



American Society of Hematology

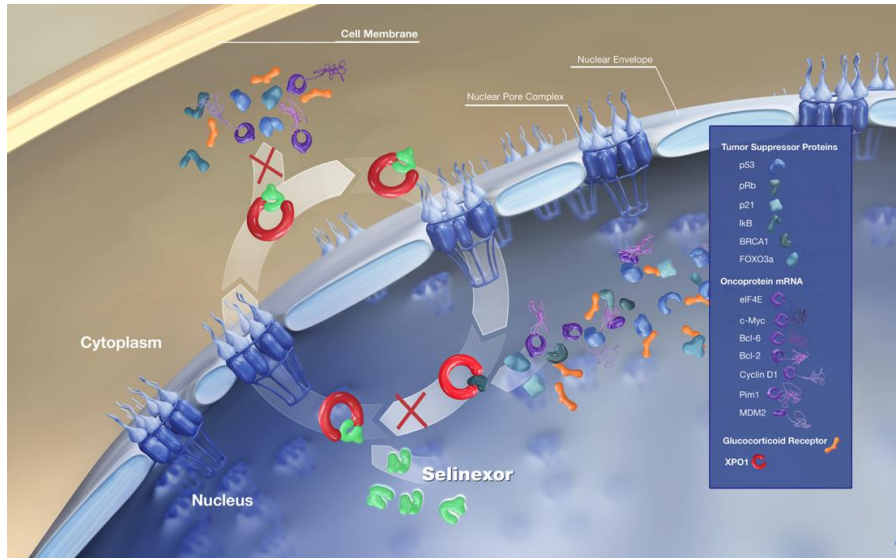
Helping hematologists conquer blood diseases worldwide

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

**Christine I Chen MD<sup>1</sup>**, Nizar Bahlis MD<sup>2</sup>, Cristina Gasparetto MD<sup>3</sup>, Sascha A Tuchman MD<sup>4</sup>, Brea C Lipe MD<sup>5</sup>, Muhamed Baljevic MD<sup>6</sup>, Rami Kotb MD<sup>7</sup>, Heather J Sutherland MD PhD<sup>8</sup>, William I. Bensinger MD<sup>9</sup>, Michael Sebag MD PhD<sup>10</sup>, Richard LeBlanc MD FRCPC<sup>11</sup>, Christopher P Venner MD<sup>12</sup>, Gary J Schiller MD<sup>13</sup>, Suzanne Lentzsch MD PhD<sup>14</sup>, Natalie Scott Callander MD<sup>15</sup>, Adriana C Rossi MD<sup>16</sup>, Noa Biran<sup>17</sup>, Heidi Sheehan<sup>18</sup>, Dane Van Domelen<sup>18</sup>, Kazuharu Kai MD PhD<sup>18</sup>, Hongwei Wang MD<sup>18</sup>, Jatin Shah MD<sup>18</sup>, Sharon Shacham PhD MBA<sup>18</sup>, Michael G Kauffman MD PhD<sup>18</sup> and Darrell J White MD<sup>19</sup>

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

# Selinexor: First-in-Class, Oral Selective Inhibitor of Nuclear Export Reactivates Tumor Suppressor Proteins and Synergistic with Imids



**Exportin 1 (XPO1)** is a critical nuclear export protein:

- Tumor suppressor proteins (TSPs, e.g., p53, IκB, and FOXO3a)<sup>1-3</sup>
- eIF4E-bound oncoprotein mRNAs (e.g., c-Myc, Bcl-xL, cyclin D1)<sup>1,2,4</sup>

**XPO1 is overexpressed in MM:**

- High **XPO1** levels enable cancer cells to escape TSP-mediated cell cycle arrest and apoptosis<sup>1,2,5</sup>
- **XPO1 levels correlate with poor prognosis** and drug resistance<sup>1,2</sup>

**Selinexor** is an oral selective **XPO1 inhibitor**;

preclinical data supports that selinexor:

- Reactivates multiple TSPs by preventing nuclear export<sup>1,2,6</sup>
- Inhibits oncoprotein translation<sup>1,2,6</sup>
- Reactivates GR signaling in presence of dexamethasone<sup>7</sup>

<sup>1</sup>Tai et al., *Leukemia*, 2014, <sup>2</sup>Fung HY, Chook YM. *Semin Cancer Biol.* 2014, <sup>3</sup>Parikh et al., *J Hematol Oncol.* 2014, <sup>4</sup>Gravina GL, et al., *BMC Cancer.* 2015, <sup>5</sup>Schmidt et al., *Leukemia*, 2013, <sup>6</sup>Parikh et al., *J Hematol Oncol.* 2014, <sup>7</sup>Argueta et al., *Oncotarget*, 2018, <sup>8</sup>Carlson et al., *ESH*, 2014

# Background / Rationale: Selinexor and Pomalidomide in RRMM

- **Selinexor + dexamethasone** in MM refractory to at least one proteasome inhibitor, one immunomodulatory agents, and daratumumab (triple-class refractory) resulting in **26.2% ORR and 3.7 months of PFS<sup>1</sup>**
- MM-0034 trial **pomalidomide + dexamethasone** in patients with  $\geq 2$  prior MM therapy and refractory to lenalidomide and bortezomib after  $\geq 2$  consecutive cycles of each (alone or in combination), resulting in **31% ORR and 4 months of PFS<sup>2</sup>**
- Per STORM trial results, selinexor (+ dexamethasone) received accelerated approval from the FDA for patients with RRMM<sup>3</sup>
- Selinexor demonstrates synergistic activity in combination with lenalidomide *in vivo*<sup>4</sup>

<sup>1</sup>Chari et al., *NEJM* 2019, 381:8; <sup>2</sup>San-Miguel et al. *Lancet Oncol* 2013,14:1055;<sup>3</sup>XPOVIOTM (selinexor). Prescribing information. Reference ID:4457635—US FDA; <sup>4</sup>Carlson et al., *ESH* 2014;

PFS=progression-free survival, MM=multiple myeloma, ORR=overall response rate, RRMM=relapsed/refractory multiple myeloma

# STOMP: Selinexor + Pd

## Selinexor and Backbone Treatments Of Multiple Myeloma Patients

### **Objectives:**

- Primary endpoint: maximum tolerated dose (MTD), recommended phase 2 dose (RP2D), and overall response rate (ORR)
- Secondary endpoint: Safety per CTCAE and progression free survival (PFS)

### **Key Inclusion/Exclusion criteria:**

- ANC  $\geq$  1,000/mm<sup>3</sup> Hb  $\geq$  8.0 g/dL, platelet count  $\geq$  75,000/mm<sup>3</sup>
- Progressing or refractory to a previous regimen
- Previously undergone  $\geq$ 2 cycles of lenalidomide and a proteasome inhibitor (in combination or separately)
- Pomalidomide-exposure is allowed only in escalation phase
- Smoldering MM, non-secretory MM, active plasma cell leukemia are excluded

# SPd Dose Limiting Toxicities (DLT) and RP2D

| Selinexor                         | Pomalidomide QD | Number of Patients Evaluable for DLT | Number of Patients With DLT | DLT  |
|-----------------------------------|-----------------|--------------------------------------|-----------------------------|--|
| <b>Once Weekly Selinexor (QW)</b> |                 |                                      |                             |  |
| 100 mg PO                         | 4 mg PO         | 3                                    | 0                           |  |
| 80 mg PO                          | 4 mg PO         | 6                                    | 2                           | G3 febrile neutropenia; G4 ANC*                                  |
| 80 mg PO                          | 3 mg PO         | 6                                    | 2                           | Pom dose reduction for G2 ANC/<br>G3 PLT; G3 febrile neutropenia |
| 80 mg PO                          | 2 mg PO         | 6                                    | 1                           | G3 febrile neutropenia   |
| 60 mg PO                          | 4 mg PO         | 6                                    | 1                           | Selinexor dose hold for G3<br>anemia/ G4 thrombocytopenia        |

RP2D was Selinexor 60 mg days 1, 8, 15, 22 + Pomalidomide 4 mg days 1-21 q28 days

\*Grade 5 related event of pneumonia at 80 mg selinexor QW + 4 mg pomalidomide QD (Cycle 5)



## SPd Arm – Patient Characteristics (as of Nov 14, 2020)

|   | Total<br>(N = 65)                         | RP2D<br>(N = 20)                       |
|---|---|--|
| Median age, years (range)                                 | 64 (37 – 85)                              | 65.5 (37 – 85)                         |
| Males (%): Females (%)                                    | 33 (51): 32 (49)                          | 7 (35): 13 (65)                        |
| Median yrs from diagnosis to SPd treatment, years (range) | 4.4 (0.9 – 22.8)                          | 3.4 (1.1 – 9.2)                        |
| ISS Stage I (%): II (%): III (%): missing (%)             | 19 (29.2): 19 (29.2): 7 (10.8): 20 (30.8) | 7 (35.0): 3 (15.0): 2 (10.0): 8 (40.0) |
| <b>Median prior regimens (range)</b>                      | <b>3 (1–10)</b>                           | <b>2.5 (1–10)</b>                      |
| Lenalidomide exposed (%): refractory (%)                  | 65 (100.0): 57 (87.7)                     | 20 (100.0): 15 (75.0)                  |
| Pomalidomide exposed (%): refractory (%)                  | 19 (29.2): 19 (29.2)                      | 3 (15.0): 1 (5.0)                      |
| Bortezomib exposed (%): refractory (%)                    | 60 (92.3): 32 (49.2)                      | 17 (85.0) : 7 (35.0)                   |
| Carfilzomib exposed (%): refractory (%)                   | 27 (41.5): 22 (33.8)                      | 11 (55.0): 7 (35.0)                    |
| Daratumumab exposed (%): refractory (%)                   | 16 (24.6): 16 (24.6)                      | 5 (25.0) : 4 (20.0)                    |
| Stem cell transplant (%)                                  | 47 (72.3)                                 | 8 (40.0)                               |

# Selinexor QW + Pom/Dex Treatment-Related Adverse Events

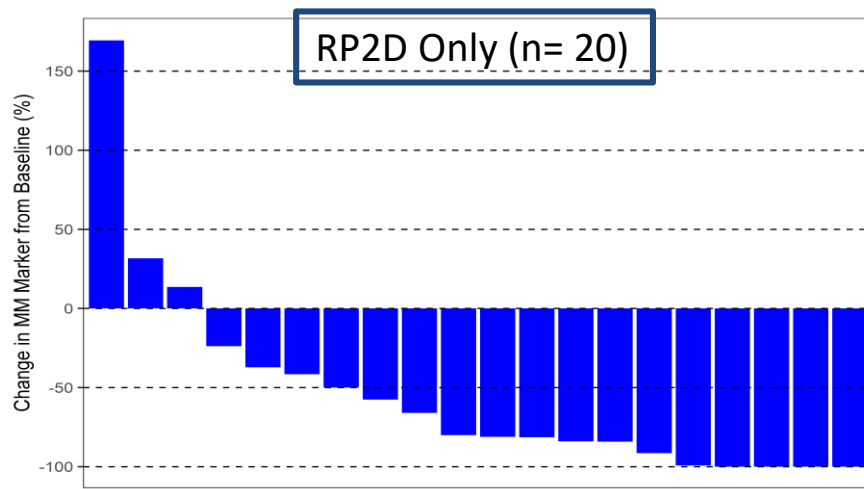
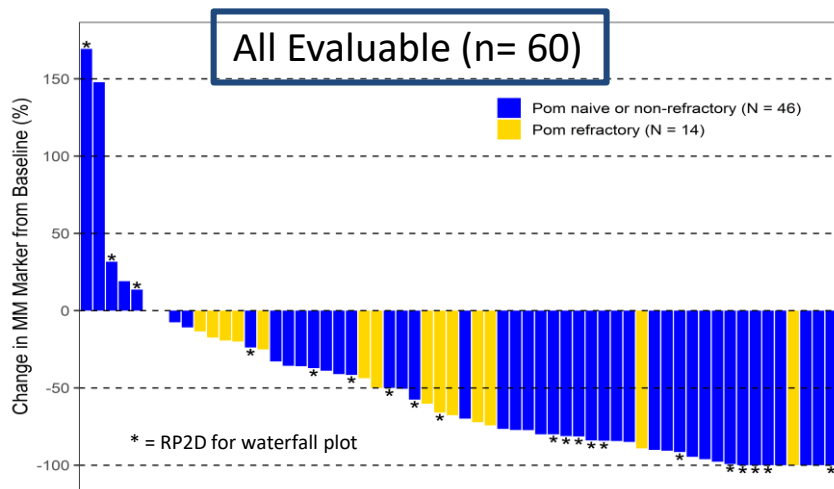
| AEs ( $\geq 20\%$ Patients) n=63 (as of Oct 1, 2020) |           |           |
|--|-----------|-----------|
| <b>Hematologic</b>                                   | Any Grade | Grade 3/4 |
| Neutropenia  | 38 (60.3) | 34 (54.0) |
| Anaemia  | 34 (54.0) | 21 (33.3) |
| Thrombocytopenia                                     | 34 (54.0) | 20 (31.7) |
| Leukopenia   | 15 (23.8) | 8 (12.7)  |
| <b>Gastrointestinal</b>                              |           |           |
| 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)   |
| <b>Constitutional</b>                                |           |           |
| Fatigue  | 32 (50.8) | 6 (9.5)   |
| Weight decreased                                     | 24 (38.1) | 0         |

# 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) | <sup>†</sup> 9 (19.6) | <sup>‡</sup> 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       | <sup>†</sup> 6 (30.0) | <sup>‡</sup> 6 (30.0)  | * 3 (15.0) | 3 (15.0)  | 2 (10.0) |

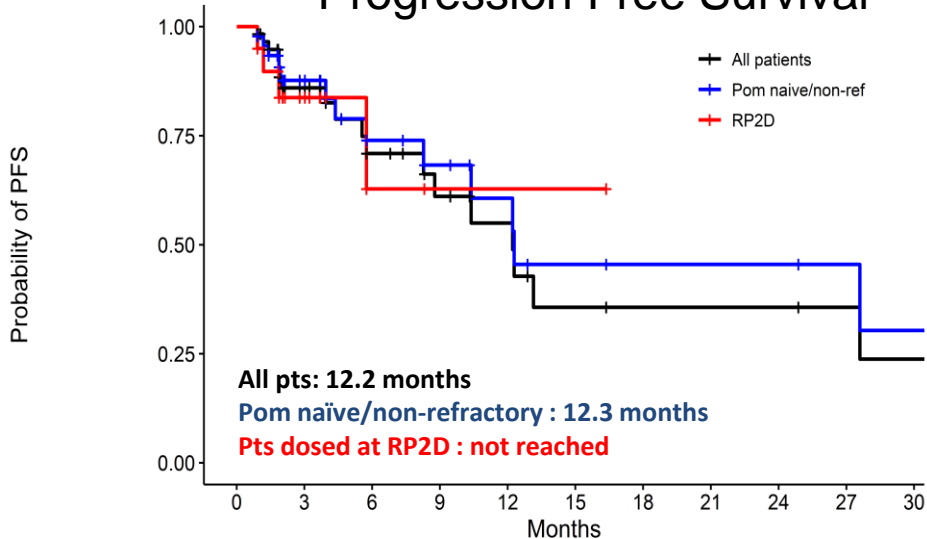
Responses were determined according to the International Myeloma Working Group (IMWG) criteria. <sup>†</sup> 2 VGPRs were unconfirmed. <sup>‡</sup> 1 PR was unconfirmed. \* 1 MR was unconfirmed. Responses as of November 14, 2020 based on interim unaudited data.





# SPd highly active with prolonged PFS and DOR: PFS in Pom-naïve/non-refractory MM was 12.3 months

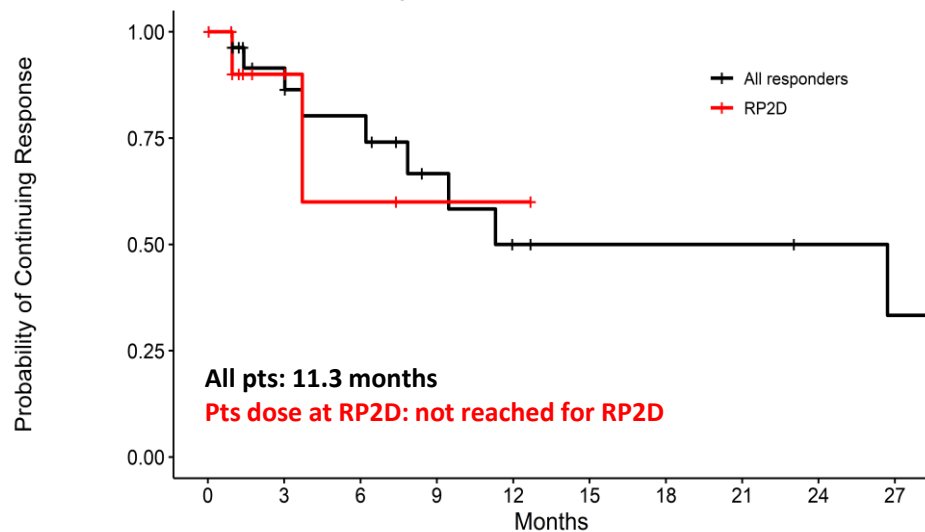
## Progression Free Survival



### Number at risk

|                   | 0  | 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
|-------------------|----|----|----|----|----|----|----|----|----|----|----|
| 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

|                | 0  | 3  | 6  | 9 | 12 | 15 | 18 | 21 | 24 | 27 |
|----------------|----|----|----|---|----|----|----|----|----|----|
| All responders | 30 | 18 | 13 | 8 | 5  | 4  | 4  | 4  | 3  | 2  |
| RP2D           | 12 | 4  | 2  | 1 | 1  | 0  | 0  | 0  | 0  | 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)<sup>1</sup>**
- **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)**

# Acknowledgements

## Patients, their families, and caregivers

## Investigators, co-investigators, and study teams at each participating center

- Princess Margaret Cancer Centre, Toronto, ON, Canada
- University of Calgary, Southern Alberta Cancer Research Institute, Calgary, AB, Canada
- Duke Univ. Medical Center, Durham, NC
- University of North Carolina, Chapel Hill, NC
- University of Rochester Medical College, Rochester, NY
- University of Nebraska Medical Center, Omaha, NE
- Cancer Care Manitoba, Winnipeg, MB, Canada
- Vancouver General Hospital, Vancouver, BC, Canada
- Swedish Cancer Institute, Seattle, WA
- Royal Victoria Hospital, Montreal, QC, Canada
- Hopital Maisonneuve-Rosemont, Montreal, QC, Canada
- Cross Cancer Institute, University of Alberta, Edmonton, AB, Canada
- David Geffen School of Medicine at UCLA, Los Angeles, CA
- Columbia University, New York
- Carbone Cancer Center, University of Wisconsin-Madison, Madison, WI
- Dalhousie University and Queen Elizabeth II Health Sciences Centre, Halifax, NS, Canada

***This study was sponsored by Karyopharm Therapeutics***

