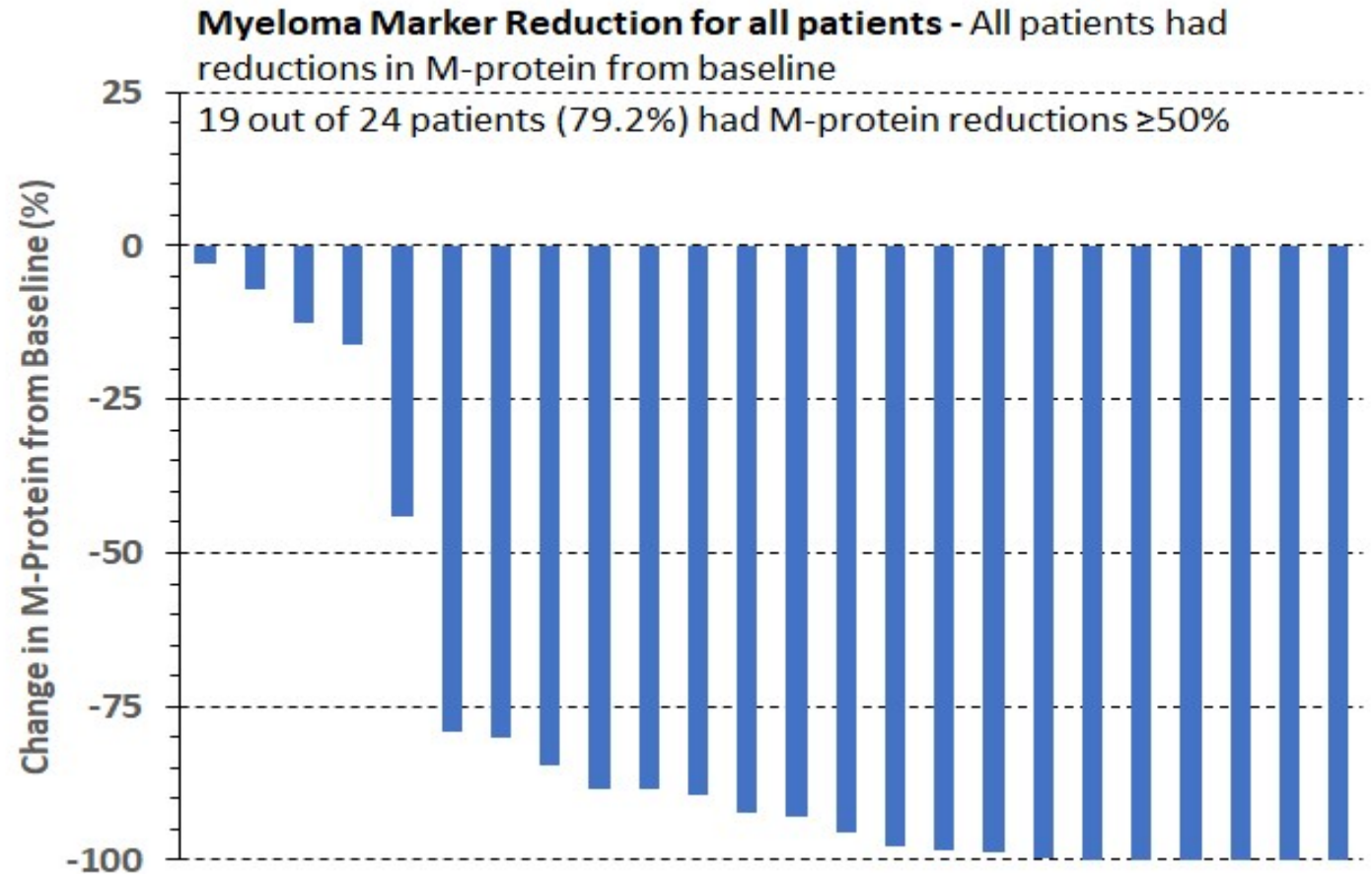
Selinexor in Combination with **Carfilzomib** and Dexamethasone, All Once Weekly (SKd), for Patients with Relapsed/Refractory Multiple Myeloma

Cristina Gasparetto MD¹, Brea C. Lipe MD², Sascha A Tuchman MD³, Natalie Scott Callander MD⁴, Suzanne Lentzsch MD PhD⁵, Muhamed Baljevic MD⁶, Adriana C. Rossi MD⁷, Nizar Bahlis MD⁸, Darrell J White MD⁹, Christine I Chen MD¹⁰, Heather J Sutherland MD PhD¹¹, Rami Kotb MD¹², Richard LeBlanc MD FRCPC¹³, Michael Sebag MD PhD¹⁴, Christopher P Venner MD¹⁵, William I Bensinger MD¹⁶, Noa Biran¹⁷, Heidi Sheehan¹⁸, Dane Van Domelen PhD¹⁸, Kazuharu Kai MD PhD¹⁸, Gary J Schiller MD¹⁹

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SKd Results in Deep Responses in heavily pretreated patients: (100% Velcade Exposed; 95% prior Len; 67% prior Pom; 63% prior Dara)

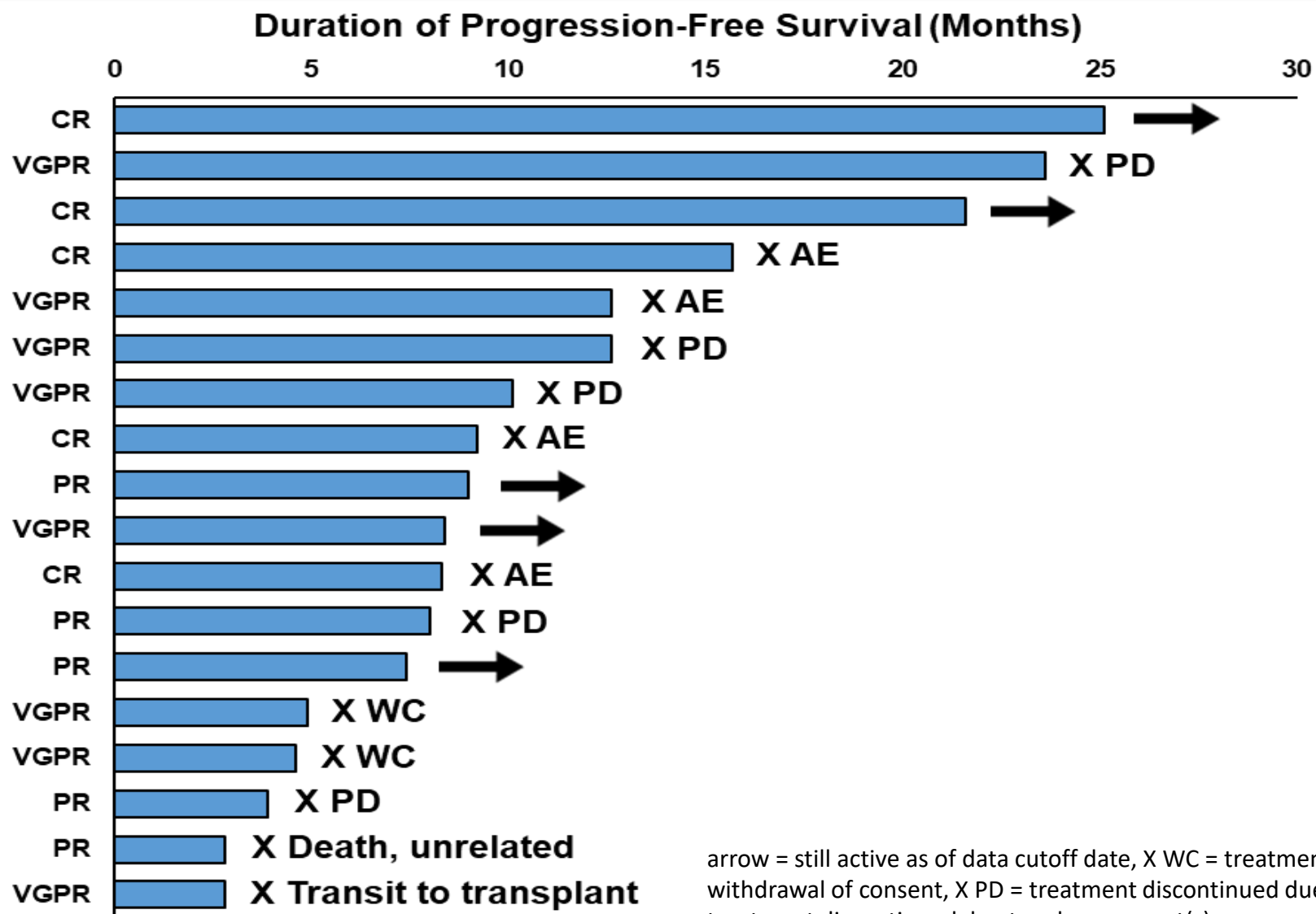
	Best Response (%) n=24
CR (%)	5 (20.8%)
VGPR (%)	8 (33.3%)
PR (%)	5 (20.8%)
MR (%)	1 (4.2%)
SD (%)	5 (20.8%)
ORR	18 (75%)
CBR	19 (79.2%)



(as of October 1, 2020)

Responses were determined according to the International Myeloma Working Group (IMWG) criteria. ORR=Overall Response Rate (CR+VGPR+PR), CBR=Clinical Benefit Rate (ORR+MR), CR=Complete Response, VGPR=Very Good Partial Response, PR=Partial Response, MR=Minimal Response, SD=Stable Disease, PD=Progressive Disease. Responses as of October 1, 2020 based on interim unaudited data.

SKd Time on Therapy: Response are durable > 12 months



DLTs and Treatment-Related Adverse Events ≥15% Patients

Selinexor Dose	Carfilzomib Dose	No. Pts Enrolled	No. Pts DLT-evaluable	No. Pts with DLT	Dose Limiting Toxicity
100 mg QW	56 mg/m ² IV	3	*2	2	Dose Reduction for G3 PLT; Dose Reduction for G3 Emesis
80 mg QW	70 mg/m ² IV	3	3	2	Grade 4 PLT and Grade 3 Pneumonia; Grade 4 PLT
80 mg QW	56 mg/m ² IV	6	6	--	No DLT

Dose-Limiting Toxicity (DLT): Standard 3 + 3 design for dose escalations. Carfilzomib C1D1 dose 20 mg/m² per label. *One patient not DLT evaluable because platelet count <50x10⁹/L C1D1.

AEs ≥15% Patients (N=24)		
Hematologic	Any Grade	Grade 3/4
Thrombocytopenia	19 (79.2)	14 (58.3)
Anaemia	14 (58.3)	5 (20.8)
Leukopenia	8 (33.3)	3 (12.5)
Neutropenia	7 (29.2)	2 (8.3)
Gastrointestinal		
Nausea	17 (70.8)	1 (4.2)
Decreased appetite	12 (50.0)	1 (4.2)
Dysgeusia	9 (37.5)	0
Diarrhoea	5 (20.8)	0
Vomiting	5 (20.8)	1 (4.2)
Constipation	4 (16.7)	0

AEs ≥15% Patients (N=24) – Cont.		
Constitutional	Any Grade	Grade 3/4
Fatigue	14 (58.3)	2 (8.3)
Weight decreased	11 (45.8)	0
Insomnia	4 (16.7)	0
Other		
Hyperglycaemia	6 (25.0)	2 (8.3)
Hyponatraemia	4 (16.7)	1 (4.2)
Blurred vision	4 (16.7)	0

Summary and Conclusions

- The RP2D of SKd with continuous weekly Selinexor is once-weekly selinexor 80 mg + carfilzomib 56 mg/m² + dexamethasone 40 mg
- The combination is active and durable with an ORR of 75% with deep responses (≥ VGPR) in 54%, in patients who had a median of 3 lines of prior therapy
- The most common TRAEs are thrombocytopenia, nausea, anemia, fatigue and anorexia which are expected and can be managed with supportive care and/or dose modifications
- Further exploration with selinexor dosing on days 1, 8 and 15 q 28 days is ongoing

Acknowledgements

- Patients, their families, and caregivers Investigators, co-investigators, and study teams at each participating center
- *This study was sponsored by Karyopharm Therapeutics*



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Selinexor, **Lenalidomide** and Dexamethasone (SRd) for Patients with Relapsed/Refractory and Newly Diagnosed Multiple Myeloma

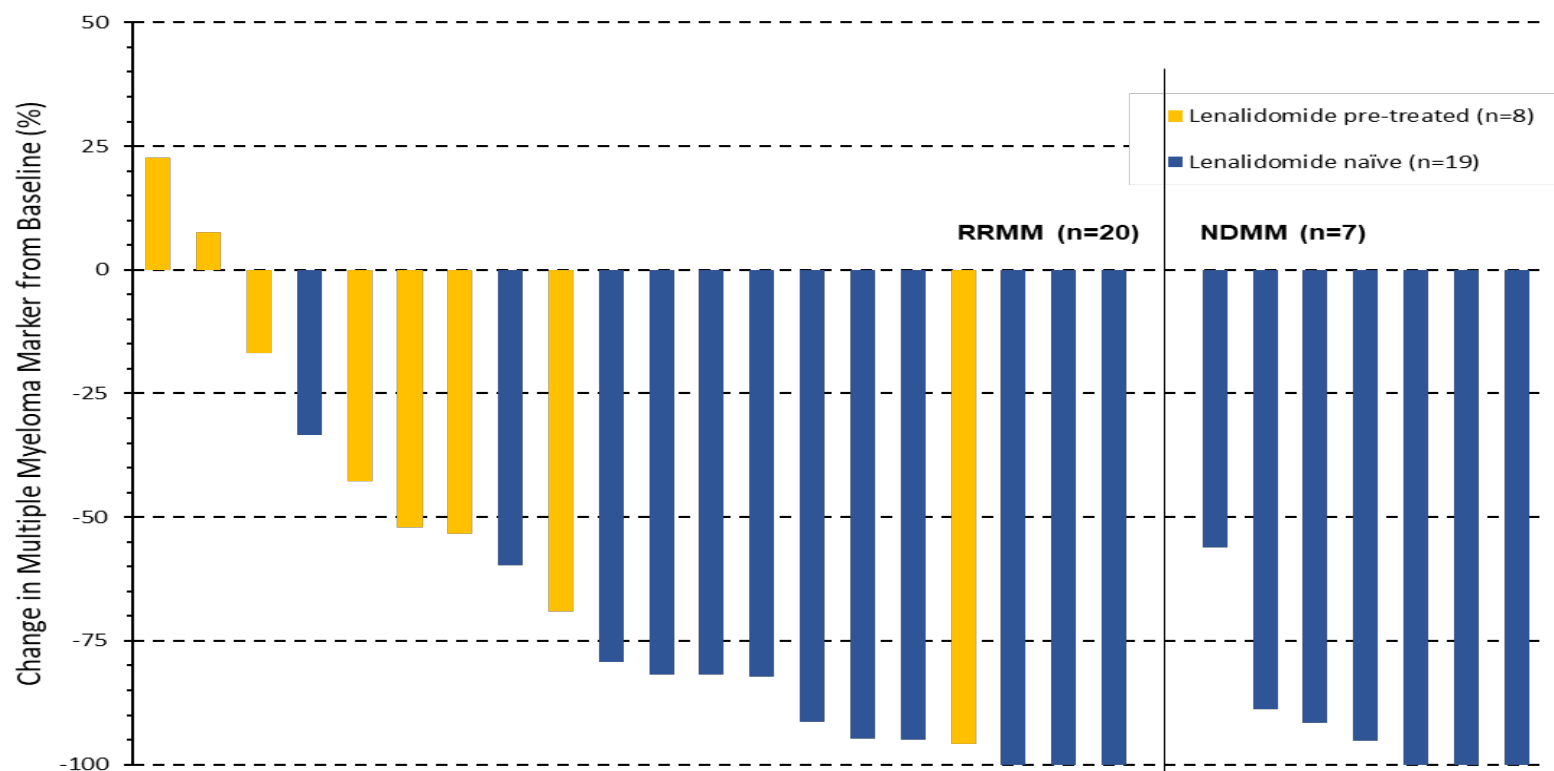
Darrell J White MD¹, Richard LeBlanc MD FRCPC², Muhamed Baljevic MD³, Nizar Bahlis MD⁴, Suzanne Lentzsch MD PhD⁵, Christopher P Venner MD⁶, Cristina Gasparetto MD⁷, Christine I Chen MD⁸, Brea C. Lipe MD⁹, Sascha A Tuchman MD¹⁰, Heather J. Sutherland MD PhD¹¹, Rami Kotb MD¹², Michael Sebag MD PhD¹³, Natalie Scott Callander MD¹⁴, William I. Bensinger MD¹⁵, Adriana C. Rossi MD¹⁶, Noa Biran¹⁷, Heidi Sheehan¹⁸, Dane Van Domelen PhD¹⁸, Tianjun Zhou MD PhD¹⁸, Kazuharu Kai MD PhD¹⁸, Jatin Shah MD¹⁸, Sharon Shacham PhD MBA¹⁸, Michael G. Kauffman MD PhD¹⁸, Gary J. Schiller MD¹⁹

¹Queen Elizabeth II Health Sciences Centre and Dalhousie University, Halifax, NS; ² Maisonneuve-Rosemont Hospital, University of Montreal, QC, Canada; ³Department of Internal Medicine, Division of Oncology and Hematology, University of Nebraska Medical Center, Omaha, NE; ⁴Charbonneau Cancer Research Institute, Calgary, AB, Canada; ⁵Division of Hematology/Oncology, Columbia University, New York, NY; ⁶Cross Cancer Institute, Edmonton, AB; ⁷Duke University Cancer Center, Durham, NC; ⁸Princess Margaret Cancer Centre, Toronto, ON; ⁹University of Rochester, Rochester, NY; ¹⁰University of North Carolina, Chapel Hill, NC; ¹¹Vancouver General Hospital, Vancouver, BC; ¹²Cancer Care Manitoba, Winnipeg, MB; ¹³McGill University Health Centre, Montréal, QC; ¹⁴University of Wisconsin, Carbone Cancer Center, Madison, WI; ¹⁵Swedish Cancer Institute, Seattle, WA; ¹⁶NYPH Weill Cornell, New York, NY; ¹⁷Hackensack Meridian Health, Hackensack University Medical Center; ¹⁸Karyopharm Therapeutics Inc., Newton, MA; ¹⁹David Geffen School of Medicine at UCLA, Los Angeles, CA

Selinexor – Lenalidomide – dex Efficacy: ORR

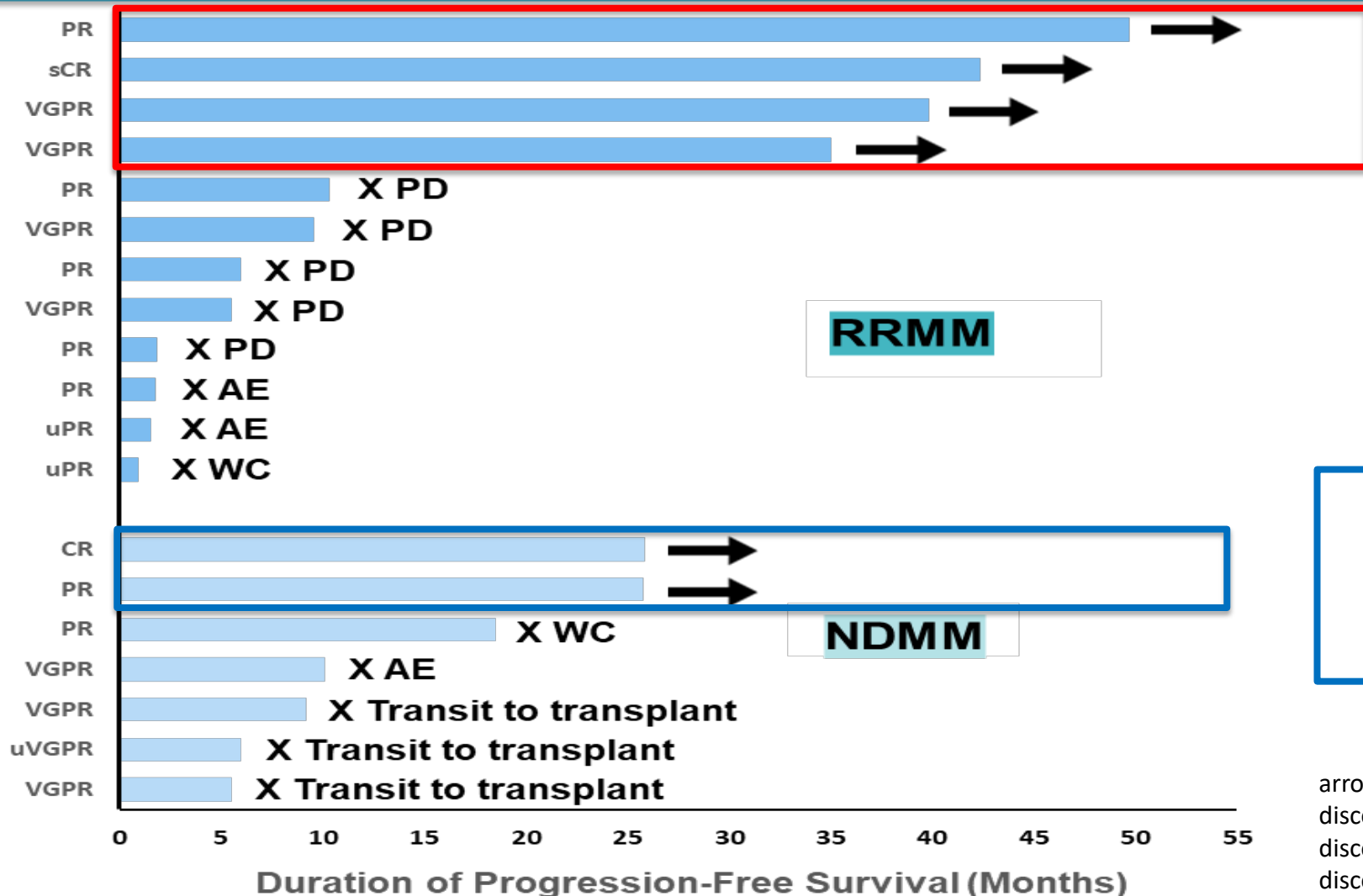
Best Responses in Evaluable SRd Patients

Category	N	ORR (%)	CBR (%)	CR (%)	VGPR (%)	PR (%)	MR (%)	SD (%)	PD (%)
Len-Naïve Evaluable RRMM Patients	12	11 (91.7)	11 (91.7)	1 (8.3)	4 (33.3)	6 (50.0) [†]	0	1 (8.3)	0
Len-Exposed/Refractory MM	8	1 (12.5)	3 (37.5)	-	-	1 (12.5)	2 (25.0)	4 (50.0)	1 (12.5)
Efficacy Evaluable NDMM Patients	7*	7 (100)	7 (100)	1 (14.3)	4 (57.1) [‡]	2 (28.6)	-	-	-



Responses were determined according to the International Myeloma Working Group (IMWG) criteria. [†]2 PRs were unconfirmed. [‡]1 VGPR was unconfirmed. *1 patient was efficacy not evaluable due to withdrawal of consent during cycle 1. ORR=Overall Response Rate (CR+VGPR+PR), CBR=Clinical Benefit Rate (ORR+MR), CR=Complete Response, VGPR=Very Good Partial Response, PR=Partial Response, MR=Minimal Response, SD=Stable Disease, PD=Progressive Disease. Responses as of October 1, 2020 based on interim unaudited data.

Selinexor –Lenalidomide- dex Efficacy: Time on Therapy: Durable Response with Time on Therapy > 2 years



**Patients ongoing
with RRMM with
PFS > 35 months**

**Patients ongoing
with NDMM with
PFS > 24 months**

arrow = still active as of data cutoff date, X WC = treatment discontinued due to withdrawal of consent, X PD = treatment discontinued due to progressive disease, X AE = treatment discontinued due to adverse event(s)

Treatment-Related Adverse Events ≥15% Patients

	NDMM (N=8)		RRMM (N=24)	
Hematologic	Any Grade	Grade 3/4	Any Grade	Grade 3/4
Thrombocytopenia	5 (62.5)	3 (37.5)	17 (70.8)	15 (62.5)
Neutropenia	6 (75.0)	6 (75.0)	15 (62.5)	15 (62.5)
Anaemia	5 (62.5)	4 (50.0)	7 (29.2)	4 (16.7)
Gastrointestinal				
Nausea	4 (50.0)	0	14 (58.3)	1 (4.2)
Decreased appetite	1 (12.5)	1 (12.5)	12 (50.0)	2 (8.3)
Diarrhoea	5 (62.5)	0	8 (33.3)	0
Vomiting	1 (12.5)	0	7 (29.2)	0
Constipation	2 (25.0)	0	5 (20.8)	0
Dehydration	1 (12.5)	0	4 (16.7)	1 (4.2)
Constitutional				
Fatigue	5 (62.5)	4 (50.0)	13 (54.2)	4 (16.7)
Weight decreased	5 (62.5)	0	10 (41.7)	2 (8.3)
Asthenia	1 (12.5)	0	4 (16.7)	1 (4.2)
Insomnia	3 (37.5)	1 (12.5)	2 (8.3)	0
CNS				
Dizziness	1 (12.5)	0	5 (20.8)	0

RP2D in NDMM and RRMM:

- Selinexor 60 mg on Days 1, 8, 15, 22
- Lenalidomide 25 mg po days 1-21
- Dexamethasone 40 mg on Days 1, 8, 15, 22

2/6 patients had a DLT at Selinexor 80 mg cohort: (G4 PLT, n=2)

(as of October 1, 2020)

Summary and Conclusions

- The RP2D of SRd is once-weekly selinexor 60 mg + Lenalidomide 25 mg daily (days 1-21) + once-weekly dexamethasone 40 mg
- The combination is highly active with ORR – 100% in NDMM patients and 92% in Len-naïve RRMM
- The responses are durable with patients on > 2-3 years
- The most common TRAEs are thrombocytopenia, neutropenia, nausea, and fatigue which are expected and can be managed with supportive care and/or dose modifications
- All oral combination of selinexor / lenalidomide / dexamethasone appears to be highly active, well tolerated and warrants further investigation

Acknowledgements

- Patients, their families, and caregivers Investigators, co-investigators, and study teams at each participating center
- *This study was sponsored by Karyopharm Therapeutics*



Institute for Myeloma
& Bone Cancer Research

Thoughts on Significance of BOSTON and STOMP Data

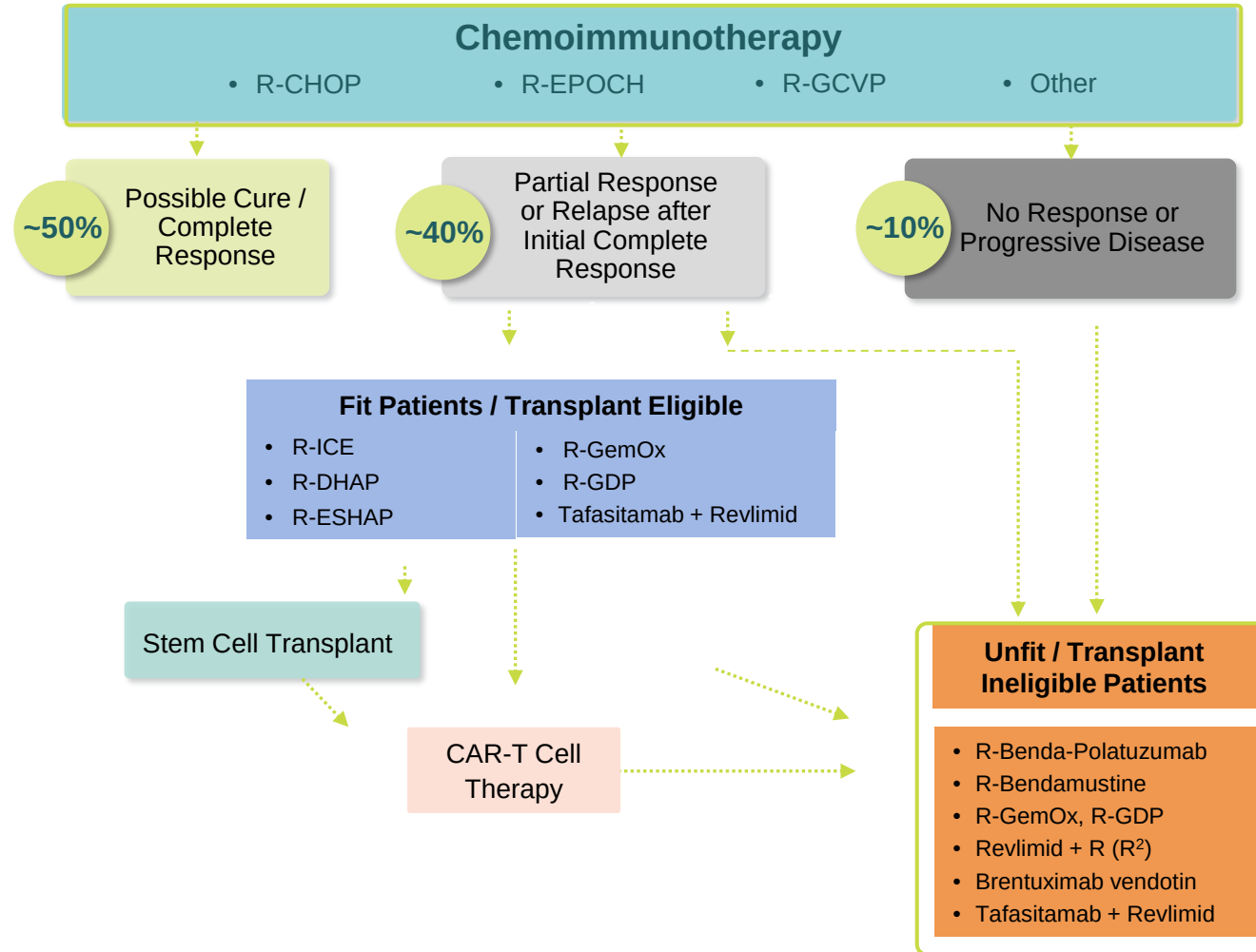
James Berenson, MD

*Founder, President and Medical and Scientific
Director of the Institute for Myeloma and Bone
Cancer Research*

Agenda

Topic	Speaker
Inhibition of XPO1	Dr. Michael Kauffman
Multiple Myeloma (MM) Treatment Landscape	Dr. Michael Kauffman
MM Data Presented at ASH	Dr. Jatin Shah followed by Insights from Dr. James Berenson
DLBCL Treatment Landscape	Dr. Jatin Shah
DLBCL Data Presented at ASH	Dr. Jatin Shah
AML Data Presented at ASH	Dr. Timothy Pardee
Summary and Q&A	Dr. Michael Kauffman

DLBCL Treatment Landscape in 2020 and Beyond



Initial Therapy:

Majority of patients will receive rituximab (R) + chemotherapy

2nd Line / Consolidation Therapy:

For those patients fit enough for stem cell transplant

3rd line+ :

For those patients whose disease continues to progress despite previous treatments (and 2nd Line+ for non-transplant eligible patients following initial treatment)

XPOVIO now approved for adult patients with relapsed or refractory DLBCL after at least 2 lines of systemic therapy

SADAL¹: A Phase 2b Study In DLBCL

FDA Approved on June 22, 2020

N=134

Relapsed or Refractory or Transformed DLBCL

- Study included patients with at least two prior multi-agent therapies and who were ineligible for transplantation
- Included patients with Germinal Center B-Cell (GCB) and non-GCB subtypes

Oral Selinexor | 60 mg

selinexor twice weekly
(4 week cycle)

¹ Selinexor Against Diffuse Aggressive Lymphoma

SADAL: A Phase 2b Study In DLBCL

Selinexor 60mg twice weekly (n=134*)

OVERALL RESPONSE RATES^{1,2}

All Patients

29%

CRs 13%
PRs 16%

Genetic
Subsets

34%

GCB (n=59)

21%

non-GCB (n=63)

ADDITIONAL ENDPOINTS²

Duration of Response

- Median DOR was **9.3** months
- Most responses at first scan (~**2** months)

Overall Survival

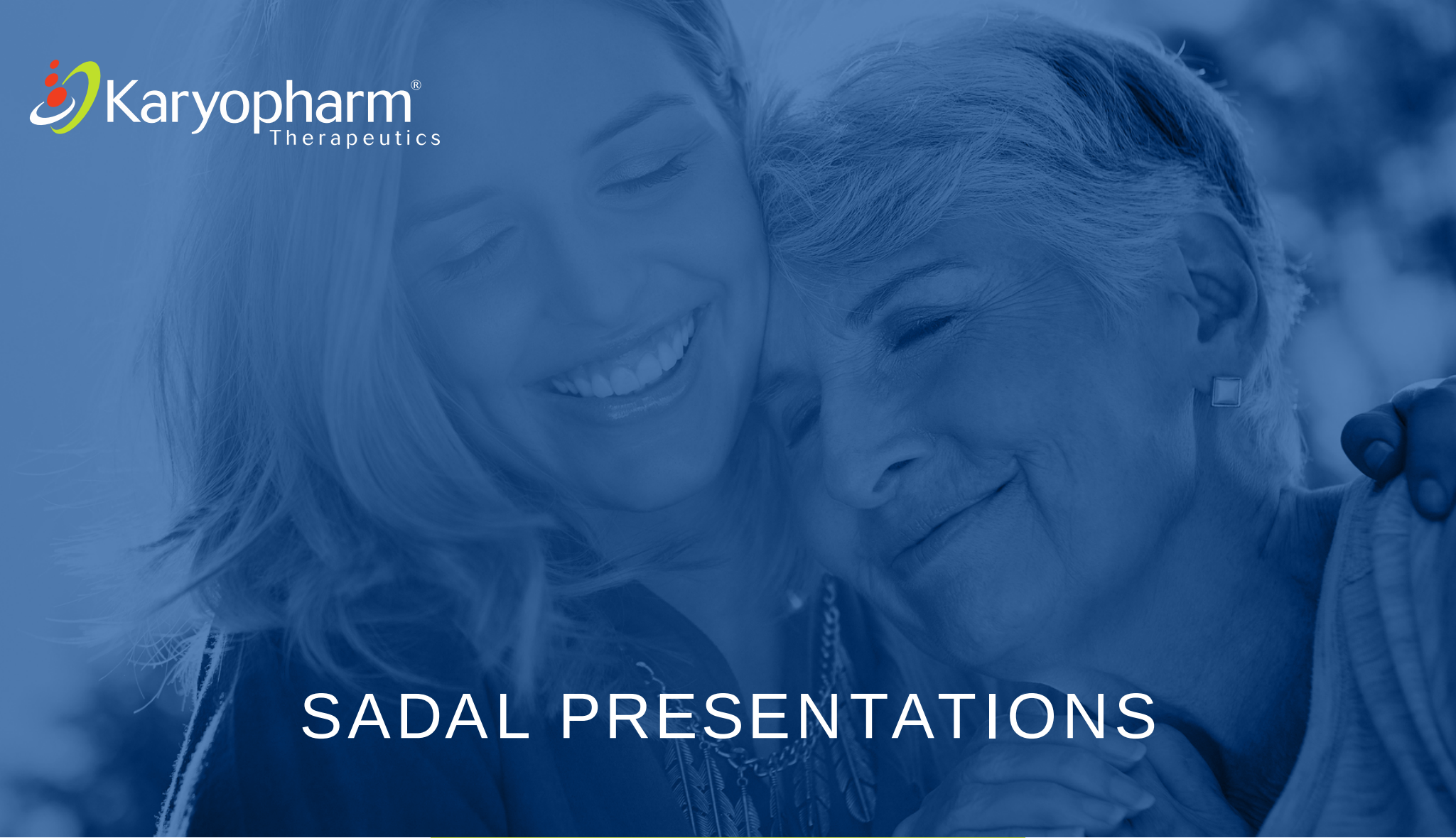
- All patients (n=127) = **9.1** months
- Patients with CR or PR (n=36) = **Not Yet Reached**
- Patients with stable disease (n=11) = **18.3** months
- Patients with Progressive Disease or No Response (n=80) = **4.3** months

Safety:

- Most common treatment related non-hematologic adverse events (AEs) were fatigue, nausea, decreased appetite, and diarrhea, primarily Grade 1/2, and most were manageable with dose modifications and/or supportive care
- Most common Grade 3/4 AEs were thrombocytopenia, lymphopenia, neutropenia, and anemia, and most were also manageable with dose modifications and/or supportive care

¹XPOVIO Prescribing Information. ²Kalakonda N, et al. Lancet Haematology. 2020.

* 134 patients included in XPOVIO Prescribing Information and 127 patients included in Kalakonda N, et al. Lancet Haematology. 2020.



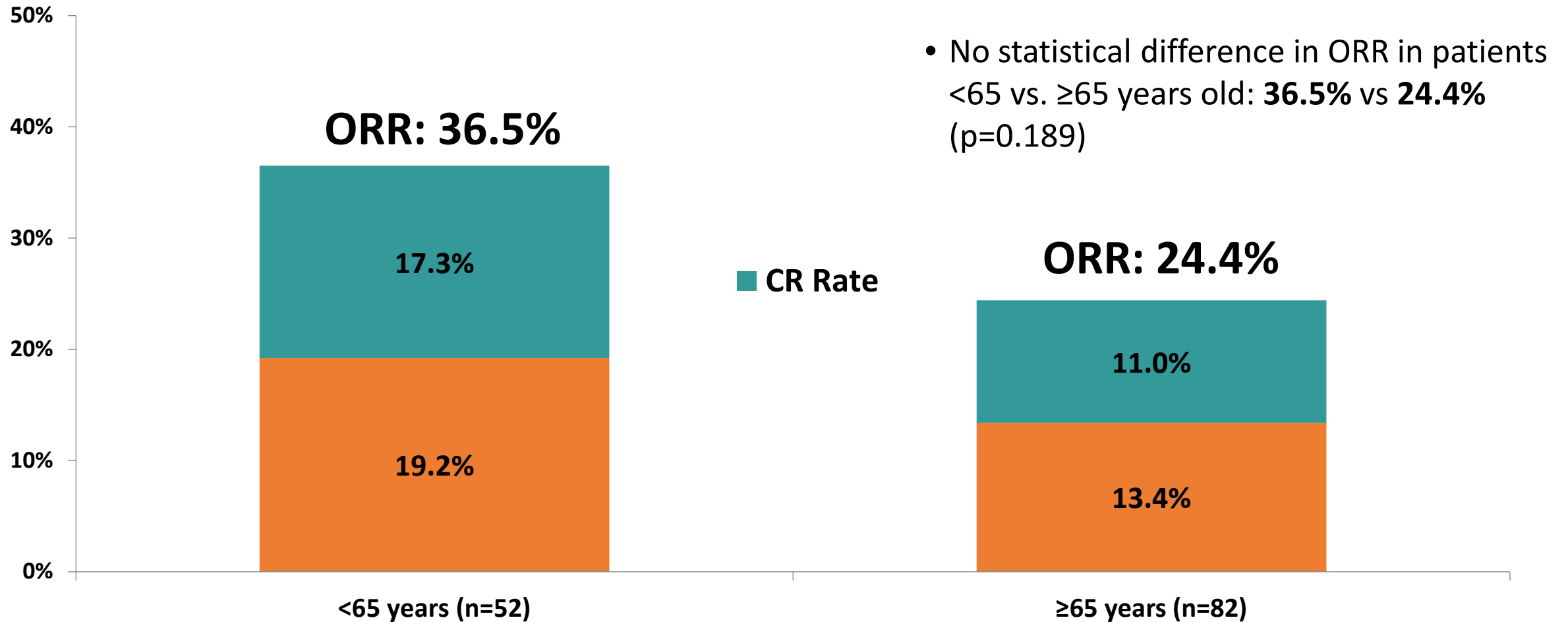
SADAL PRESENTATIONS

Effect of Age on the Efficacy and Safety of Single Agent Oral Selinexor in Patients with Relapsed/Refractory Diffuse Large B-Cell Lymphoma (DLBCL): Subset Analysis from the SADAL Pivotal Phase 2b Study

Marie Maerevoet³¹, Michael W. Schuster¹, Miguel A Canales^{2,3}, Jason Westin⁴, Josée M Zijlstra⁵, George A Follows⁶, Reem Karmali⁷, Nagesh Kalakonda⁸, Andre H. Goy⁹, Rene-Olivier Casasnovas¹⁰, Joost Vermaat¹¹, Eric Van Den Neste¹², Sylvain Choquet¹³, Catherine Thieblemont¹⁴, Federica Cavallo¹⁵, Maria de Fatima De La Cruz¹⁶, Brian T. Hill¹⁷, Herve Tilly¹⁸, Shireen Kassam¹⁹, Reda Bouabdallah²⁰, Ulrich Jaeger²¹, Ronit Gurion²², Paolo Caimi²³, Peter Martin²⁴, Andrew Davies²⁵, Sonali M. Smith²⁶, Graham P. Collins²⁷, Fritz Offner²⁸, Gilles Salles²⁹, Xiwen Ma³⁰, Kelly Corona³⁰, Jean-Richard Saint-Martin³⁰, Anita A. Joshi³⁰, Kamal Chamoun³⁰, Hongwei Wang³⁰, Jatin J. Shah³⁰, Sharon Shacham³⁰, Michael G Kauffman³⁰

¹Stony Brook University, Stony Brook, NY; ²La Paz University Hospital, Madrid, Spain; ³Hematology and Hemotherapy Unit, La Paz University Hospital-IdiPAZ, Madrid, Spain; ⁴Department of Lymphoma and Myeloma, The University of Texas MD Anderson Cancer Center, Houston, TX; ⁵Amsterdam UMC, Vrije Universiteit, Cancer Center, Amsterdam, Netherlands on behalf of the Lunenburg Lymphoma Phase I/II Consortium – HOVON /LLPC; ⁶Addenbrooke's Hospital, Cambridge, United Kingdom; ⁷Division of Hematology Oncology, Northwestern University, Chicago, IL; ⁸University of Liverpool, Liverpool, United Kingdom; ⁹Division of Lymphoma, John Theurer Cancer Center, Hackensack University Medical Center, Hackensack, NJ; ¹⁰Hématologie Clinique and INSERM 1231, CHU Dijon, Dijon, France; ¹¹Department of Hematology, Leiden University Medical Center, Leiden, Zuid-Holland, Netherlands; ¹²Cliniques universitaires Saint-Luc, Brussels, BEL; ¹³Hospital Pitie Salpetriere, Paris, France; ¹⁴APHP, Hôpital Saint-Louis, Hémato-oncologie, Université de Paris, Paris Diderot, Paris, France; ¹⁵Department of Molecular Biotechnologies and Health Sciences, Division of Hematology, University of Torino, Torino, Italy; ¹⁶Hospital Universitario Virgen del Rocío, Sevilla, Spain; ¹⁷Taussig Cancer Institute, Department of Hematology and Medical Oncology, Cleveland Clinic Foundation, Cleveland, OH; ¹⁸Centre Henri Becquerel, Rouen, France; ¹⁹King's College Hospital, London, United Kingdom; ²⁰Institut Paoli-Calmettes, Marseille, France; ²¹Clinical Division of Hematology and Hemostaseology, Department of Medicine I, Medical University of Vienna, Vienna, AA, Austria; ²²Rabin Medical Center, Petah Tikva, Israel; ²³University Hospitals Cleveland Medical Center, Cleveland, OH; ²⁴Weill Cornell Medicine-New York Presbyterian Hospital, New York, NY; ²⁵Cancer Research UK Centre/Experimental Cancer Medicines Centre, University of Southampton, Southampton, United Kingdom; ²⁶Department of Oncology, University of Chicago, Chicago, IL; ²⁷Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom; ²⁸University Hospital Ghent, Gent, Belgium; ²⁹Centre Hospitalier Lyon-Sud, Lyon, France; ³⁰Karyopharm Therapeutics, Newton, MA; ³¹Institut Jules Bordet, Brussels, Belgium

Efficacy – ORR, DOR, OS



Age Group	n	DOR, median (months)	OS, median (months)
<65 Years	52	9.7	13.7
≥65 Years	82	9.2	7.8

Related Adverse Events, ≥10% Overall

Adverse Events, ≥10% overall	<65 years (n=52)	≥65 years (n=82)
Thrombocytopenia	31 (59.6)	41 (50.0)
Nausea	24 (46.2)	45 (54.9)
Fatigue	17 (32.7)	33 (40.2)
Decreased Appetite	18 (34.6)	28 (34.1)
Anemia	19 (36.5)	25 (30.5)
Neutropenia	17 (32.7)	24 (29.3)
Vomiting	9 (17.3)	26 (31.7)
Weight Decreased	7 (13.5)	22 (26.8)
Diarrhea	7 (13.5)	21 (25.6)
Asthenia	6 (11.5)	15 (18.3)
Constipation	7 (13.5)	7 (8.5)
Dizziness	5 (9.6)	8 (9.8)
Patients with ≥1 Serious Adverse Event	6 (11.5)	22 (26.8)

- The incidence of treatment-related AEs was comparable between both groups: The most common grade ≥3 AEs in <65 vs ≥65 year olds were thrombocytopenia (42.3% vs 39.0%), nausea (3.8% vs 7.3%), and fatigue (5.8% vs 13.4%). Treatment-related serious AEs occurred in 11.5% of patients <65 (n=6) and 26.8% ≥65 (n=22). Treatment discontinuations due to AEs occurred at a lower incidence in the <65 group compared with ≥65 (3.8% vs 11.0%).

Conclusions

- In patients with relapsed / refractory DLBCL who were **≥65 years old had similar clinical benefit to those <65 years old when treated with oral selinexor.**
 - There was no statistical difference in ORR in patients <65 vs ≥65 years old: **36.5% vs 24.4%** (p=0.189). The complete response (CR) rates were **17.3% and 11%** (p=0.431), respectively.
 - Median **DOR** was similar at **9.7 months** in the <65 compared to **9.2 months** in the ≥65 year old patients.
 - Selinexor is effective in de novo DLBCL (26.2% ORR) or transformed lymphoma patients (38.7% ORR)
- The incidence of treatment-related AEs was comparable between patients <65 and ≥65 years old

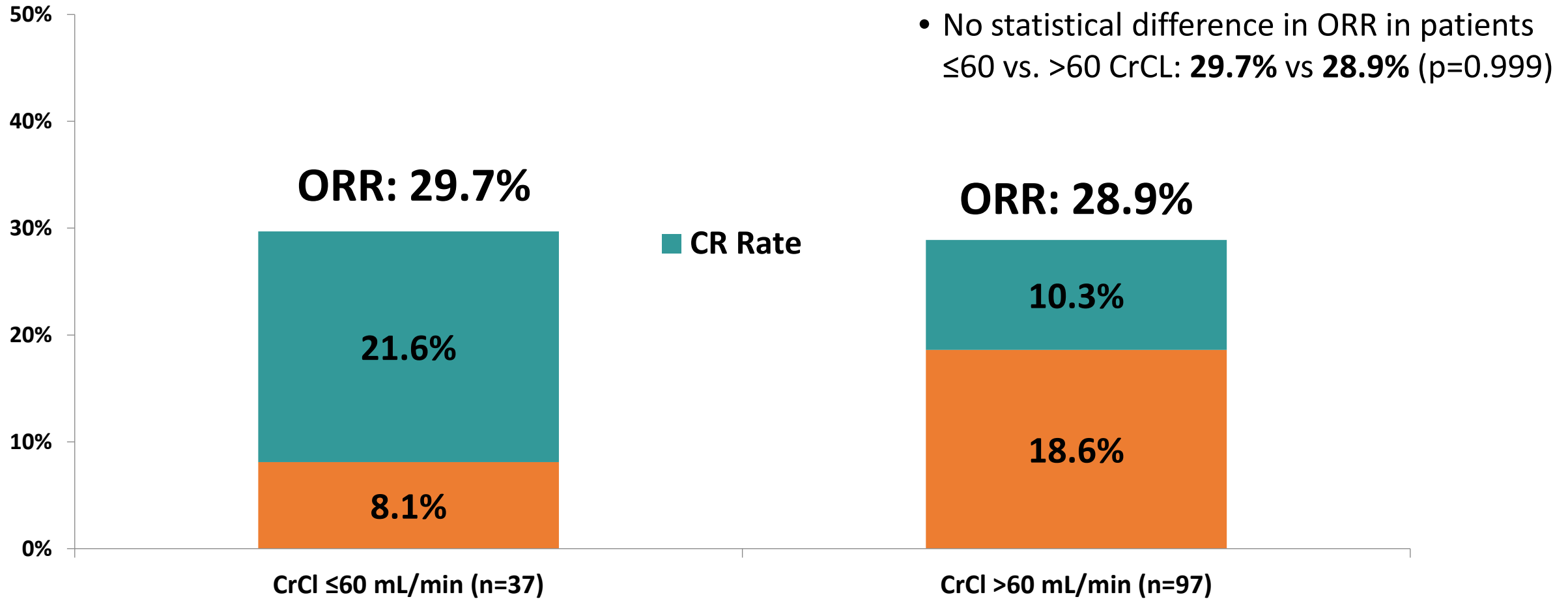
Selinexor is approved, and an active convenient oral option for patients with relapsed DLBCL including older patients

Selinexor Efficacy and Safety are Independent of Renal Function in Patients with Relapsed/Refractory Diffuse Large B-Cell Lymphoma (DLBCL): Subset Analysis from Pivotal Phase 2b SADAL Study

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Efficacy – ORR, OS



Renal Group	n	OS, median (months)
CrCl ≤ 60 mL/min	37	7.8
CrCl >60 mL/min	97	9.1

Related Adverse Events, ≥10% Overall

Adverse Events, ≥10% overall	CrCl ≤60 mL/min (n=37)	CrCl >60 mL/min (n=97)
Thrombocytopenia	21 (56.8)	51 (52.6)
Nausea	19 (51.4)	50 (51.5)
Fatigue	14 (37.8)	36 (37.1)
Decreased Appetite	12 (32.4)	34 (35.1)
Anemia	17 (45.9)	27 (27.8)
Neutropenia	10 (27.0)	31 (32.0)
Vomiting	12 (32.4)	23 (23.7)
Weight Decreased	9 (24.3)	20 (20.6)
Diarrhea	11 (29.7)	17 (17.5)
Asthenia	7 (18.9)	14 (14.4)
Constipation	3 (8.1)	11 (11.3)
Dizziness	5 (13.5)	8 (8.2)
Patients with ≥1 Serious Adverse Event	8 (21.6)	20 (20.6)

- The incidence of treatment-related AEs was comparable between both groups: The most common grade ≥3 treatment-related AEs for patients with reduced versus normal CrCl were thrombocytopenia (45.9% vs. 38.1%), nausea (5.4% vs. 6.2%), and fatigue (8.1% vs. 11.3%).
- There was no clinically significant increase in treatment-related serious adverse events (21.6% vs. 20.6%) and adverse events leading to discontinuation (10.8% vs. 7.2%) in patients with reduced or normal CrCl, respectively.

Conclusions

- Selinexor had **similar response rates in patients regardless of severity of renal function.**
 - Treatment with selinexor demonstrated a similar ORR in patients with a baseline reduced CrCl (**29.7%**) vs normal CrCl (**28.9%**)
 - The OS was comparable in reduced vs normal renal patients: **7.8** vs **9.1** months
 - Selinexor is effective in de novo DLBCL (26.2% ORR) or transformed lymphoma patients (38.7% ORR)
- The incidence of treatment-related **AEs was comparable between both groups**

Oral Selinexor is approved and important option for patients with relapsed DLBCL including patients with renal dysfunction

Agenda

Topic	Speaker
Inhibition of XPO1	Dr. Michael Kauffman
Multiple Myeloma (MM) Treatment Landscape	Dr. Michael Kauffman
MM Data Presented at ASH	Dr. Jatin Shah followed by Insights from Dr. James Berenson
DLBCL Treatment Landscape	Dr. Jatin Shah
DLBCL Data Presented at ASH	Dr. Jatin Shah followed by Insights from Dr. Michael Schuster
AML Data Presented at ASH	Dr. Timothy Pardee
Summary and Q&A	Dr. Michael Kauffman

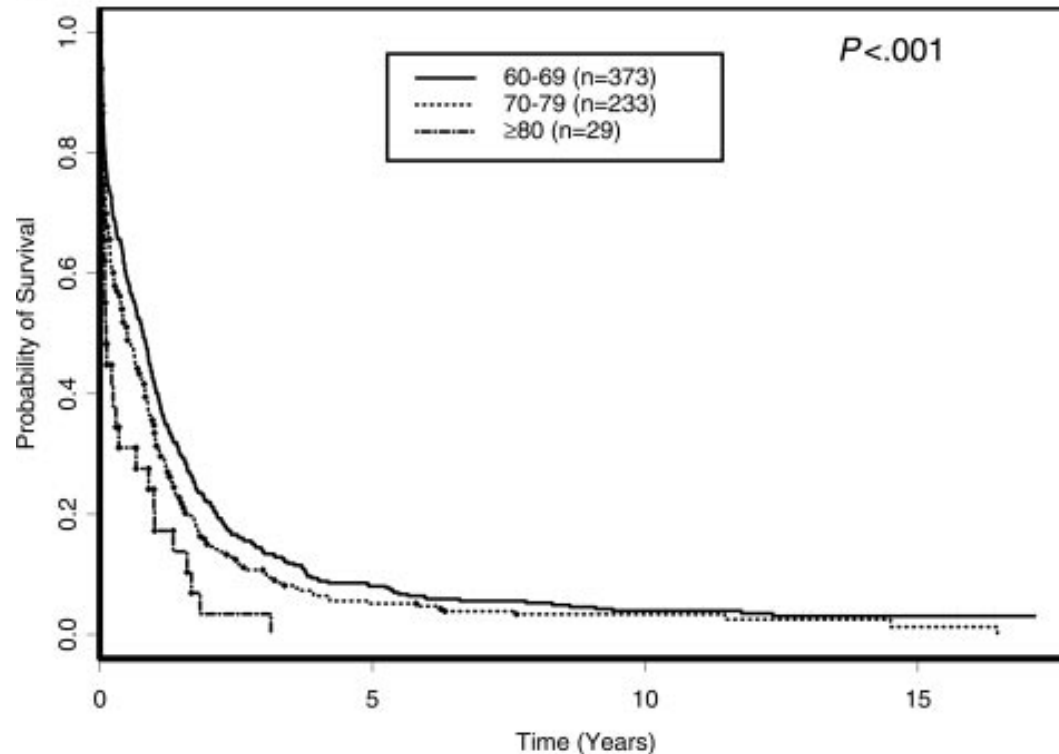
Frontline Selinexor and Chemotherapy Is Highly Active in Older Adults with Acute Myeloid Leukemia (AML)

Timothy S. Pardee, MD, PhD¹, Kristin M. Pladna, M.S.^{2*}, Susan Lyster, P.A.-C.^{2*}, Sarah Dralle^{2*}, Megan Manuel, NP^{2*}, Leslie Renee Ellis, MD, MSHPEd², Dianna S. Howard, MD², Rupali Bhave, M.D.^{2*} and Bayard L. Powell, MD²



AML Prognosis, Age

AML and Outcome by Age

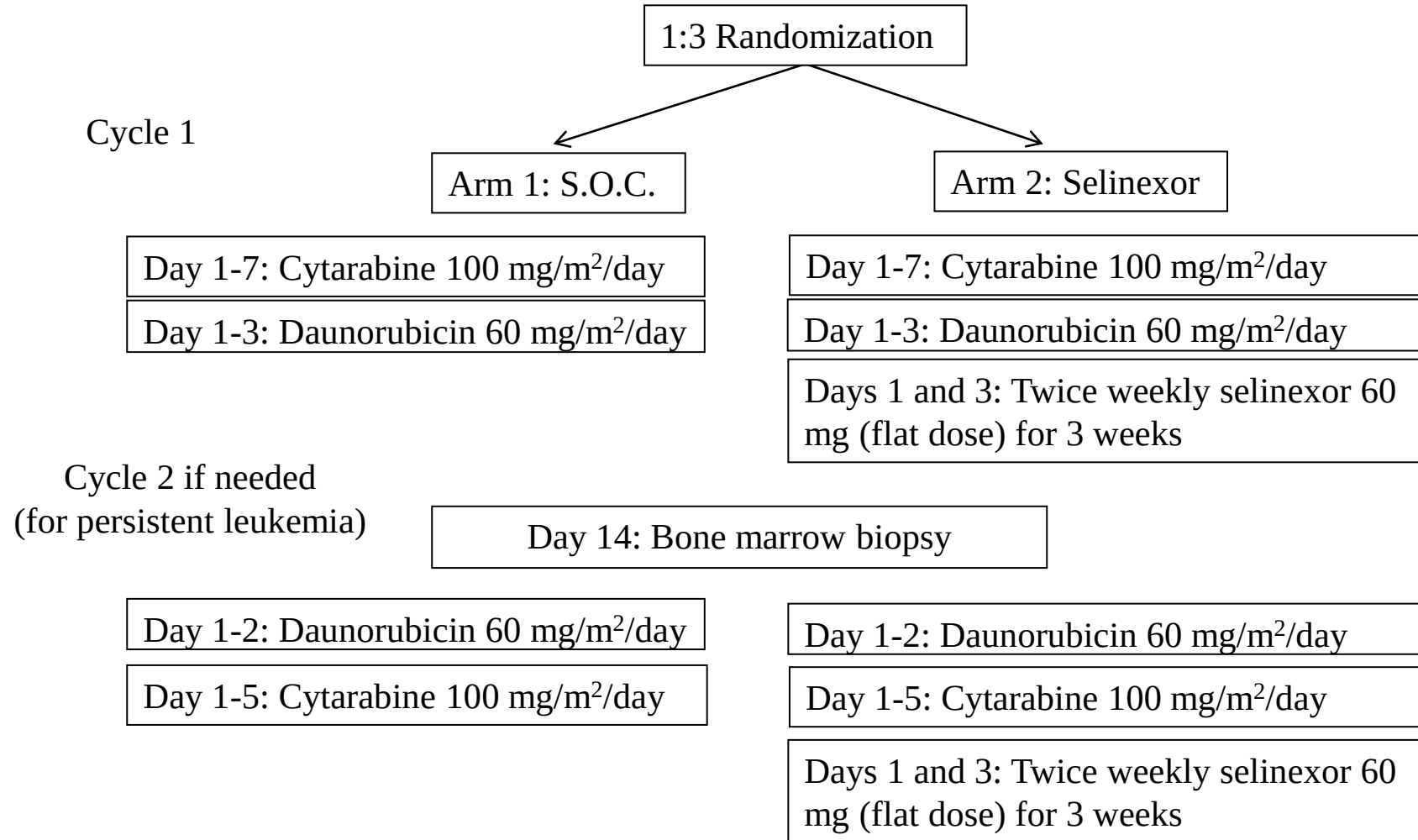


- Median Age at Diagnosis is 68
- 70% of all AML patients are >60
- Outcomes are dismal
- Resistance to standard therapy is common

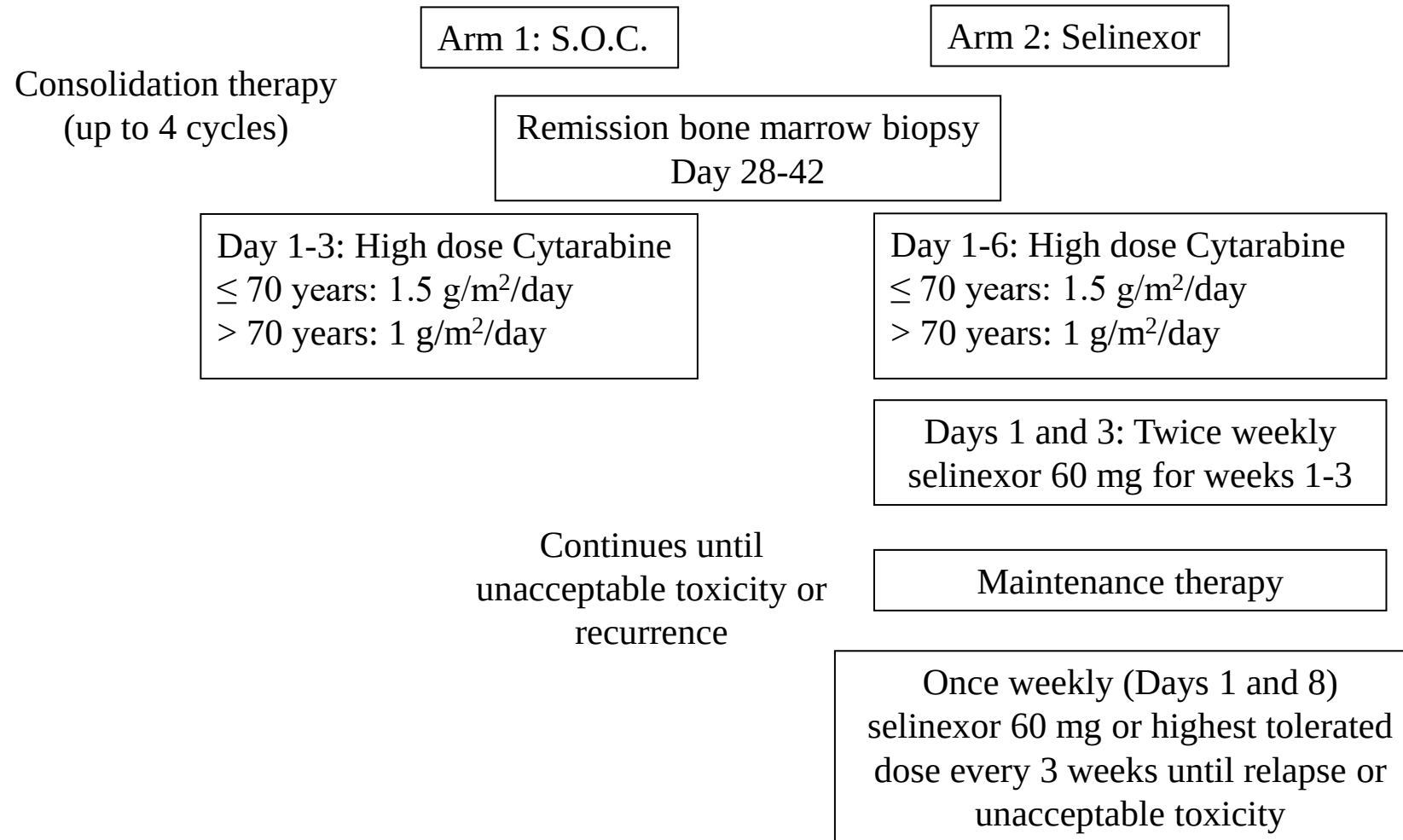
5 yr OS for all comers: 6.6%!!!!!!!

Farag SS, et.al. *Blood* 2006; 108(1):63-73

Study Design



Study Design



Demographics

Cohort	All (n=28)	Standard Arm (n=7)	Selinexor Arm (n=21)
Median Age (range)	69 (60-75)	74 (60-75)	67 (61-73)
Male	12/28	0/7	12/21
ELN 2017 Cytogenetic Risk			
Poor	32% (9/28)	43% (3/7)	29% (6/21)
Intermediate	39% (11/28)	14% (1/7)	48% (10/21)
Good	24% (7/28)	43% (3/7)	19% (4/21)
Unknown	4% (1/28)	0% (0/7)	5% (1/21)

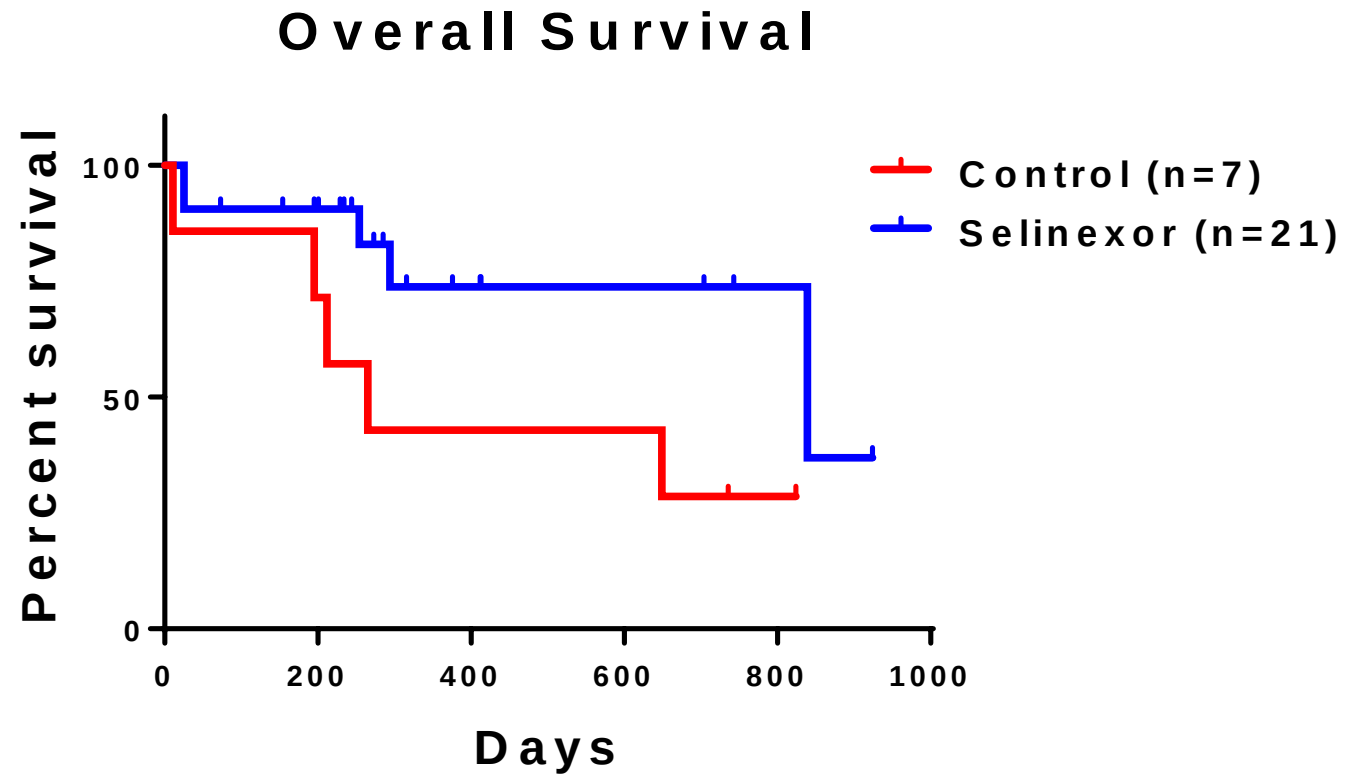
Toxicity

- 60 day mortality 10% (2/21) selinexor arm, 14% (1/7) in SOC arm
- 33% (7/21) patients in selinexor arm with prolonged thrombocytopenia (transfusion dependent in 1)
- Diarrhea most common AE resulting in dose holding, dose modifications

Efficacy

Cohort	All (n=28)	Standard Arm (n=7)	Selinexor Arm (n=21)
Residual Disease on Nadir Marrow	19% (5/27)	50% (3/6)	10% (2/21)
Complete Remission (CR)	68% (19/28)	43% (3/7)	76% (16/21)
MRD Negative CR	81% (13/16)	NA	81% (13/16)
Overall Response (CR+CRi)	75% (21/28)	43% (3/7)	86% (18/21)
No CR/CRi	26% (7/28)	57% (4/7)	14% (3/21)
Went on to Transplant	29% (8/28)	14% (1/7)	33% (7/21)
Relapsed After CR	24% (5/21)	33% (1/3)	22% (4/18)

Survival



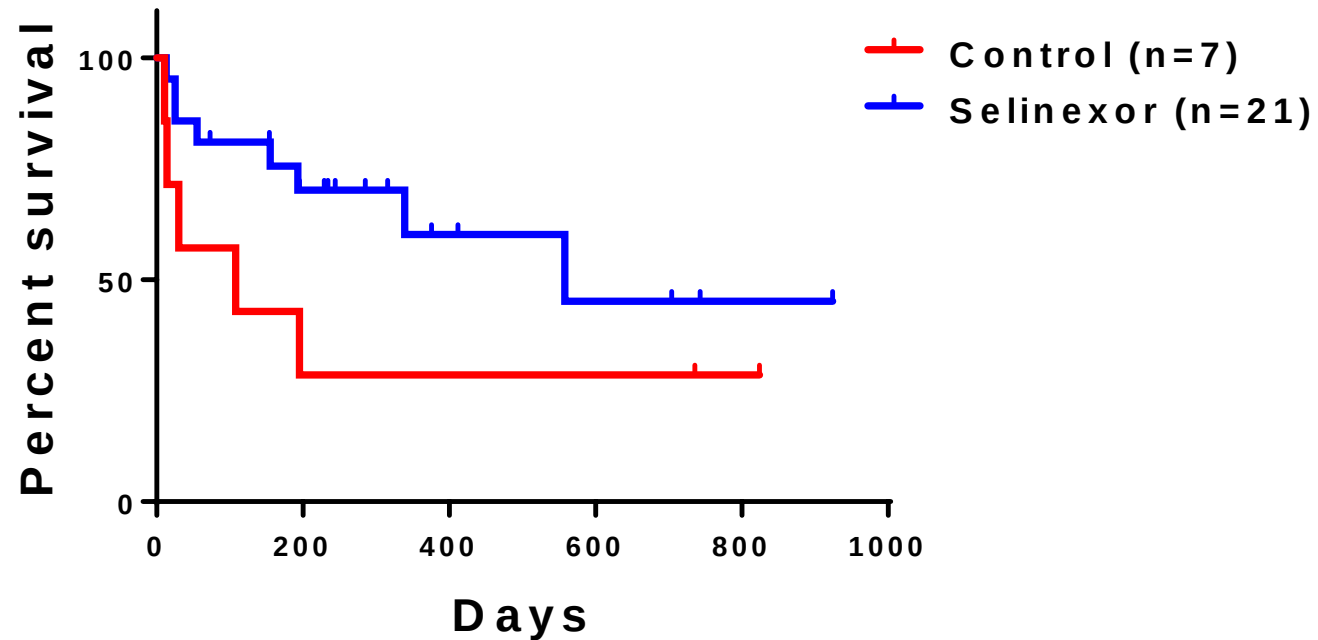
Control Median OS= 265 Days

Selinexor Median OS= 839 Days

$p=0.0472$

Progression Free Survival

Progression Free Survival



Control Median PFS= 108 Days

Selinexor Median PFS= 558 Days

$p=0.1319$

Summary

- Selinexor in combination with 7+3 appears highly active in fit elderly patients
- Selinexor provided a significant survival benefit in this small randomized trial
- Toxicities appeared manageable with similar 60 day mortality
- Fixed 60 mg dose is deserving of additional study in a larger randomized trial
- Selinexor may impair nuclear/mitochondrial communication needed for resistance to cytarabine

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Summary

1. XPO1 overexpression plays a key role in cancer development and proliferation
2. Inhibiting XPO1, either alone or more importantly, in combination with other anti-cancer approaches continues to show significant potential across numerous tumor types
3. Updates from ASH presentations highlighting subpopulation analyses from the BOSTON, STOMP, and SADAL studies provide key insights regarding patient types and combination approaches that may yield the greatest patient benefit
4. New data from a combination study of XPOVIO and chemotherapy in older, fit patients with AML further demonstrate the potential utility of XPOVIO as a partner for other anti-cancer drugs and supports potential future clinical development in AML



Questions?

Answers.