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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**Form 8-K**

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**CURRENT REPORT**  
Pursuant to Section 13 or 15(d)  
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): June 4, 2018

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**Dynavax Technologies Corporation**

(Exact name of registrant as specified in its charter)

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Commission File Number: 001-34207

Delaware  
(State or other jurisdiction  
of incorporation)

33-0728374  
(IRS Employer  
Identification No.)

2929 Seventh Street, Suite 100  
Berkeley, CA 94710-2753  
(Address of principal executive offices, including zip code)

(510) 848-5100  
(Registrant's telephone number, including area code)

(Former name or former address, if changed since last report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the Registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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**Item 8.01 Other Events**

On June 4, 2018, Dynavax Technologies Corporation, a Delaware corporation (“Dynavax”), issued a press release and presented a corresponding poster and investor presentation announcing data from its ongoing Phase 1b/2 study investigating SD-101, Dynavax’s intratumoral TLR9 agonist, in combination with KEYTRUDA® (pembrolizumab), an anti-PD-1 therapy developed by Merck & Co., Inc. (known as MSD outside the United States and Canada) in patients with advanced melanoma at the 2018 American Society of Clinical Oncology Annual Meeting, in Chicago, IL. A copy of the press release, the poster and the investor presentation are filed as Exhibits 99.1, 99.2 and 99.3 to this Current Report on Form 8-K and are incorporated herein by reference.

**Item 9.01. Financial Statements and Exhibits.****(d) Exhibits**

<u>Number</u>	<u>Description</u>
99.1	<a href="#">Press release, dated June 4, 2018</a>
99.2	<a href="#">Poster presented at the 2018 American Society of Clinical Oncology Annual Meeting on June 4, 2018</a>
99.3	<a href="#">Analyst and Investor Presentation presented at the 2018 American Society of Clinical Oncology Annual Meeting on June 4, 2018</a>

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dynavax Technologies Corporation

Date: June 4, 2018

By: /s/ STEVEN N. GERSTEN  
Steven N. Gersten  
Vice President, General Counsel and  
Chief Ethics and Compliance Officer



**Dynavax Reports Data for Phase 1b/2 Trial of SD-101 in Combination with KEYTRUDA® (pembrolizumab) in Advanced Melanoma at the 2018 American Society of Clinical Oncology (ASCO) Annual Meeting**

*Overall Response Rate (ORR) of 70% and 6-month Progression Free Survival (PFS) rate of 76% in Patients Naïve to Anti-PD-1 Treatment who Received the 2mg Dose of SD-101*

*Combination showed Similar Rates of Immune-related Adverse Events as Seen with KEYTRUDA Monotherapy*

*2mg SD-101 Dose Selected for Phase 3*

BERKELEY, Calif., June 4, 2018 – Dynavax Technologies Corporation (NASDAQ:DVAX) today announced data from its ongoing Phase 1b/2 study investigating SD-101, Dynavax’s intratumoral TLR9 agonist, in combination with KEYTRUDA® (pembrolizumab), an anti-PD-1 therapy developed by Merck (known as MSD outside the United States and Canada) in patients with advanced melanoma.

The company reported results on a total of 69 patients comparing two doses of SD-101, 2mg (n=30) versus 8mg (n=39) administered by intratumoral injection. These data are being presented in poster and discussion session today at the 2018 American Society of Clinical Oncology (ASCO) Annual Meeting, in Chicago, IL. The primary endpoints of this dose-expansion/dose-finding study are safety and preliminary efficacy. The results of this study showed a 70% overall response rate (ORR) in advanced melanoma patients who received the 2 mg dose of SD-101 in up to four lesions versus a 38% ORR in the group receiving the 8 mg dose of SD-101 in one lesion. The combination of SD-101 and KEYTRUDA was well tolerated with adverse events related to SD-101 being transient, mild to moderate flu-like symptoms.

“These data provide further evidence of the potential for SD-101 to improve responses in first-line advanced melanoma patients in combination with an anti-PD-1 therapy,” commented Eddie Gray, Chief Executive Officer. “Our studies continue to demonstrate the potential value of SD-101 across multiple tumor types. We plan to build upon this momentum and update our progress with additional data planned for a medical conference later in the year.”

**Highlights from Poster Presentation (Abstract #9513)**

- Overall response rate (ORR) of 70% (21 of 30), with a complete response (CR) rate of 17%, for advanced melanoma patients who received the 2 mg dose of SD-101 in up to four lesions
- ORR of 38% (15 of 39) in patients who received the 8 mg dose of SD-101 in one lesion
- Durable response in patients who received 2 mg dose of SD-101 with 74% 6-month progression free survival (PFS) rate
- Observed responses in injected lesion(s) and distant lesions, including visceral metastases in the liver
- Responders included 8 of 10 PD-L1 negative patients in the 2 mg dose cohort

- AEs related to SD-101 treatment were transient, mild to moderate flu-like symptoms at both the 2mg and the 8 mg dosing levels
- No increase in the frequency of immune-related adverse events over individual monotherapies reported in other studies<sup>1,2</sup> nor evidence of any new safety signals

Additional details on response rates based on patient characteristics including stage of disease, ECOG score, and PD-L1 status are also included in the poster presentation which can be accessed [here](#).

“We are moving forward with the 2mg dose of SD-101 for our Phase 3 trial which we believe is the optimal dose based on these efficacy, safety and biomarker data showing increased immune activation consistent with the biology of TLR9 activation. We continue to collect and analyze data from this trial to finalize details of the Phase 3 study design,” stated Rob Janssen, Chief Medical Officer.

The details of the poster presentation and discussion session are as follows:

***Phase 1b/2, open label, multicenter, study of the combination of SD-101 and pembrolizumab in patients with advanced melanoma who are naïve to anti-PD-1 therapy***

**Session Title:** Melanoma/Skin Cancers

**Abstract:** 9513

**Poster Board:** 340

**Poster Session Date/Time:** Monday, June 4, 2018, 1:15 PM - 4:45 PM CDT

**Poster Session Location:** McCormick Place South, Hall A, Advanced Disease Poster Section

**Discussion Session Date/Time:** Monday, June 4, 2018, 4:45 PM - 6:00 PM CDT

**Discussion Session Location:** McCormick Place Lakeside Center, Level 4 - E451

**Analyst/Investor Presentation**

Today at 6:30pm CDT, Dynavax will host a presentation for analysts and investors. The presentation will be available via live webcast only and can be accessed in the “Investors and Media” section of the company’s website at [www.dynavax.com](http://www.dynavax.com).

**About SYNERGY-001 (KEYNOTE-184)**

SYNERGY-001, previously referred to as MEL-01, is the dose-escalation and expansion study of SD-101 in combination with KEYTRUDA which includes patients with histologically or cytologically confirmed unresectable Stage IIIC/IV melanoma. The primary endpoints of the trial are safety and preliminary efficacy of intratumoral SD-101 in combination with KEYTRUDA.

**About SD-101**

SD-101, the Company’s lead clinical candidate, is a proprietary, second-generation, Toll-like receptor 9 (TLR9) agonist CpG-C class oligodeoxynucleotide. Dynavax is evaluating this intratumoral TLR9 agonist in several clinical studies to assess its safety and activity, including a Phase 2 study in combination with KEYTRUDA® (pembrolizumab), an anti-PD-1 therapy, in patients with advanced melanoma and in patients with head and neck squamous cell cancer, in a clinical collaboration with Merck. Dynavax maintains all commercial rights to SD-101.

**About Dynavax**

Dynavax is a fully-integrated biopharmaceutical company focused on leveraging the power of the body’s innate and adaptive immune responses through toll-like receptor (TLR) stimulation. Dynavax discovers

and develops novel vaccines and immuno-oncology therapeutics. The Company's first commercial product, HEPLISAV-B® [Hepatitis B Vaccine (Recombinant), Adjuvanted], was approved by the United States Food and Drug Administration in November 2017 for prevention of infection caused by all known subtypes of hepatitis B virus in adults age 18 years and older. Dynavax's lead immunotherapy product, SD-101, is an investigational cancer immunotherapeutic currently being evaluated in Phase 1/2 studies and its second cancer immunotherapeutic, DV281, is in Phase 1 development. For more information, visit [www.dynavax.com](http://www.dynavax.com).

### Forward Looking Statement

This press release contains "forward-looking" statements, including statements regarding the conduct of clinical trials of SD-101, including results from the Phase 1b/2 trial, planned optimal dosage for the Phase 3 trial, and potential value of SD-101 across multiple tumor types. Actual results may differ materially from those set forth in this press release due to the risks and uncertainties inherent in our business, including whether we can timely provide adequate clinical supplies; initiation, enrollment and completion of clinical trials of SD-101; the results of clinical trials and the impact of those results on the initiation or continuation of subsequent trials and issues arising in the regulatory process; the ability to successfully develop and commercialize SD-101; and whether or not Dynavax and parties with whom we are collaborating may reach any future agreement on further studies or a more extensive collaboration beyond the clinical trials contemplated under the existing agreements, as well as other risks detailed in the "Risk Factors" section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and in Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, as well as discussions of potential risks, uncertainties and other important factors in our other filings with the U.S. Securities and Exchange Commission. We undertake no obligation to revise or update information herein to reflect events or circumstances in the future, even if new information becomes available. Information on Dynavax's website at [www.dynavax.com](http://www.dynavax.com) is not incorporated by reference in our current periodic reports with the SEC.

KEYTRUDA is a registered trademark of Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc.

1. Ribas A, et al. JAMA. 2016;315(15):1600-1609.
2. Specenier P. Expert Opin Biol Ther. 2017;17(6):765-780.

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US-18-01-00103

Poster 9513

**Phase 1b/2, Open-Label, Multicenter Study of the Combination of SD-101 and Pembrolizumab in Patients With Advanced Melanoma Who Are Naïve to Anti-PD-1 Therapy (SYNERGY-001)**

Ashraf Abbas, <sup>1</sup>Muhammad Mithani, <sup>2</sup>Christopher Holmes, <sup>3</sup>Asim Arshad, <sup>4</sup>Indrajit Mukherjee, <sup>5</sup>Christopher Lee, <sup>6</sup>Robert Conry, <sup>7</sup>Mohammad Shahzad, <sup>8</sup>Selvakumar Jagan, <sup>9</sup>April Sarmis, <sup>10</sup>Sangeeta Datta, <sup>11</sup>Theresa Medina, <sup>12</sup>Shrawan Kumar, <sup>13</sup>Joseph J. D'Amico, <sup>14</sup>Murali Narain, <sup>15</sup>Gregory A. Daniels, <sup>16</sup>Deborah L. Wang, <sup>17</sup>Ernest V. Schuch, <sup>18</sup>Abraham C.F. Lung, <sup>19</sup>Albert Cardia, <sup>20</sup>Biao Xing, <sup>21</sup>Robert Janssen, <sup>22</sup>Georgina Long

<sup>1</sup>University of Toronto, Toronto, ON, Canada; <sup>2</sup>University of Toronto, Toronto, ON, Canada; <sup>3</sup>University of Toronto, Toronto, ON, Canada; <sup>4</sup>University of Toronto, Toronto, ON, Canada; <sup>5</sup>University of Toronto, Toronto, ON, Canada; <sup>6</sup>University of Toronto, Toronto, ON, Canada; <sup>7</sup>University of Toronto, Toronto, ON, Canada; <sup>8</sup>University of Toronto, Toronto, ON, Canada; <sup>9</sup>University of Toronto, Toronto, ON, Canada; <sup>10</sup>University of Toronto, Toronto, ON, Canada; <sup>11</sup>University of Toronto, Toronto, ON, Canada; <sup>12</sup>University of Toronto, Toronto, ON, Canada; <sup>13</sup>University of Toronto, Toronto, ON, Canada; <sup>14</sup>University of Toronto, Toronto, ON, Canada; <sup>15</sup>University of Toronto, Toronto, ON, Canada; <sup>16</sup>University of Toronto, Toronto, ON, Canada; <sup>17</sup>University of Toronto, Toronto, ON, Canada; <sup>18</sup>University of Toronto, Toronto, ON, Canada; <sup>19</sup>University of Toronto, Toronto, ON, Canada; <sup>20</sup>University of Toronto, Toronto, ON, Canada; <sup>21</sup>University of Toronto, Toronto, ON, Canada; <sup>22</sup>University of Toronto, Toronto, ON, Canada



**BACKGROUND**

1. Immunotherapy has revolutionized the treatment of melanoma. 2. PD-1 inhibitors have shown promising results in melanoma patients. 3. SD-101, a novel immunomodulator, has shown promising results in melanoma patients. 4. The combination of SD-101 and pembrolizumab may have synergistic effects in melanoma patients.



**OBJECTIVES**

1. To evaluate the safety and efficacy of the combination of SD-101 and pembrolizumab in patients with advanced melanoma. 2. To determine the optimal dose of the combination. 3. To evaluate the impact of the combination on immune response.

**METHODS**

1. Study Design: Phase 1b/2, open-label, multicenter study. 2. Study Population: Patients with advanced melanoma who are naïve to anti-PD-1 therapy. 3. Study Arms: SD-101 + pembrolizumab (n=100), pembrolizumab (n=100), SD-101 (n=100). 4. Study Endpoints: Safety (adverse events, laboratory abnormalities), efficacy (ORR, progression-free survival, overall survival), immune response (CD8+ T cell count, PD-L1 expression).



**RESULTS**

**Table 1: Demographic and Baseline Characteristics of Patients by Study Arm (ITT Population)**

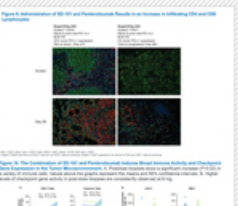
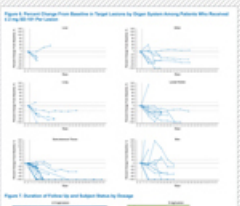
Characteristic	SD-101 + Pembrolizumab (n=100)	Pembrolizumab (n=100)	SD-101 (n=100)
Age (mean, range)	58.5 (30-85)	59.0 (30-85)	58.0 (30-85)
Sex (male/female)	75/25	75/25	75/25
Race (white/black/other)	80/15/5	80/15/5	80/15/5
ECOG performance grade	1.5 (0-2)	1.5 (0-2)	1.5 (0-2)
Number of prior lines of therapy (mean)	2.5	2.5	2.5

**Table 2: Summary of Safety Profile (Adverse Events)**

Adverse Event	SD-101 + Pembrolizumab (n=100)	Pembrolizumab (n=100)	SD-101 (n=100)
Any grade	85%	85%	85%
Grade 3 or higher	15%	15%	15%
Leading causes of death	10%	10%	10%
Discontinuation due to AEs	5%	5%	5%

**Table 3: Best Overall Response by Treatment Group (ITT Population)**

Response	SD-101 + Pembrolizumab (n=100)	Pembrolizumab (n=100)	SD-101 (n=100)
CR	1%	1%	1%
PR	35%	35%	35%
SD	45%	45%	45%
PD	15%	15%	15%
ORR	36%	36%	36%



**Table 4: Summary of Immune Response (ITT Population)**

Parameter	SD-101 + Pembrolizumab (n=100)	Pembrolizumab (n=100)	SD-101 (n=100)
CD8+ T cell count (cells/mm <sup>3</sup> )	1500	1500	1500
PD-L1 expression (%)	50	50	50

**CONCLUSIONS**

The combination of SD-101 and pembrolizumab is safe and effective in patients with advanced melanoma. The combination showed a similar safety profile to the pembrolizumab monotherapy and a similar efficacy profile to the pembrolizumab monotherapy. The combination may have synergistic effects on immune response.

**ACKNOWLEDGMENTS**

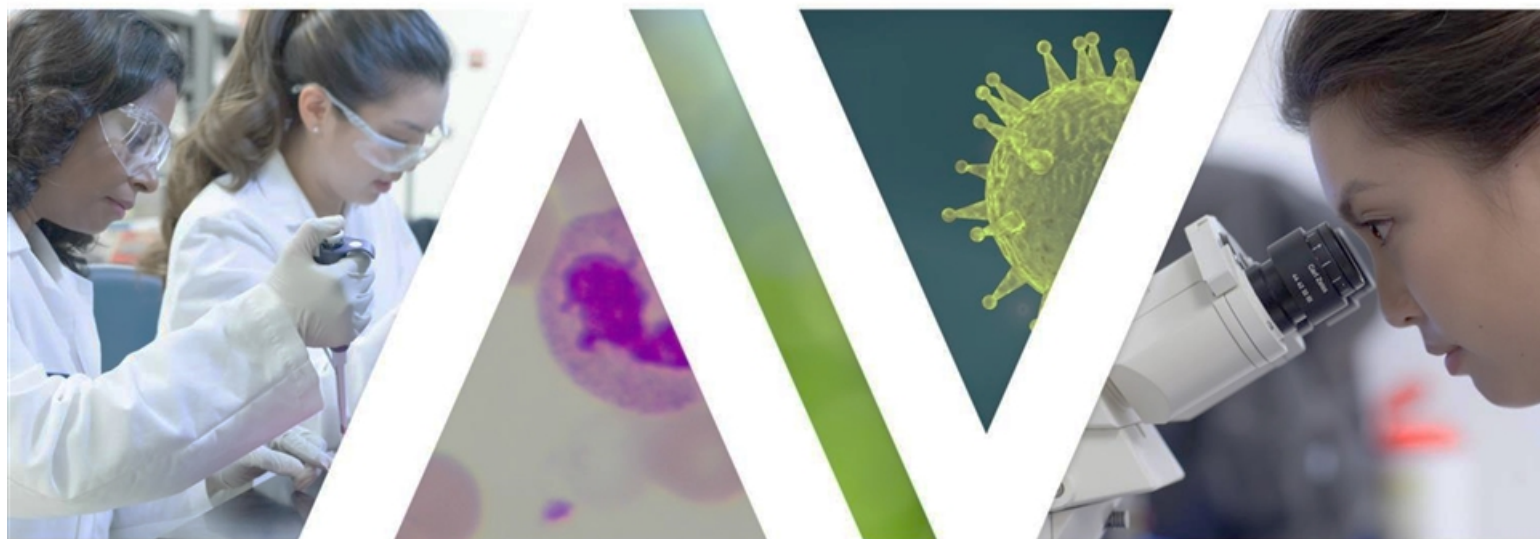
The authors thank the patients and investigators who participated in this study.

**REFERENCES**

1. Checkmate-067 Investigators. Pembrolizumab versus ipilimumab in advanced melanoma. N Engl J Med. 2016;374:1011-1021.

# DYNAVAX

INNOVATING IMMUNOLOGY



**Analyst & Investor Presentation**  
June 2018



## Forward Looking Statement

This presentation contains "forward-looking" statements, including statements regarding the conduct of clinical trials of SD-101, including results from the Phase 1b/2 trial, planned optimal dosage for the Phase 3 trial, and potential value of SD-101 across multiple tumor types. Actual results may differ materially from those set forth in this presentation due to the risks and uncertainties inherent in our business, including whether we can timely provide adequate clinical supplies; initiation, enrollment and completion of clinical trials of SD-101; the results of clinical trials and the impact of those results on the initiation or continuation of subsequent trials and issues arising in the regulatory process; the ability to successfully develop and commercialize SD-101; and whether or not Dynavax and parties with whom we are collaborating may reach any future agreement on further studies or a more extensive collaboration beyond the clinical trials contemplated under the existing agreements, as well as other risks detailed in the "Risk Factors" section of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and in Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, as well as discussions of potential risks, uncertainties and other important factors in our other filings with the U.S. Securities and Exchange Commission. We undertake no obligation to revise or update information herein to reflect events or circumstances in the future, even if new information becomes available. Information on Dynavax's website at [www.dynavax.com](http://www.dynavax.com) is not incorporated by reference in our current periodic reports with the SEC.

# Presenters

## C O M P A N Y

- **Eddie Gray** – Chief Executive Officer
- **Robert L. Coffman, PhD** – Chief Scientific Officer
- **Rob Janssen, MD** – Chief Medical Officer
- **Jean Chang** – VP, Cancer Strategy and Business Development
- **Michael Ostrach** – Chief Financial Officer (available for Q&A)
- **Erick Gamelin** – VP, Clinical Development – Oncology (available for Q&A)

## G U E S T P R E S E N T E R

### **Antoni Ribas, MD, PhD**

Professor of Medicine, Surgery, Molecular and Medical Pharmacology, Director, Tumor Immunology Program, Jonsson Comprehensive Cancer Center (JCCC);

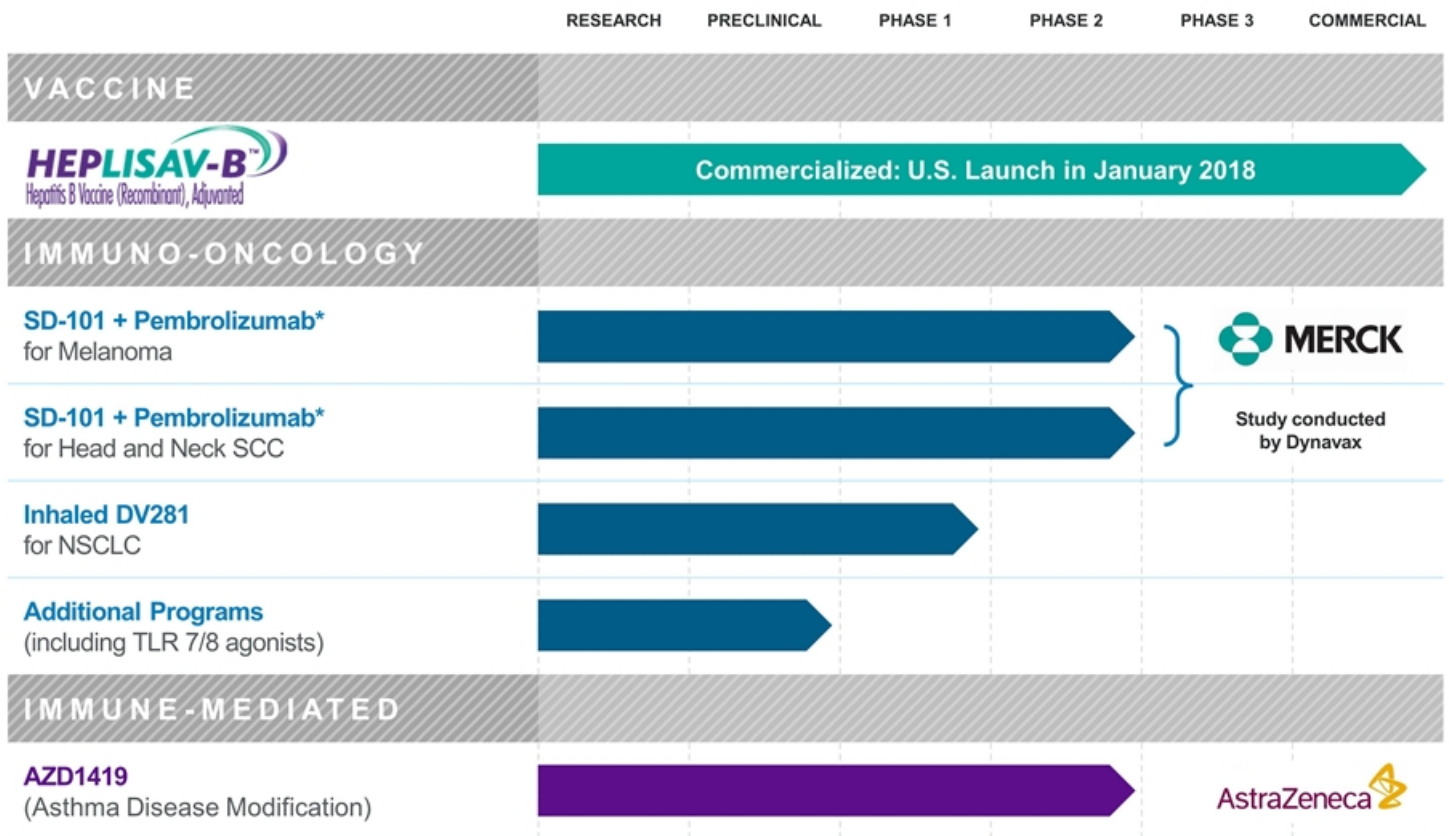
Director, Parker Institute for Cancer Immunotherapy (PICI) Center at UCLA

Chair, Melanoma Committee at SWOG

# Agenda

- 1 TLR9 Agonists for Cancer Immunotherapy – Mechanisms  
**Robert L. Coffman**
- 2 Resistance to PD-1 Blockade Due to Lack of Pre-existing Antitumor immunity  
**Toni Ribas**
- 3 Clinical Development – Ph1b/2 Melanoma Data and Additional Programs  
**Rob Janssen**
- 4 Maximizing Value of Dynavax's TLR9 Agonist Portfolio in the Evolving Treatment Landscape  
**Jean Chang**
- 5 Conclusion  
**Eddie Gray**

# Deep and Growing Clinical Pipeline



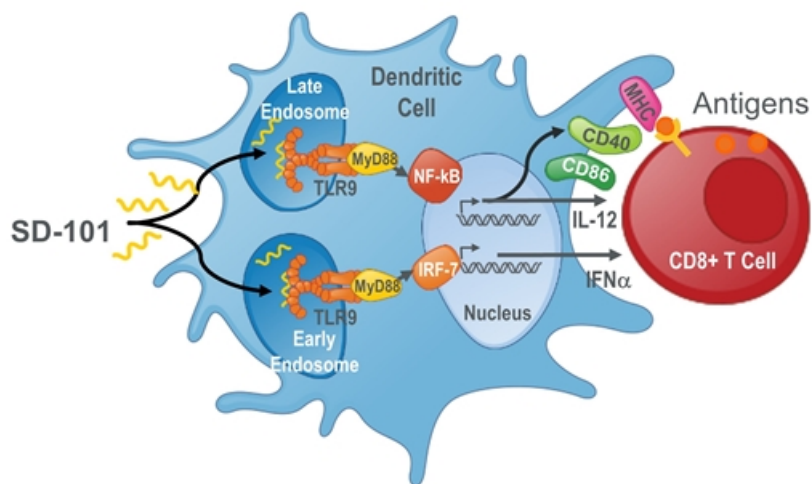
\* Clinical collaboration with Merck; Dynavax maintains all commercial rights to SD-101

# Robert L. Coffman, PhD



# SD-101: Optimized TLR9 Agonist for Cancer Immunotherapy

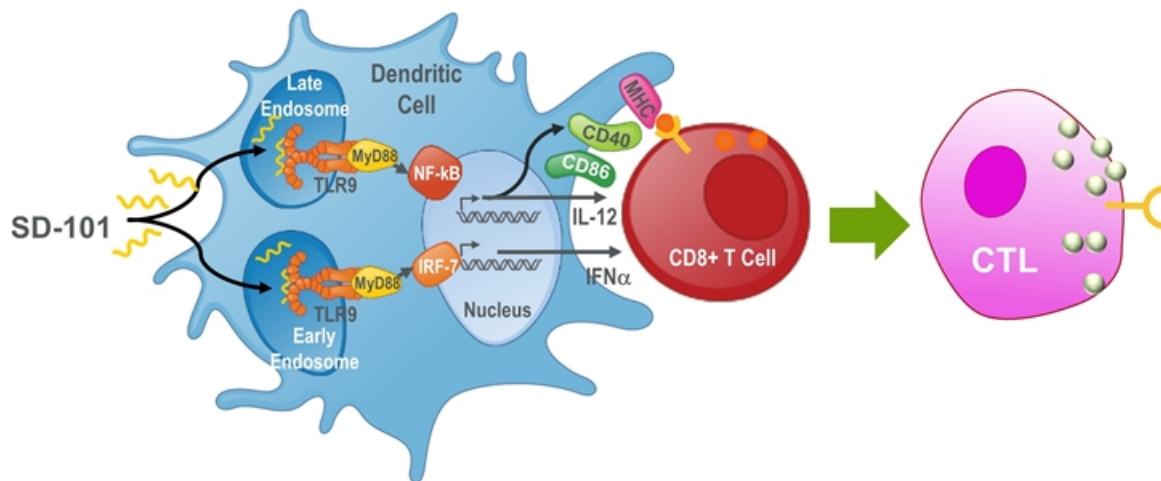
- Synthetic DNA oligonucleotide with TLR9-reactive CpG motifs
- Optimized for two key dendritic cell activation pathways
- TLR9 activation of dendritic cells complements other major classes of immuno-oncology agents.



# SD-101: Optimized TLR9 Agonist for Cancer Immunotherapy

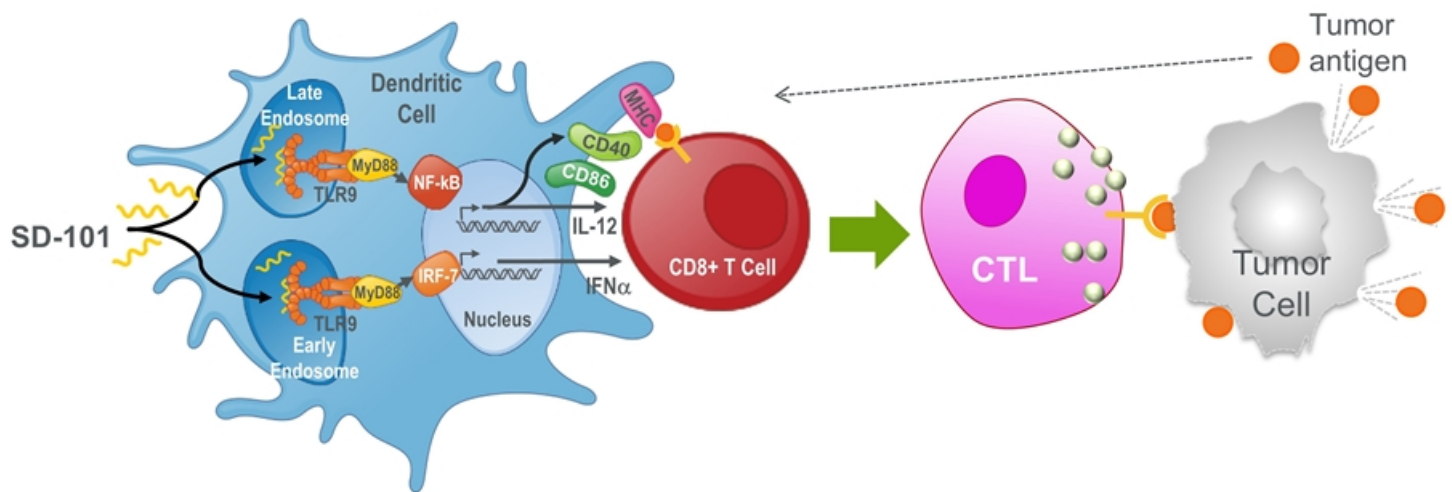
## Triggering dual pathways provides more potent response

- Activates dendritic cells to become efficient antigen-presenting cells
- Induces type 1 IFN, leading to development of cytotoxic T cells (CTL)



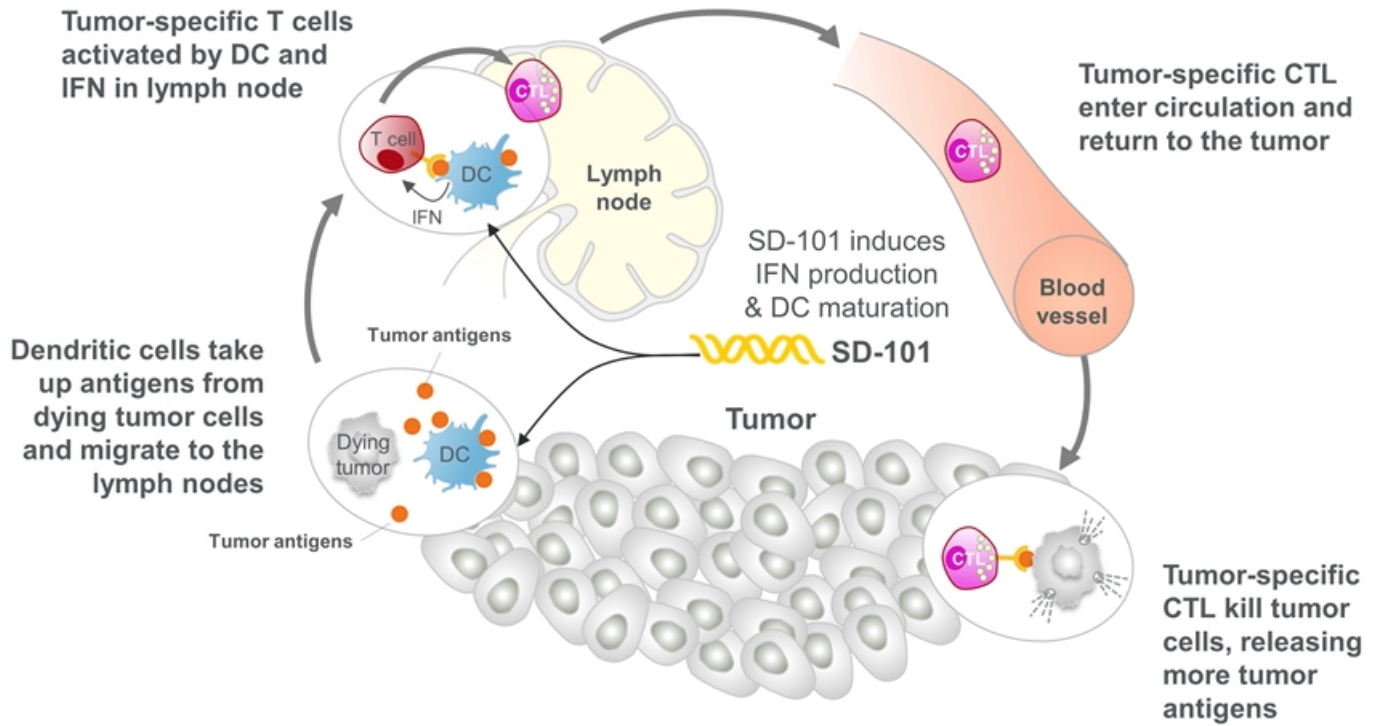
# SD-101: Optimized TLR9 Agonist for Cancer Immunotherapy

- Inside tumor, CTL recognize and kill tumor cells, releasing more tumor antigens
- Establishes self-amplifying process leading to control or elimination of malignant cells

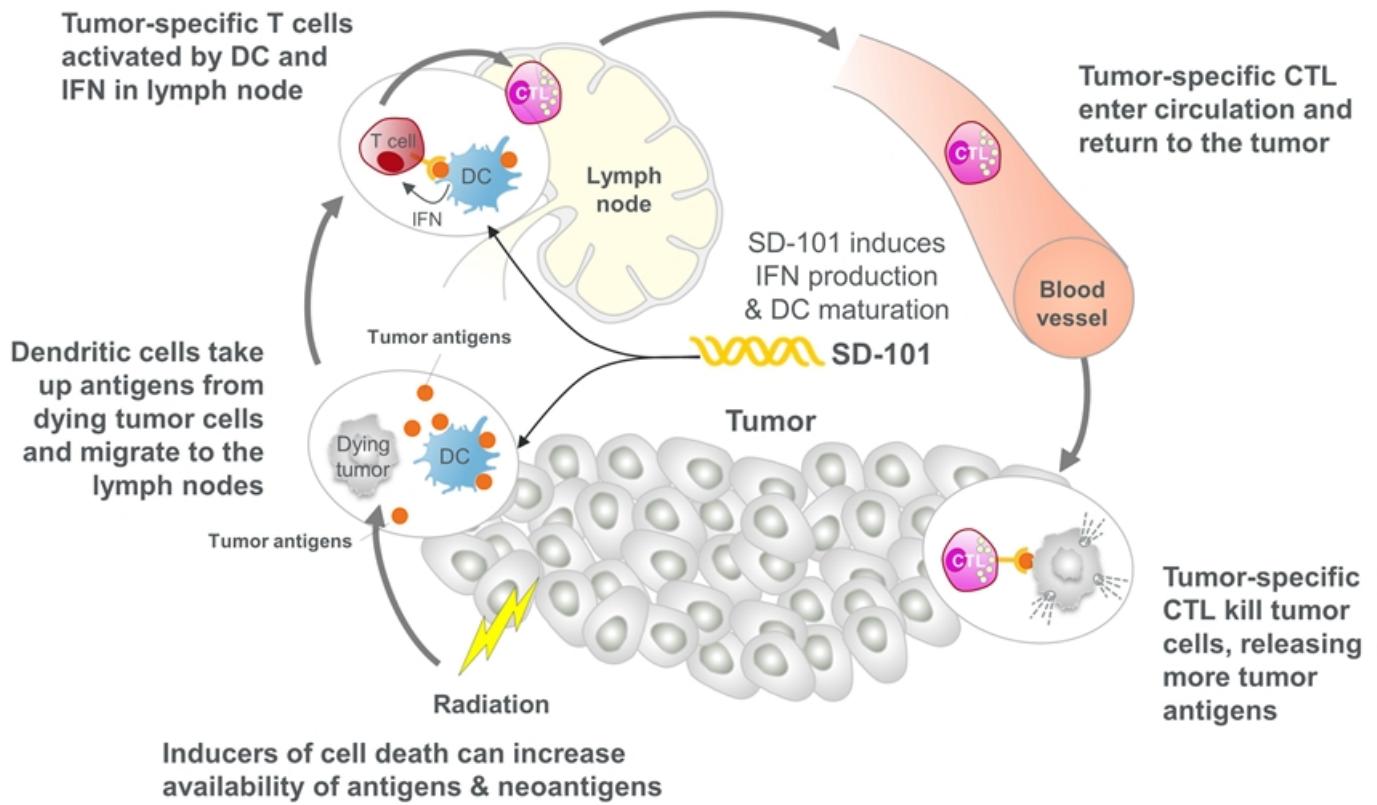




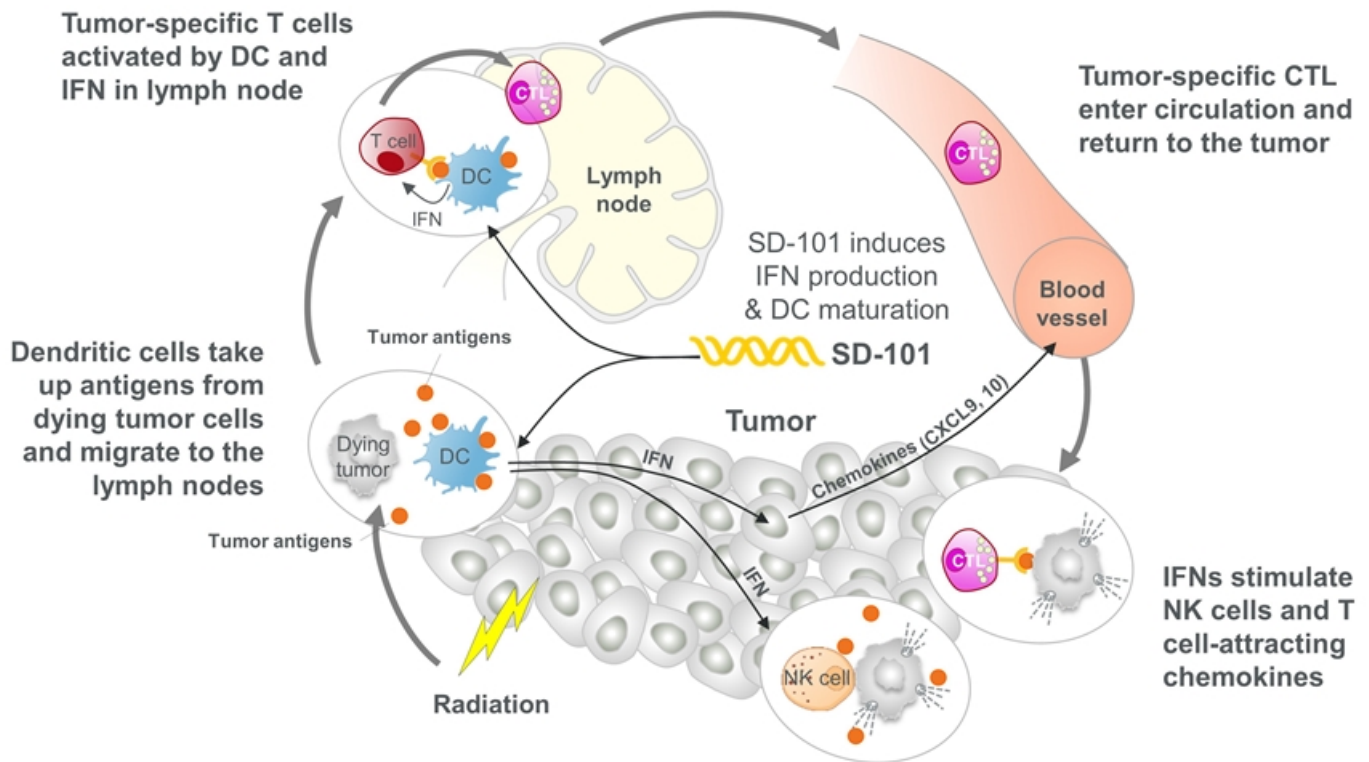
# Actions of Intratumoral SD-101 in Cancer Immunotherapy



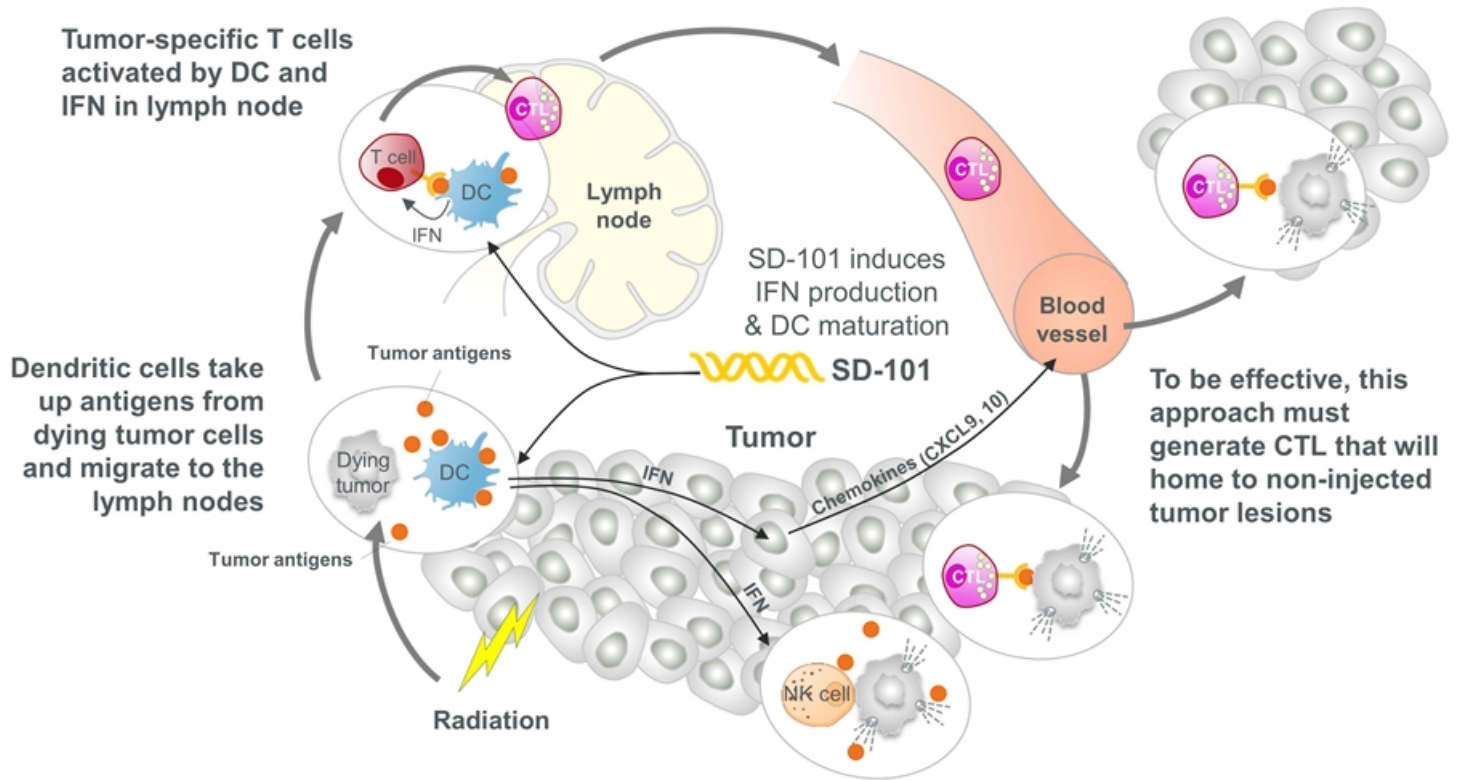
# Actions of Intratumoral SD-101 in Cancer Immunotherapy



# Actions of Intratumoral SD-101 in Cancer Immunotherapy

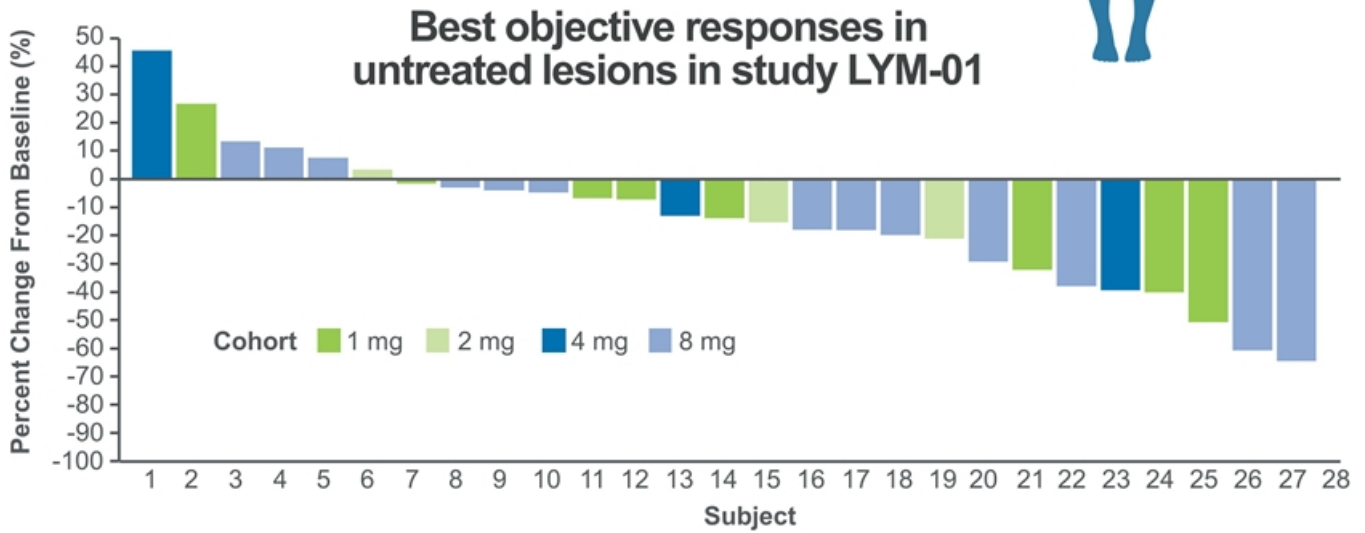
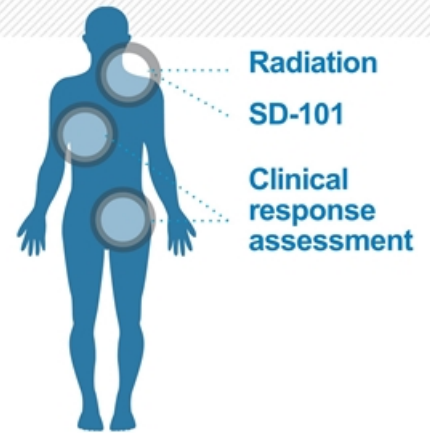


# Actions of Intratumoral SD-101 in Cancer Immunotherapy

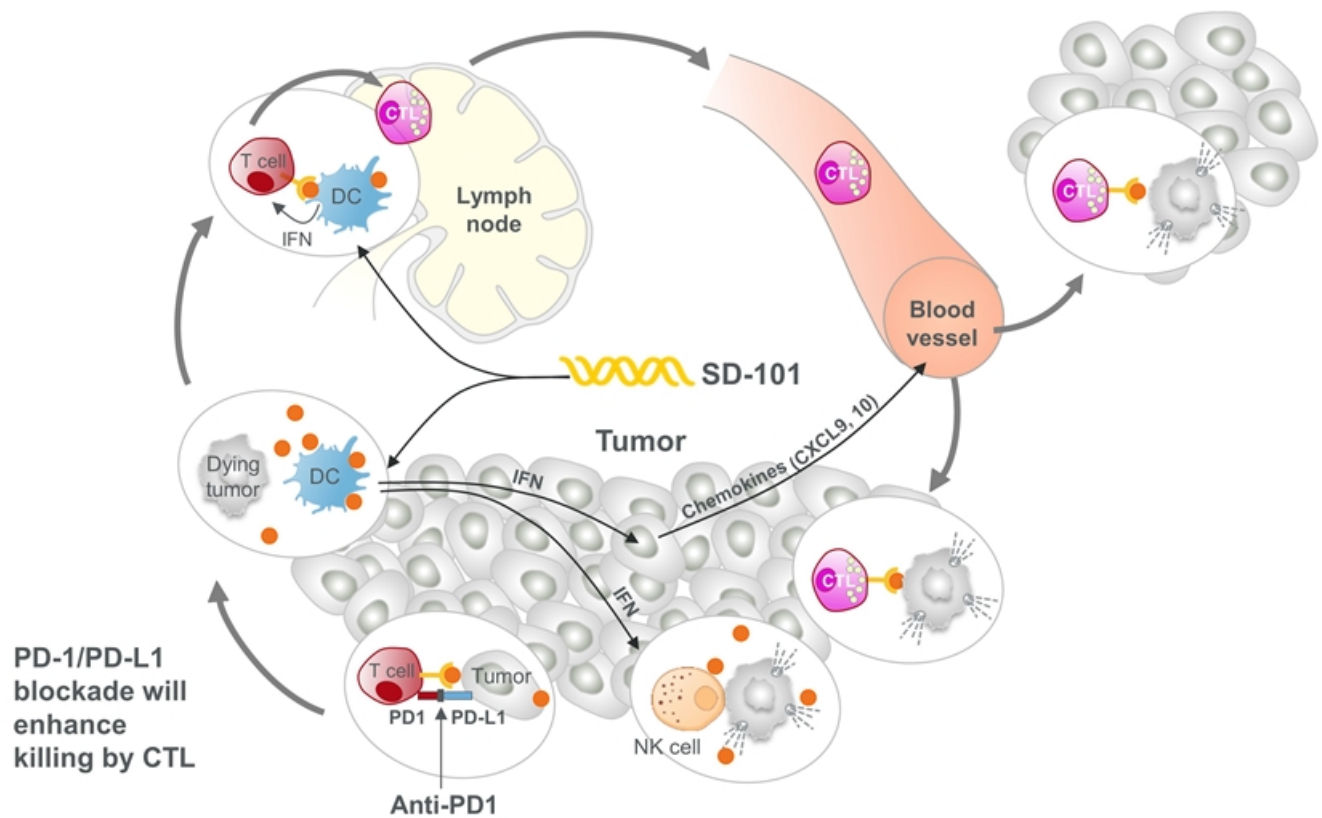


# SD-101 + Local Radiation in Lymphoma Leads to Abscopal Response in Many Patients

Previously untreated NHL patients were given low dose radiation (2Gy on days -1 and 0) followed by 5 weekly injections of SD-101 into the irradiated lesion



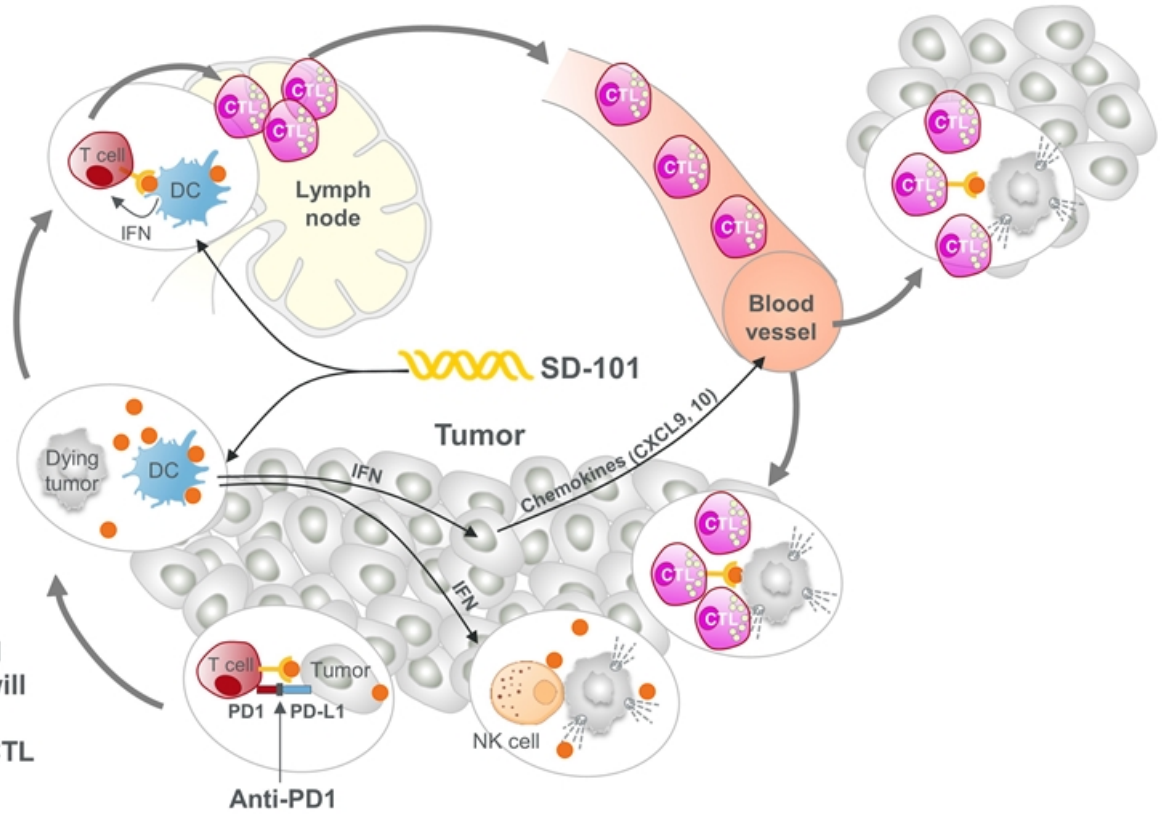
# Actions of Intratumoral SD-101 in Cancer Immunotherapy



# Combination with Anti-PD-1 Increases Anti-tumor Response

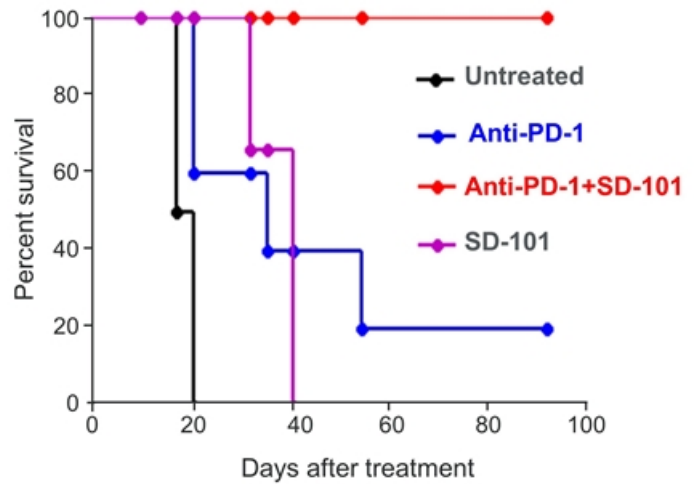
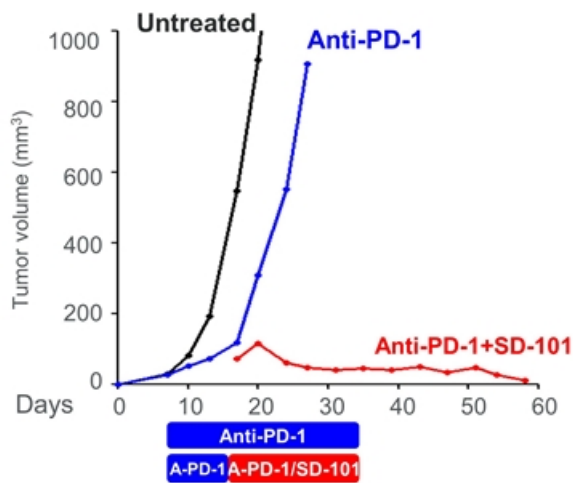
Anti-PD-1 will also increase both the number and cytotoxic activity of CTL in both injected and non-injected tumor lesions

PD-1/PD-L1 blockade will enhance killing by CTL



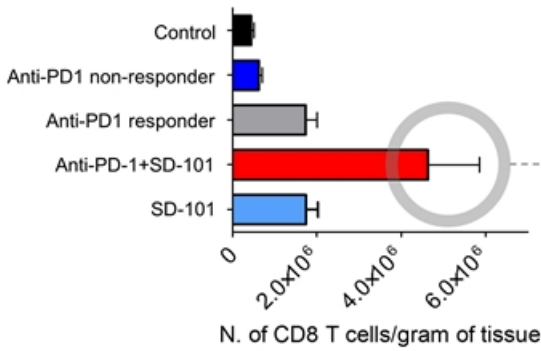
# Preclinical Studies in Mice Provide Support for Combining SD-101 With Checkpoint Inhibitors

In preclinical studies, addition of intratumoral SD-101 reverses tumor escape from anti-PD-1 therapy and leads to durable immune-mediated rejection of CT26 tumors

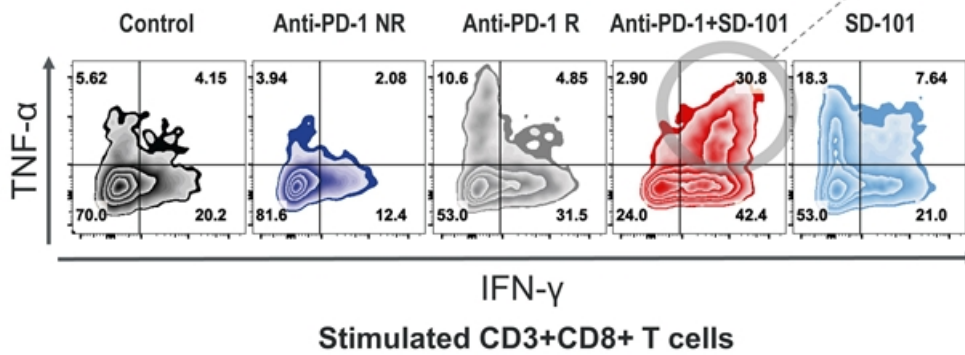




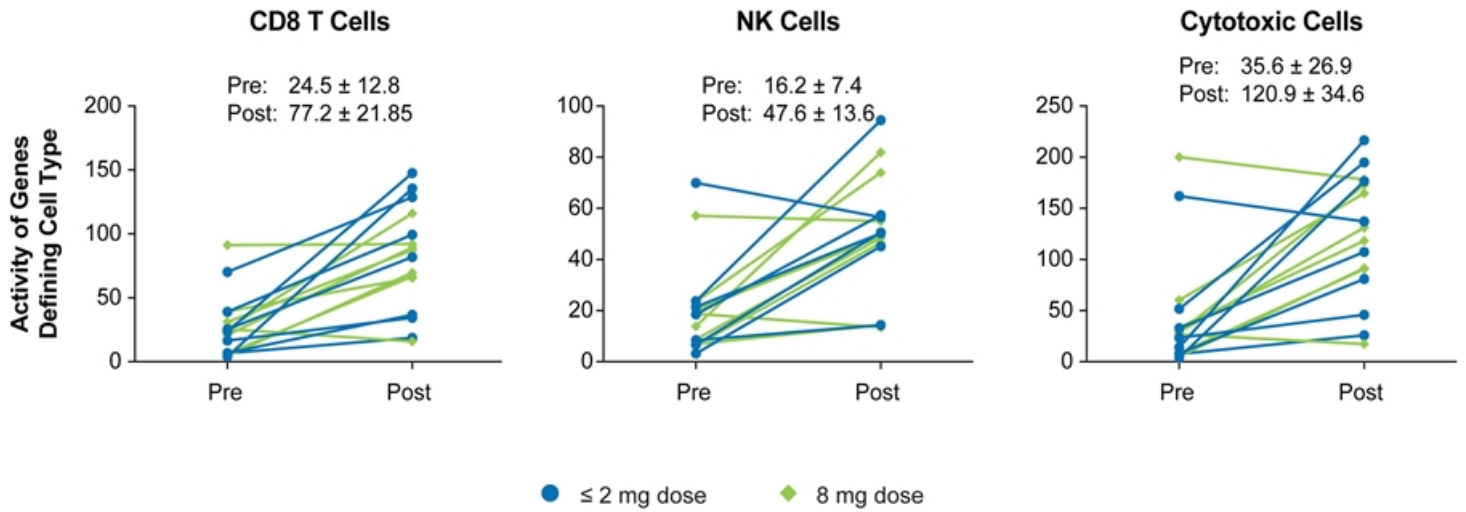
# SD-101 and Anti-PD-1 Synergize to Increase Functional CD8+ T Cells in the Injected Tumor



The combination of SD-101 and anti-PD-1 leads to substantial increases in both the **numbers** and **functionality** of the tumor-infiltrating CD8+ T cells



# Biomarkers Show Increased Immune Activity with Combination



**Cytotoxic T and NK Cells Increase in Melanoma Patients Treated with Intratumoral SD-101 + Pembrolizumab**

# Toni Ribas, MD, PhD



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# Resistance to PD-1 blockade due to lack of pre-existing antitumor immunity

## **Antoni Ribas, M.D., Ph.D.**

Professor of Medicine, Surgery, Molecular and Medical Pharmacology

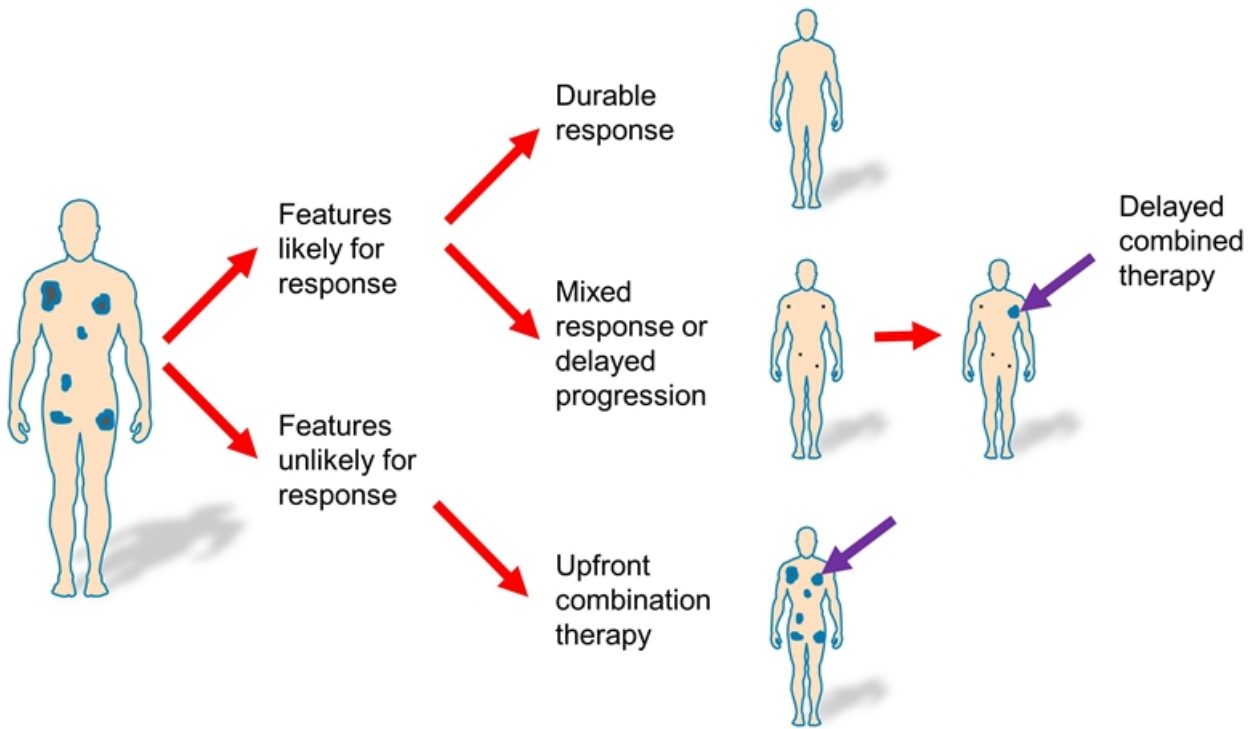
Director, Tumor Immunology Program, Jonsson Comprehensive Cancer Center (JCCC)

Director, Parker Institute for Cancer Immunotherapy (PICI) Center at UCLA

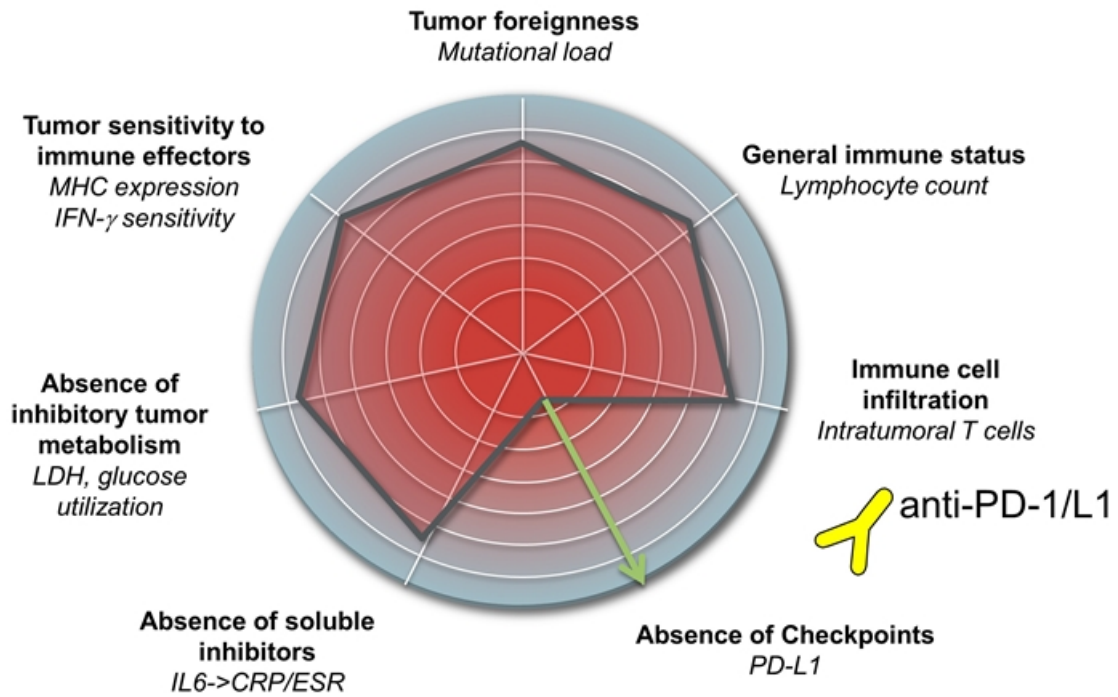
University of California Los Angeles (UCLA)

Chair, Melanoma Committee at SWOG

# Management of Cancer in the Anti-PD-1/L1 Era



# The Cancer Immunogram



## Anti-PD-1/L1 Approved Indications and Suspected Mechanism of Action

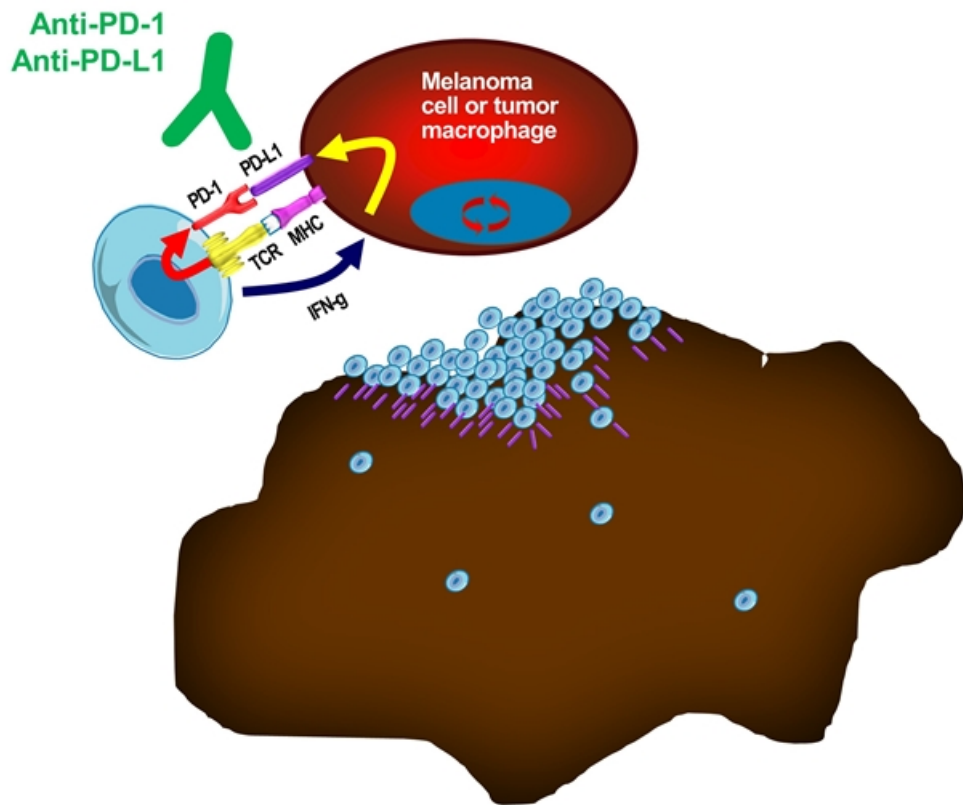
Group	Indication	ORR	Agents approved*	Main driver of response
High response rate	Hodgkin's disease	87%	Nivolumab, pembrolizumab	PDJ amplicon
	Desmoplastic melanoma	70%	Nivolumab, pembrolizumab	Mutations from chronic sun exposure
	Merkel cell carcinoma	56%	Avelumab, pembrolizumab	Merkel cell virus and sun exposure
	MSI-h cancers	53%	Nivolumab, pembrolizumab	Mutations from mismatch repair deficiency

## Anti-PD-1/L1 Approved Indications and Suspected Mechanism of Action

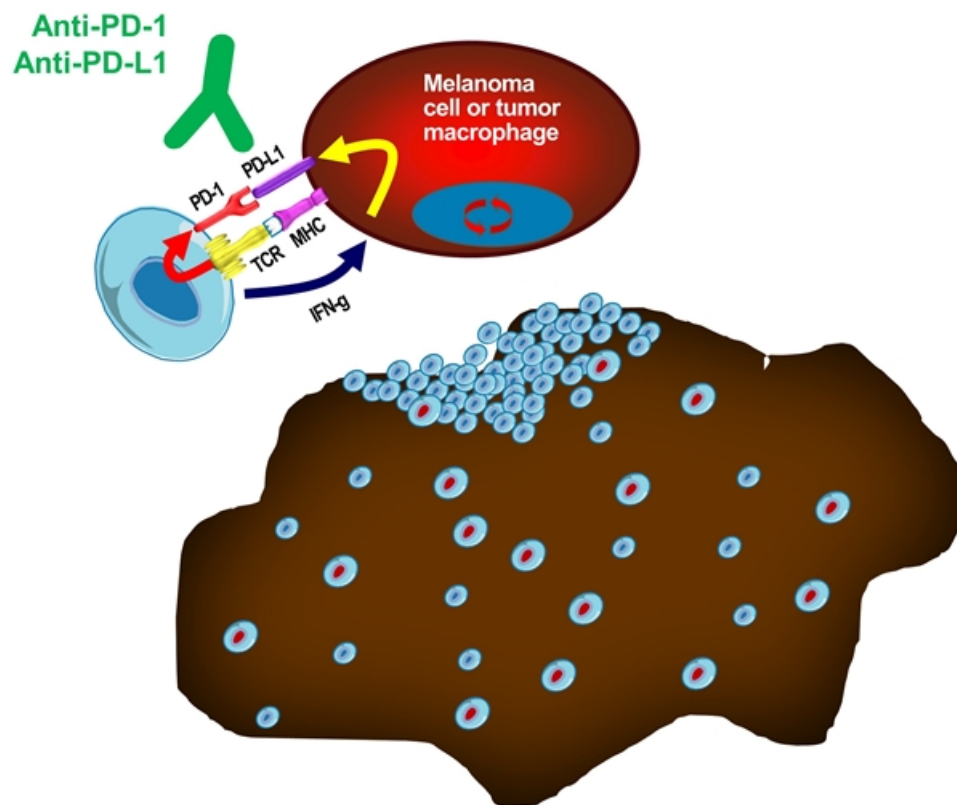
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	Merkel cell carcinoma	56%	Avelumab, pembrolizumab	Merkel cell virus and sun exposure
	MSI-h cancers	53%	Nivolumab, pembrolizumab	Mutations from mismatch repair deficiency
Intermediate response rate	Skin melanoma	35-40%	Nivolumab, pembrolizumab	Mutations from intermittent sun exposure
	Lung cancer	20%	Atezolizumab, nivolumab, pembrolizumab	Mutations from cigarette smoking
	Head and neck cancers	15%	Nivolumab, pembrolizumab	Mutations from cigarette smoking
	Gastro-esophageal cancer	15%	Pembrolizumab	Mutations from cigarette smoking
	Bladder/urinary tract cancers	15%	Atezolizumab, avelumab, durvalumab, nivolumab, pembrolizumab	Mutations from cigarette smoking
	Renal cell carcinoma	25%	Nivolumab, pembrolizumab	Insertion/deletions (indels)
	Hepatocellular carcinoma	20%	Nivolumab	Hepatitis virus



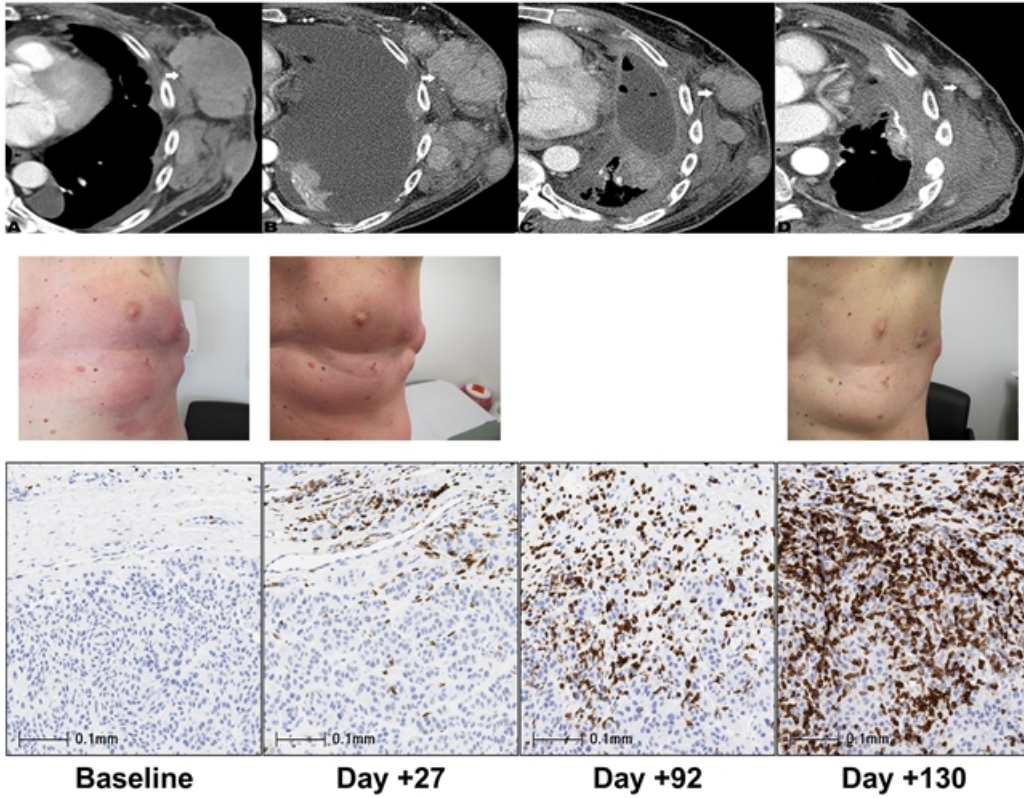
# Inhibiting PD-1-mediated Adaptive Immune Resistance



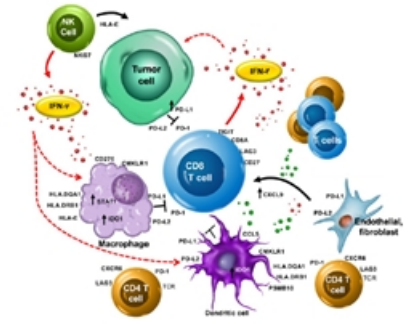
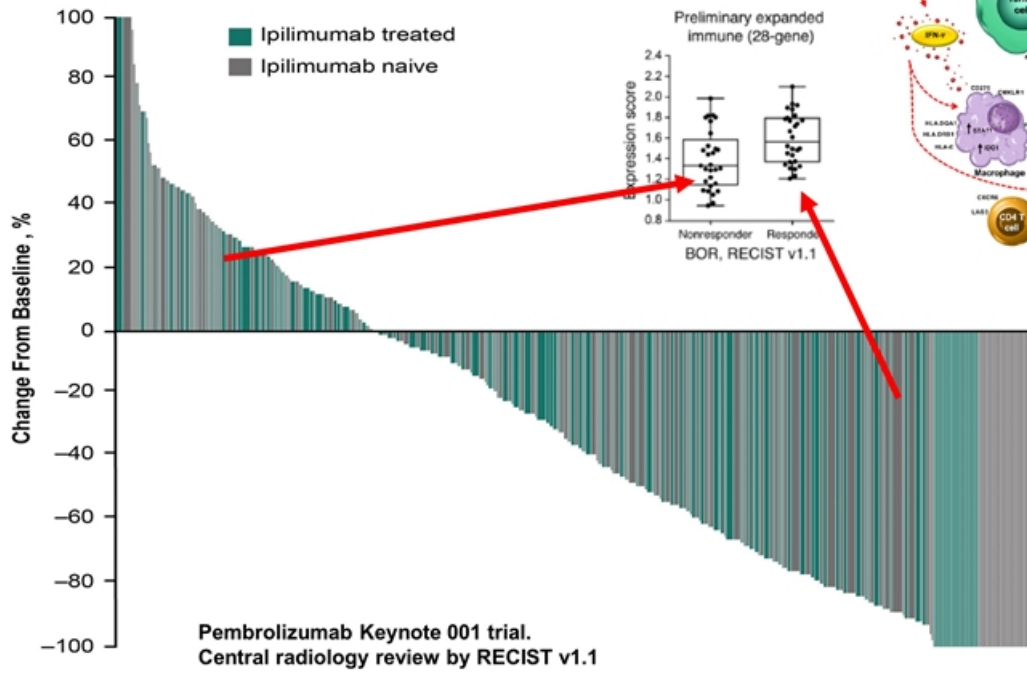
# Inhibiting PD-1-mediated Adaptive Immune Resistance



# Delayed Response to PD-1 Blockade after Transient Progression

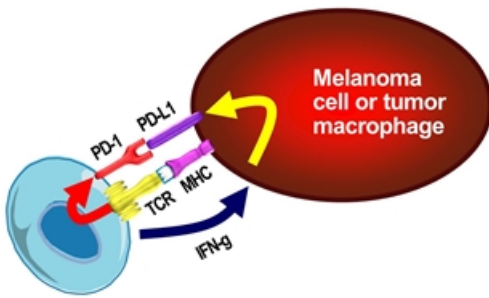


# What Differentiates Anti-PD-1-responsive from Non-responding Melanomas?

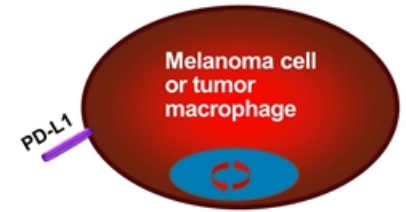
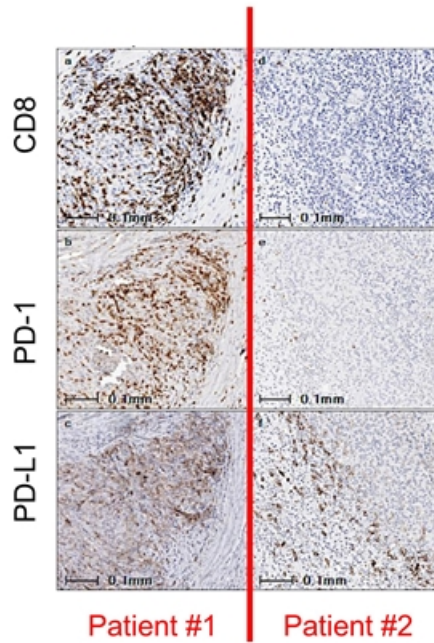


Ayers et al, JCI 2017

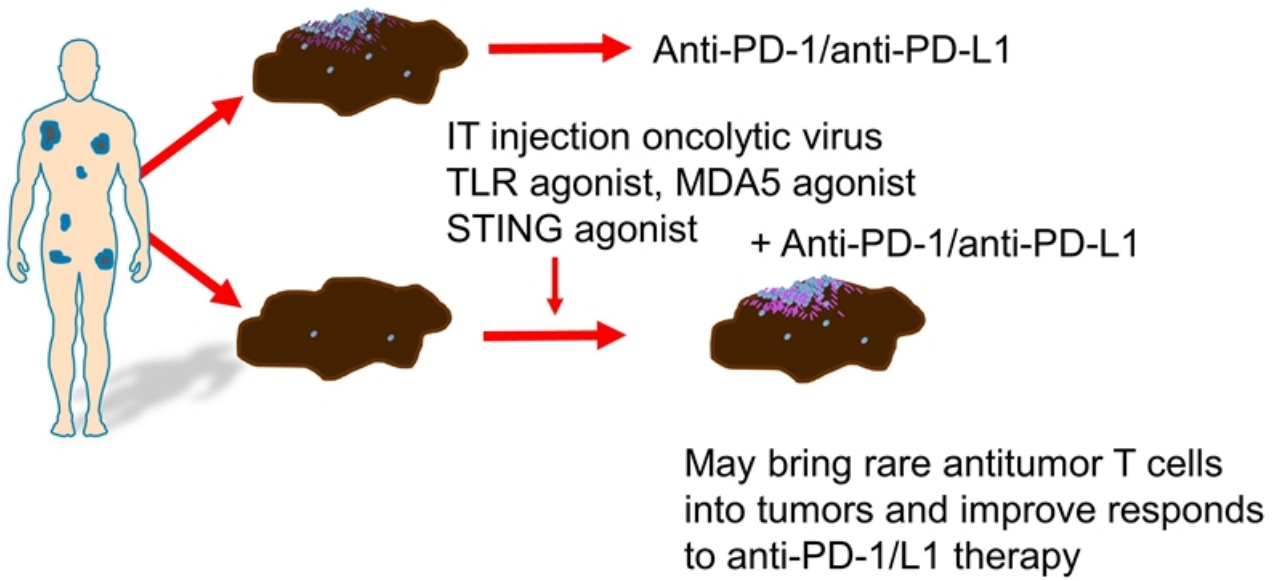
# PD-1 Blockade Induces Responses by Inhibiting Adaptive Immune Resistance



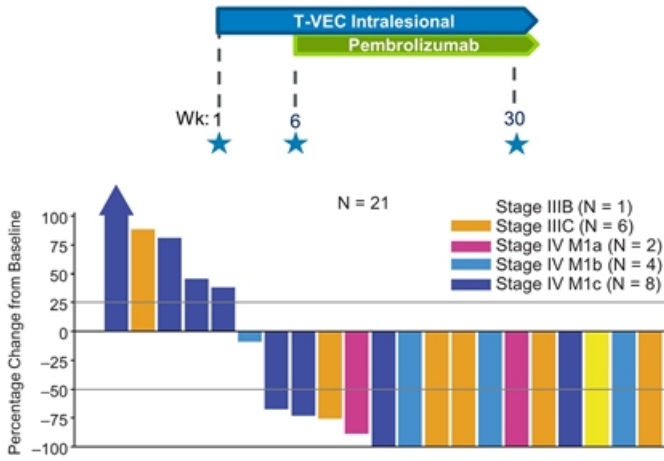
**Hypothesis formulated based on quantitative IHC analyses of 46 cases from UCLA**



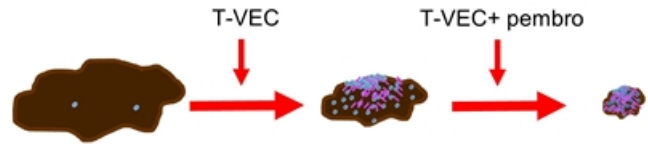
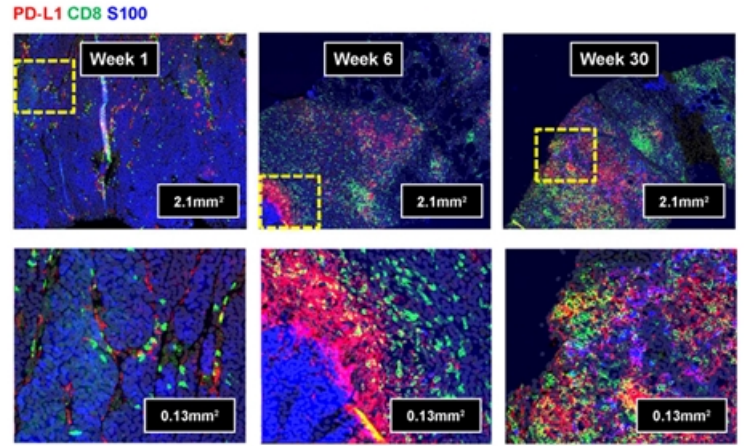
# Reversing T Cell Exclusion with Intra-tumoral Therapies



# Intra-tumoral T-VEC (oncolytic virus) Plus Systemic Pembrolizumab Induces High Response Rates by Increases in Tumor CD8 Infiltration



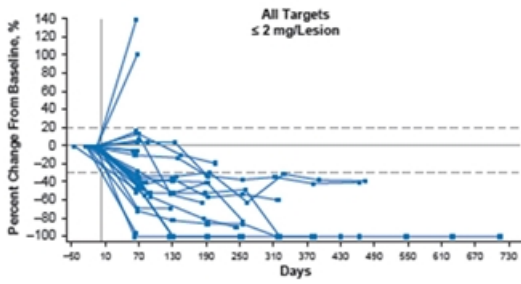
62% objective response rate  
33% complete response rate



# Intra-tumoral TLR9 Agonists Plus Systemic Checkpoint Blockade

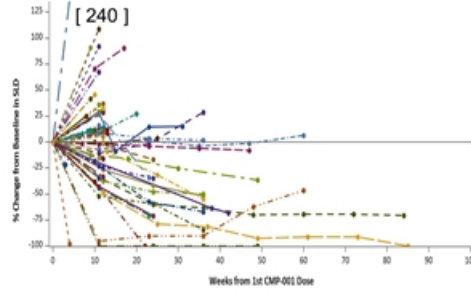
SD101 + pembrolizumab

Anti-PD-1/L1 Naive

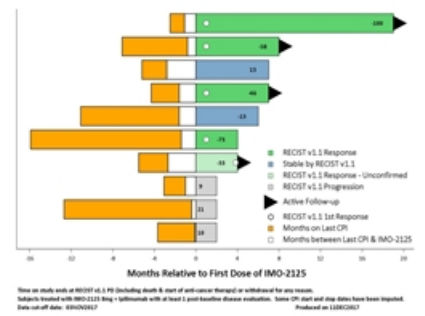


CMP-001 + pembrolizumab

Progressing on prior anti-PD-1/L1



IMO-2125 + ipilimumab





## Conclusions

- Inhibiting adaptive immune resistance is the mechanistic basis of the antitumor activity of PD-1 blockade therapies
- Patients without a pre-existing tumor antigen-specific T cell infiltrate inducing reactive PD-L1 expression are unlikely to respond to PD-1 blockade therapy
- Inducing intratumoral infiltration by antigen-specific T cells is likely to potentiate the antitumor activity of PD-1 blockade therapy

**Rob Janssen, MD**



## SYNERGY-001 (MEL-01)

### Phase 1b/2 study of the combination of SD-101 and pembrolizumab in advanced melanoma and head and neck squamous cell cancer

#### OBJECTIVES:

- Evaluate the safety of the combination
- Evaluate the preliminary efficacy of the combination
- Establish the dose of SD-101 for the Phase 3 trial (2 mg vs. 8 mg)

# Understanding Dose Selection

## Seeking balance to achieve most potent immune response

### SD-101 Mechanism of Action is to stimulate the immune system to respond to specific antigens

- **Efficacy may be most informative** – Looking for “sweet-spot”/the Goldilocks dose. Not too hot, not too cold!
- **Blood PK not informative** – Primary mechanism is local in the tumor and draining lymph nodes
- **Safety may not be informative** – Benign profile may not distinguish between doses—no MTD
- **No biomarkers of CpG-mediated anti-tumor effects established** – Immune stimuli generally stimulate dose-dependent feedback mechanisms complicating interpretation of markers of stimulation

# Study Design

## Patients

- Stage IIIc, Stage IV metastatic melanoma\*
- ECOG performance status of 0 or 1
- At least one injectable site
- Response by RECIST v1.1
- Prior anti-PD-1 or anti-PD-1 naive

## Phase 1b Dose Escalation\*\*

SD-101 2 mg i.t. + Pembrolizumab 200 mg i.v.

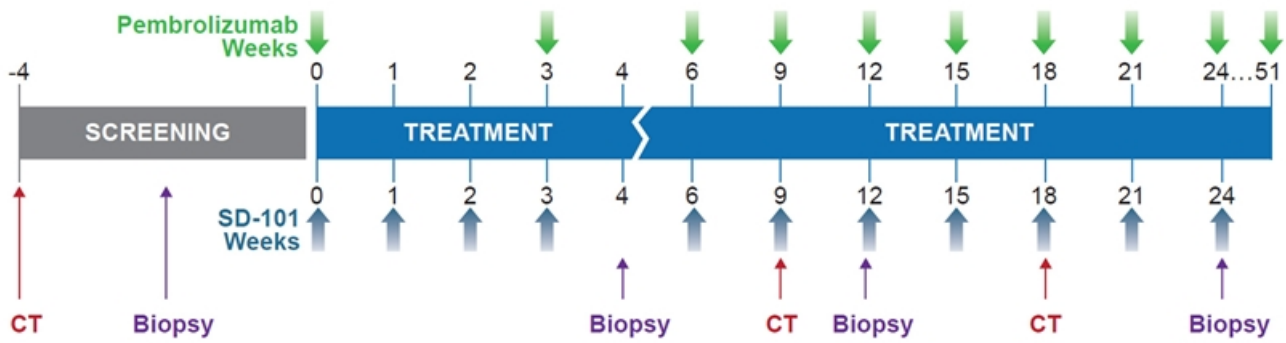
SD-101 4 mg i.t. + Pembrolizumab 200 mg i.v.

SD-101 8 mg i.t. + Pembrolizumab 200 mg i.v.

SD-101 1 mg i.t. + Pembrolizumab 200 mg i.v.

## Phase 2 Expansion

SD-101 2 mg i.t. in up to 4 lesions  
+  
Pembrolizumab 200 mg i.v.  
OR  
SD-101 8 mg i.t. in one lesion  
+  
Pembrolizumab 200 mg i.v.



\*Histologically confirmed \*\*DLT period 29 days, i.t. = intratumoral; i.v. = intravenous. 3 patients received 1 mg/lesion

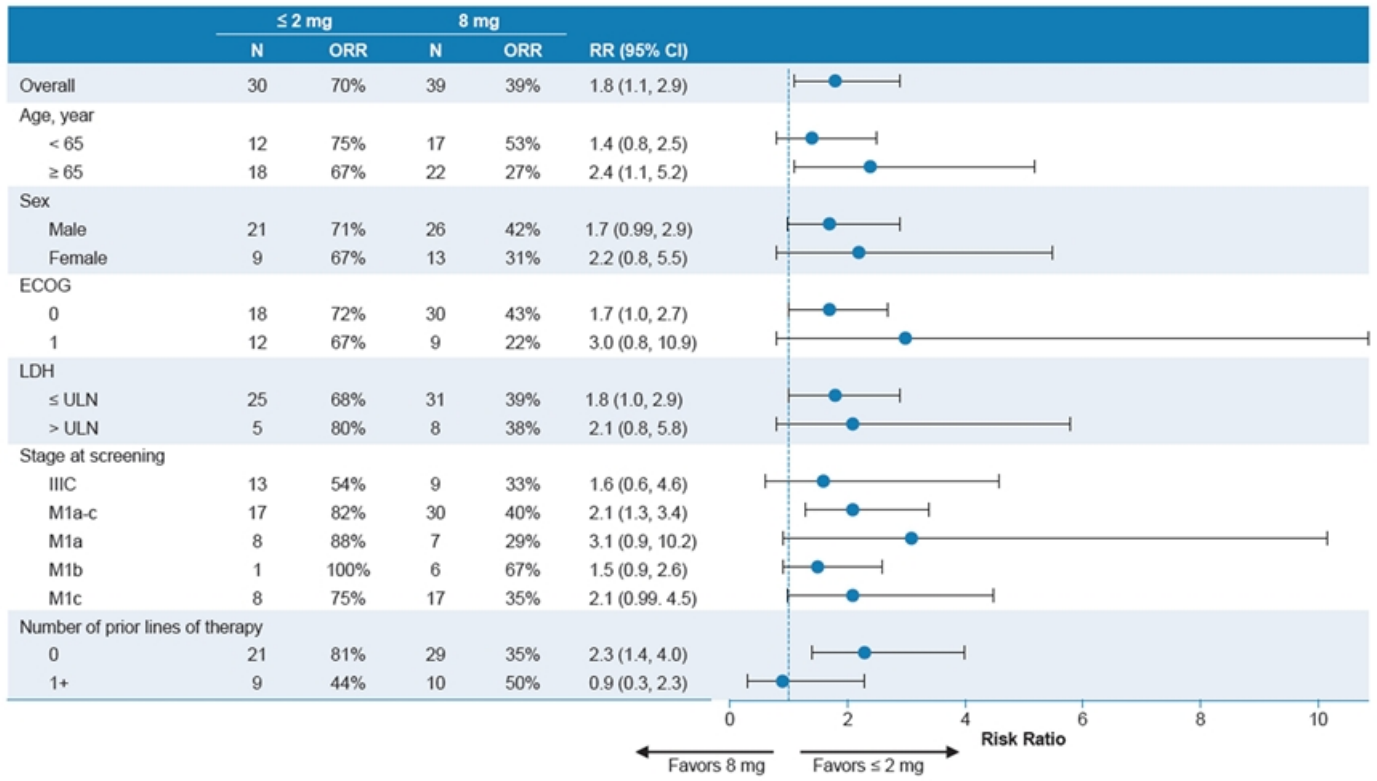
Data cutoff – May 9, 2018

## Response Rate Higher in the 2 mg Dose Group

Best ORR	≤2 mg/lesion	8 mg/lesion
mITT*	(N=30)	(N = 39)
ORR, n (%) (95% CI)	21 (70) (52, 83)	15 (38) (25, 54)
CR	5 (17)	1 (3)
PR	16 (53)	14 (36)
SD	3 (10)	10 (26)
PD	4 (13)	7 (18)
Non-evaluable†	2 (7)	7 (18)
All Enrolled Patients	(N=37)	(N=39)
Non-evaluable**	7**	0

\* mITT excludes patients on study with no Day 64 scan yet. † Patients discontinued prior to first scan: ≤ 2 mg—clinical progression (n=1), irAE (n=1); 8 mg—clinical progression (n=2), AE/death (n=1); irAE (n=3), withdrew consent (n=1). \*\* Patients on study who have not yet had a first scan.

# Subgroup Analyses Support 2 mg Dose



CI = confidence interval; ECOG = Eastern Cooperative Oncology Group performance status; LDH = lactate dehydrogenase; ORR = overall response rate; RR = risk ratio; ULN = upper limit of normal.

## Responses in Patients with PD-L1 Negative or Positive Tumors

- Responses seen in patients with negative and positive PD-L1 expression at baseline
- 80% (8 out of 10) of PD-L1 negative patients responded with 2mg of SD-101

2mg

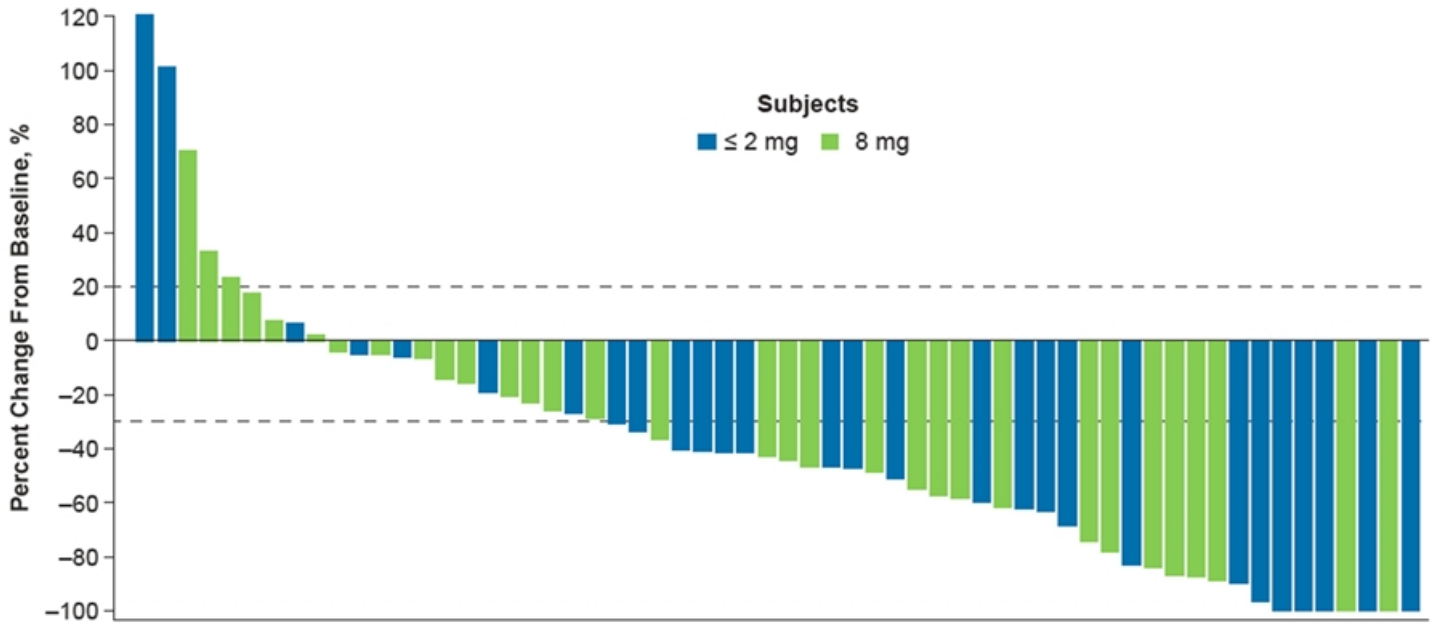
Pt ID	PD-L1 Expression (%)	BOR
101005	0	CR
305551	0	CR
102004	0	PR
110401	0	PR
101518	0	PR
115538	0	PR
305565	0	PR
108569	0	SD
101003	0	Clinical PD
110501	<1	PR
104530	1	PR
113523	3	PR
126525	3	SD
305545	3	PD
101002	30	PR
110404	30	PR
101539	50	PR
115572	80	PR

8mg

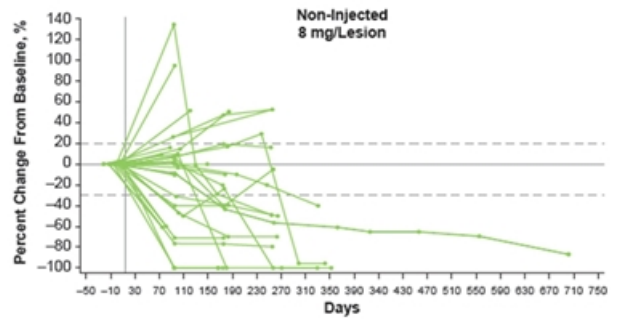
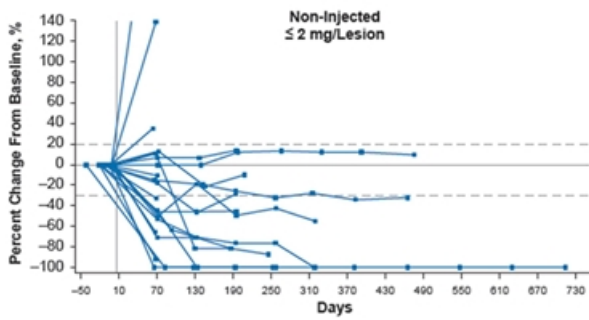
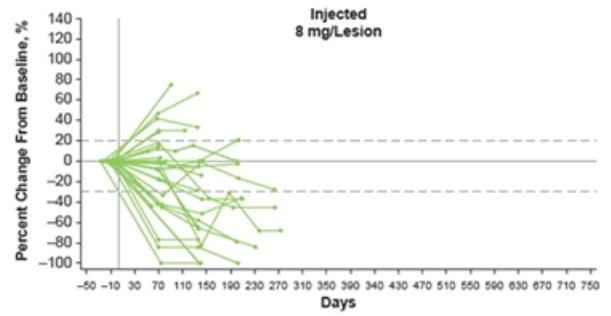
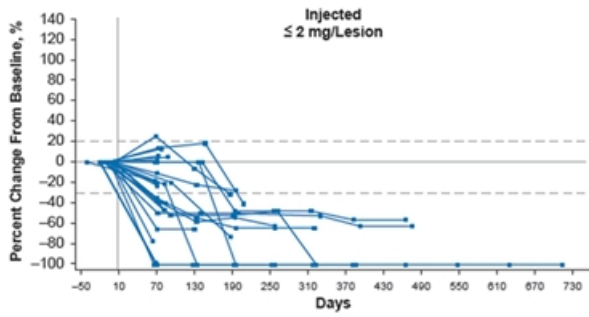
Pt ID	PD-L1 Expression (%)	BOR
110508	0	PR
101553	0	PR
105504	0	SD
112507	0	SD
123528	0	SD
110511	0	PD
133547	0	PD
140550	0	PD
110522	0	n/a
130560	0	n/a
126542	<1	PR
135519	<1	PD
123524	<1	PD
123555	1	PD
123552	2	PR
133510	5	CR
134515	10	SD
110512	25	PR
133566	30	PR
134532	30	SD
109513	30	PD
104520	80	SD
110503	90	CR
123533	90	PR



# Best Percent Change in Target Lesions

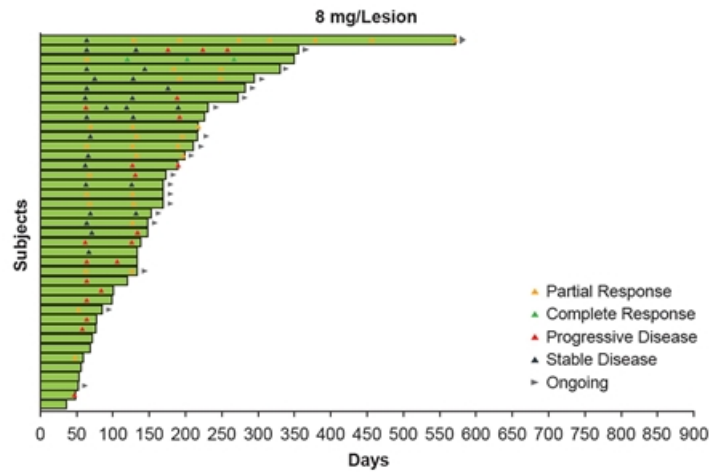
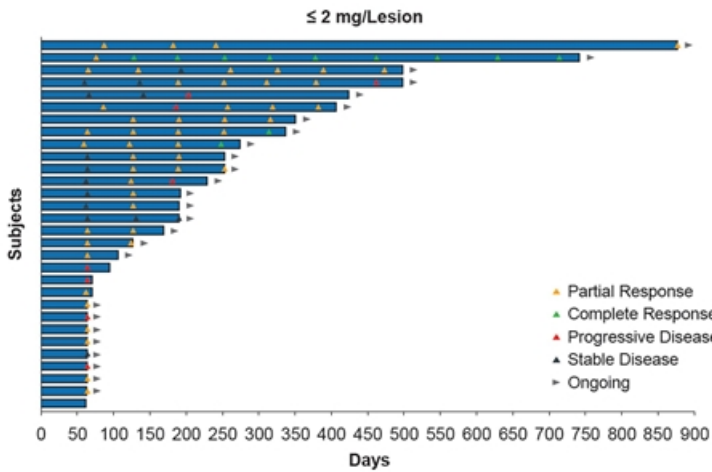


# Tumor Shrinkage Seen in Injected and Non-injected Lesions



# 2 mg More Durable than 8 mg

## Durability and Time on Study by Dose Group



6 month PFS rate = 76%  
 Median PFS (months) = not reached  
 Median DOR (months) = 4.7+ (not reached)  
 Median Follow up (months) = 6.0

6 month PFS rate = 41%  
 Median PFS (months) = 4.2  
 Median DOR (months) = 2.1+ (not reached)  
 Median Follow up (months) = 4.9

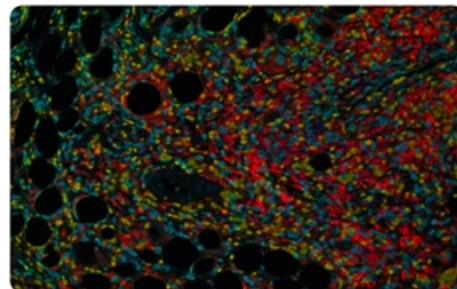
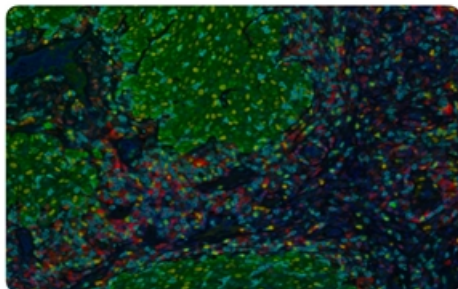
## Increase in Infiltrating CD4 and CD8 Lymphocytes in the Tumor

Screen

Day 29

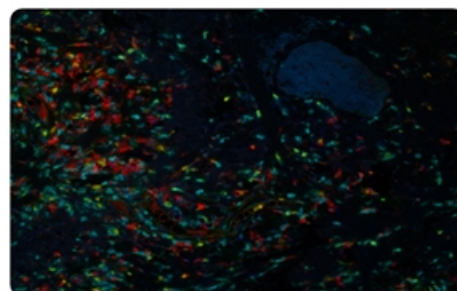
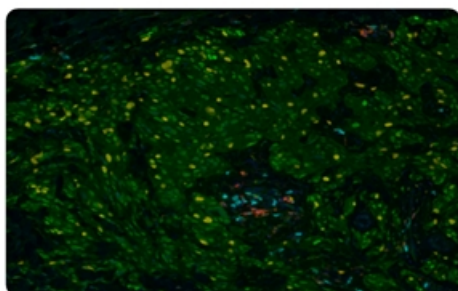
**Supporting info:**

Subject 110404  
Naïve to prior anti-PD-1/L1  
BOR PR  
30% tumor PD-L1 expression  
Still on study—Day 473



**Supporting info:**

Subject 110401  
Naïve to prior anti-PD-1/L1  
BOR PR  
0% tumor PD-L1 expression  
Time to progression—Day 463



Red = CD4 T cells; Cyan = CD8 T cells; Yellow = Ki67; Green = S100; Dark blue = DAPI.  
Subject 110404 was devoid of CD4 T cells but not CD8 T cells at screening. Subject 110401 appeared to be devoid of CD4 and CD8 T cells at screening.

# Combination of SD-101 and Pembrolizumab is Well Tolerated

Event	≤2 mg/lesion (N=37)	8 mg/lesion (N = 39)	Total (N=76)
	n (%)	n (%)	n (%)
<b>Any Treatment-related AE</b>	<b>28 (76)</b>	<b>36 (92)</b>	<b>64 (84)</b>
<b>Grade 3-4</b>	<b>8 (22)</b>	<b>14 (36)</b>	<b>22 (29)</b>
Chills	3 (8)	1 (3)	4 (5)
Myalgia	6 (16)	1 (3)	7 (9)
Injection-site pain	2 (5)	0	2 (3)
Fatigue	2 (5)	4 (10)	6 (8)
Headache	3 (8)	2 (5)	5 (7)
Malaise	2 (5)	3 (8)	5 (6)
<b>Any irAEs</b>	<b>6 (16)</b>	<b>4 (10)</b>	<b>10 (13)</b>
<b>Grade 3-4</b>	<b>3 (8)</b>	<b>2 (5)</b>	<b>5 (7)</b>
<b>AEs leading to d/c of either or both drugs</b>	<b>4 (11)</b>	<b>10 (26)</b>	<b>14 (18)</b>
<b>SAEs</b>	<b>9 (24)</b>	<b>12 (31)</b>	<b>21 (28)</b>
<b>Death</b>	<b>0</b>	<b>1 (3)</b>	<b>1 (1)</b>

d/c = discontinuation; irAE = Immune-related adverse event; SAE = Serious adverse event;

# Encouraging Early Data in Anti-PD-1/L1 Naïve HNSCC Patients (AACR 2018)

Response Rate	n (%)
<b>Modified ITT*</b>	<b>N=18</b>
<b>Objective response rate, n (%)</b>	<b>6 (33)</b>
95% confidence interval	(16, 56)
<b>Best overall response, n (%)</b>	
Complete response	0
Partial response	6 (33)
Stable disease	4 (22)
Progressive disease†	8 (44)
<b>All enrolled patients</b>	<b>N=22</b>
Not evaluable**	4 (18)
<b>Time to response (days)</b>	
Median	64
Min, max	(62, 128)

Promising ORR for hard to treat tumor type supports potential breadth of SD-101 in multiple tumor types

\*Includes all patients who had a tumor assessment and patients who discontinued the study prior to a scan. Cut-off date, 27 March 2018. Among patients who had a scan, ORR = 38%. †Two patients had clinical disease progression, including one death, prior to a scan on study. \*\*Four patients on study have not yet had a tumor assessment.

# SYNERGY-001 Conclusions

## Efficacy - addition of SD-101 to pembrolizumab appears to improve pembrolizumab responses

- $\leq 2$  mg of SD-101 per lesion induced a higher and more durable response rate than pembrolizumab with 8 mg of SD-101
- $\leq 2$  mg dose better than 8 mg dose in all disease stages
- Tumor shrinkage in injected and non-injected lesions including lung and liver
- Responses in patients with negative or positive baseline PD-L1 expression

## Safety

- Transient, mild-moderate flu like symptoms
- No increase in frequency or severity of irAEs
- No treatment-related, unexpected safety event

## Proceeding to Phase 3

### Continue to enroll patients in Phase 2 to receive 2 mg SD-101:

- Melanoma: anti-PD-1/L1 experienced
- HNSCC: anti-PD-1/L1 naïve and experienced

### Proposed Phase 3 study design:

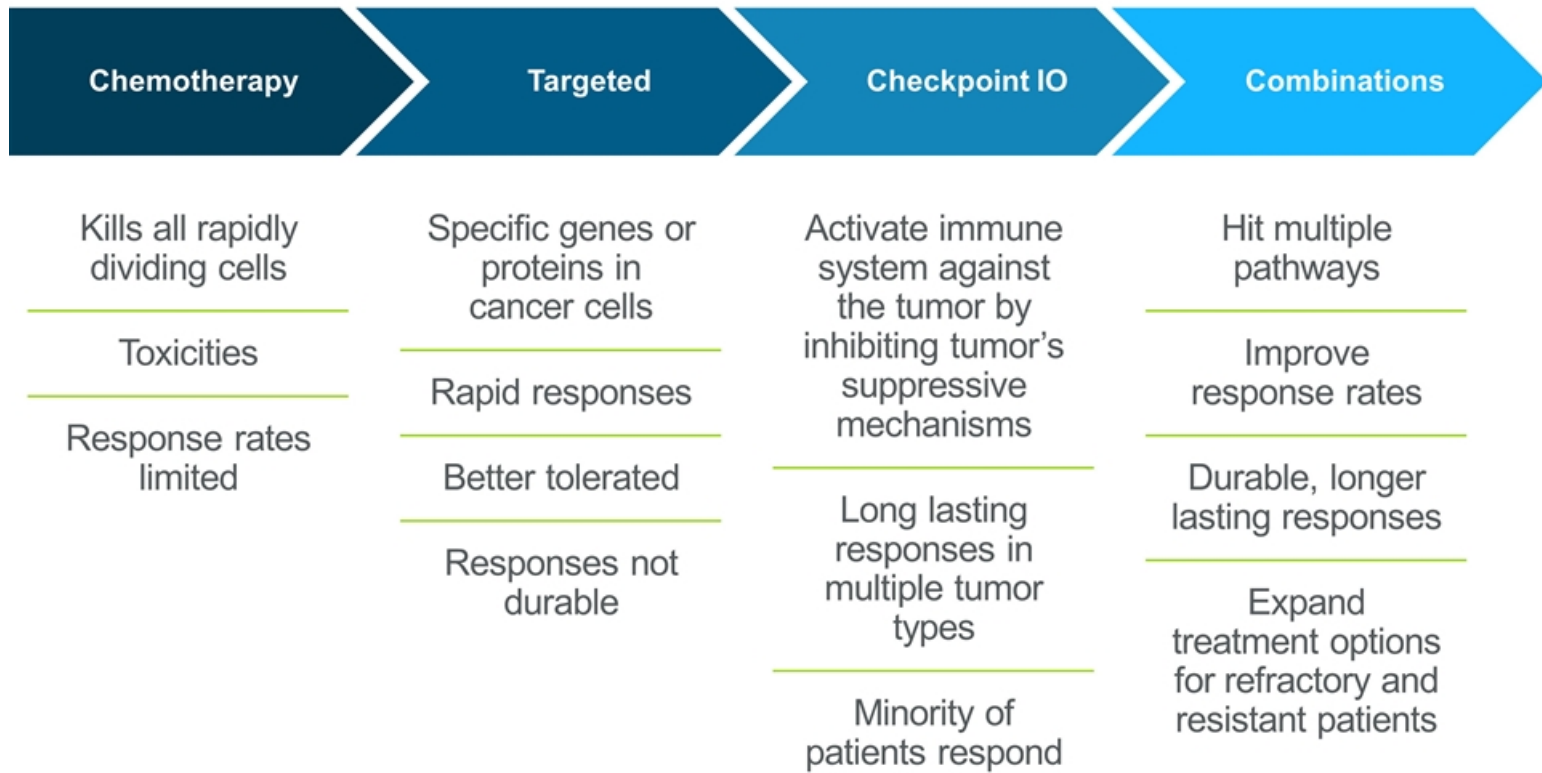
- Randomized, double-blind, placebo controlled
  - 2 mg of SD-101 in 1 to 4 lesions
- Unresectable or metastatic melanoma in patients who have not received anti-PD-1/L1 therapy
- Endpoints
  - Primary — PFS
  - Secondary — OS, ORR, safety
- Approximately 600 patients



**Jean Chang**



# Evolution of Cancer Therapy Landscape



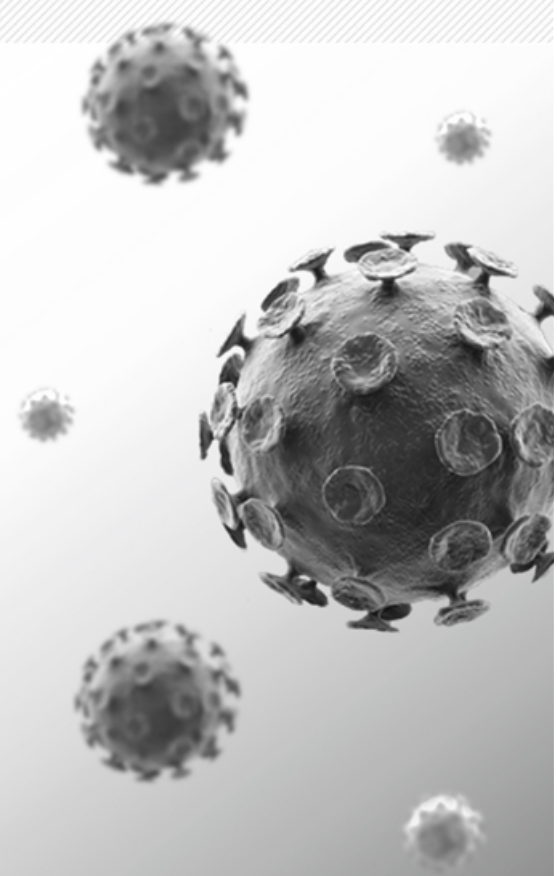
# A Range of Combinations Will Emerge Over Time

## Immune system is intricate

- Multiple and redundant feedback mechanisms
- Mechanisms maintain immune system balance

## Patients are heterogeneous

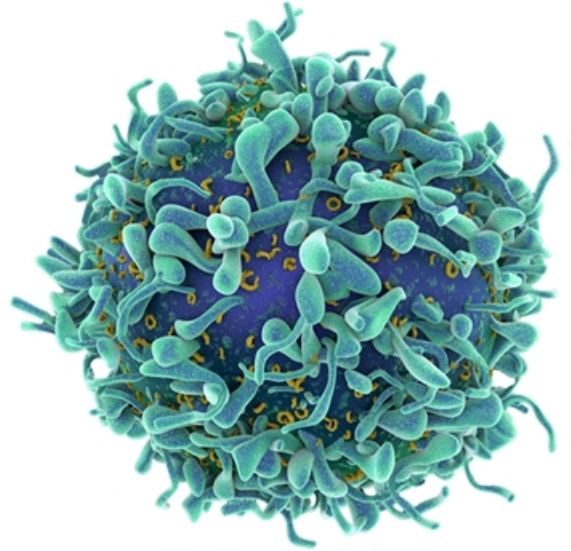
- Prior therapies
- Tumor microenvironment
- Tumor mutational burden



## Four Classes of Agents Appear Particularly Well Suited to Complement PD-1 Blockade

### Increasing appreciation in IO field that stimulation of innate immune system is required to optimally exploit T cell activation

- Other agents that inhibit or block a checkpoint
- Activate or expand T cells
- Agents that alter the TME
- Innate immune activators
  - TLR9 agonists SD-101, DV281



## Characteristics of a successful combination treatment

- Robust response
- Durable disease control
- Not reliant on predictive biomarkers
- Minimal additive toxicity burden for patients

## Implications

- Earlier use may maximize outcomes, e.g. neoadjuvant setting
- Basis of triplet combinations going forward
- Opportunity for other modes of local delivery
  - DV281 inhaled for lung



# SD-101+ Anti-PD1: Development in Melanoma

**Neoadjuvant in melanoma**

Advance SD-101+ pembrolizumab combination into earlier treatment settings

**Unresectable or metastatic melanoma naïve population**

Phase 3 SD-101 + pembrolizumab

**Unresectable or metastatic melanoma refractory/resistant to anti-PD-1**

Phase 2 SD-101+pembrolizumab

Establish SD-101 + pembrolizumab as core combination

## SD-101 + Anti-PD1: Leveraging Shift in Melanoma Treatment towards Neoadjuvant Setting

- **Checkpoint blockade, anti-PD1 in particular, is moving into the neoadjuvant setting (earlier is better)**
  - Pembrolizumab is showing early efficacy
- **SD-101 fits well within this shift**
  - TLR9 agonists can improve responses to PD-1 blockade; opportunity to expand upon this
  - Intratumoral injection leverages primary tumor as an antigen source for expansion and activation of T cells; SD-101 orchestrates and primes T cell response
- **Potential benefits**
  - Greater fitness of host immunity
  - Significantly higher proportion of patients amenable to intratumoral injection

# TLR9 Agonists + Anti-PD1: Application to Additional Indications in Neoadjuvant Setting

## Criteria for cancer selection

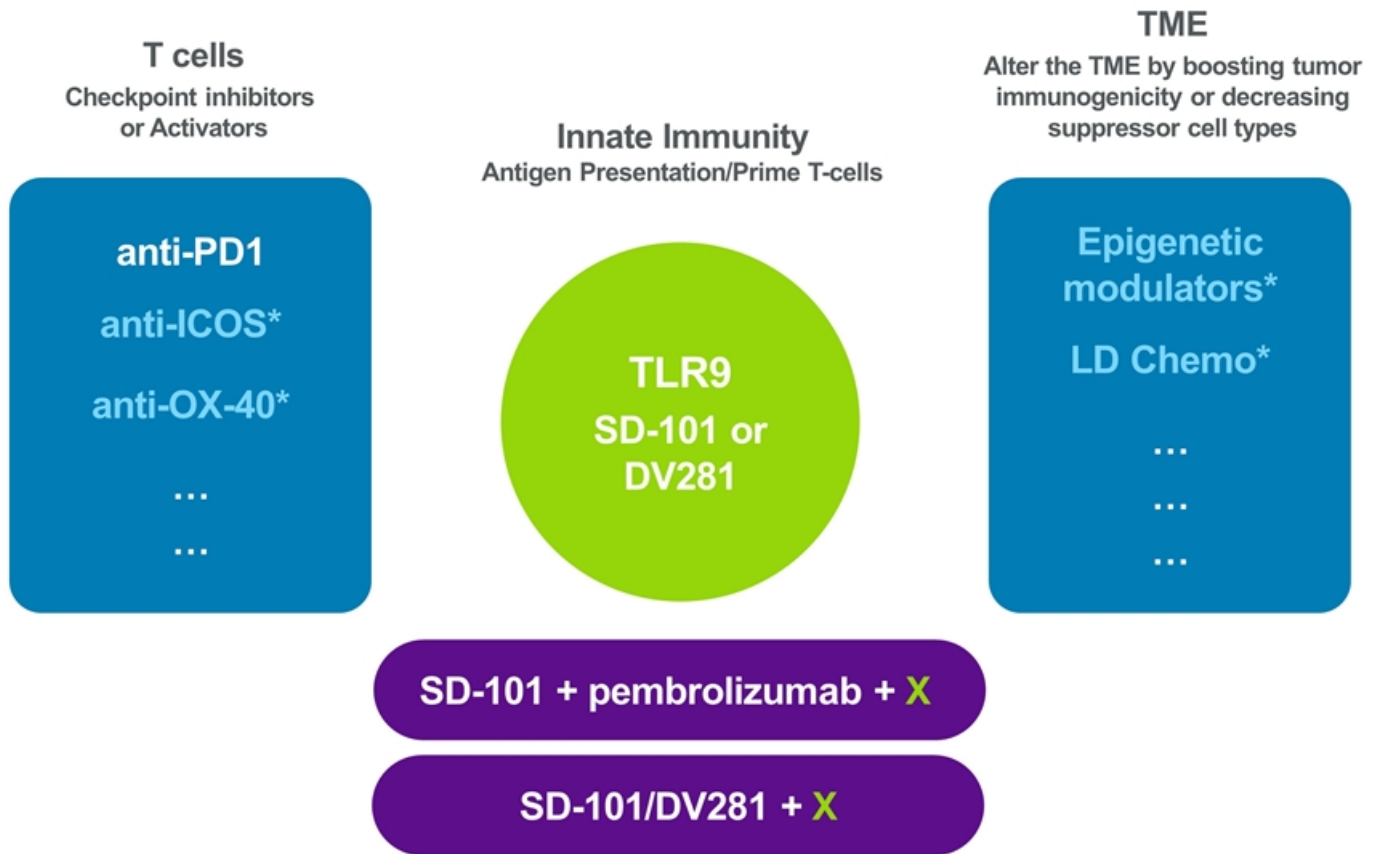
- Stage at diagnosis
- Amenable to series of injections or inhalation
- Evidence of anti-PD1 activity
- Potential to raise the bar for outcomes
  - Clinical response
  - Pathologic complete/major response

Breast cancer SD-101  
Lung cancer DV281





# Building on the Strength of Dynavax's SD-101 + Pembrolizumab Data: Strong Basis for Additional Combinations



\* Tested pre-clinically for synergistic effect

# Dynavax TLR9 Agonists Fill Gap in Pharma Combination Therapy Pipelines

- Pharmaceutical companies continue to build combination optionality across multiple mechanisms
- Considerable opportunity exists within our class of agents
- Dynavax clinical programs can fill Pharma's pipeline gap, creating opportunities for pre-clinical/clinical collaborations and partnerships

Clinical Stage Immuno-Oncology Assets	NVS	AZN	BMS	ROC	CELG	JNJ	MRK	PFE	AMG	GSK	MRK KGaA	SNY	LLY	TAK	BAY	ABV
Checkpoint	II	III	M	M	III*	I	M	III		I	III	II	I			I
Costim	II	I/II	II	I			I	II		I						
Oncolytic virus		I							M							
Cancer vaccine		I/II	III		II	II	I	I		III		M				
Other Cell Therapy	II				I			I**			I					
CAR-T Cells	II				II			I								
Innate Immunity	I	I					I									
Cytokine	M		II	M		M	M				M	M	II	M		
Other IO	I	I	II	I		I			M			I	I	M		

NVS, Novartis; AZN, AstraZeneca/MedImmune; BMS, Bristol-Myers Squibb; ROC, Roche/Genentech; CELG, Celgene; JNJ, Johnson & Johnson; MRK, Merck & Co; PFE, Pfizer; AMG, Amgen; GSK, GlaxoSmithKline; MRK KGaA, Merck KGaA; SNY, Sanofi/Regeneron; LLY, Eli Lilly; TAK, Takeda; BAY, Bayer; ABV, Abbvie

# Use Partnering to Make TLR9 Agonists Broadly Available and Integral to Combination Therapy

## Goals for collaborations and partnerships

- Maximize breadth across tumor types
- Maximize combination use
  - Doublets or triplets with anti-PD1 treatments
  - Doublets with other T cell agonists, particularly in tumors not responsive to anti-PD1
  - Triplets with T cell agonists and TME targeting agents

# Dynavax: Developing TLR-mediated Immune Stimulation in Multiple Cancer Applications

	Discovery	Phase 1	Phase 2/3
<b>TLR9 agonists in combination with anti-PD1 or other</b>	<ul style="list-style-type: none"><li>• Pre-clinical assessment of novel combinations</li><li>• Cancer Vaccine</li><li>• DV230 Ficoll for liver indications</li></ul>	<ul style="list-style-type: none"><li>• NSCLC</li><li>• Neoadjuvant NSCLC</li><li>• Lung mets</li></ul>	<p><b>Phase 3</b></p> <ul style="list-style-type: none"><li>• MEL naive</li></ul> <p><b>Phase 2</b></p> <ul style="list-style-type: none"><li>• MEL anti-PD1 refractory/resistant</li><li>• HNSCC tx-naïve</li><li>• HNSCC anti-PD1 refractory/resistant</li><li>• Breast cancer neoadjuvant</li><li>• MEL neoadjuvant</li></ul>
<b>TLR7/8 agonists</b>	Multiple agonists and delivery strategies in preclinical development		<p><b>SD-101 i.t.</b></p> <p><b>DV281 inhaled</b></p>

**Eddie Gray**



## Concluding Remarks

- **TLR9 agonist technology** has demonstrated encouraging potential in immuno-oncology as a combination agent
- **Growing immuno-oncology database** validates our ongoing studies and expansion of our program
- Positioning ourselves to take advantage of **anti-PD-1 therapy shift** into neoadjuvant setting
- **Upcoming catalysts in 2H18** consist of new data in melanoma and HNSCC, safety data in DV281 (lung), and initiation of Phase 3 in advanced melanoma
- **Business development efforts** focused on partnerships/collaborations to maximize use of SD-101 in tumor types and in combinations

