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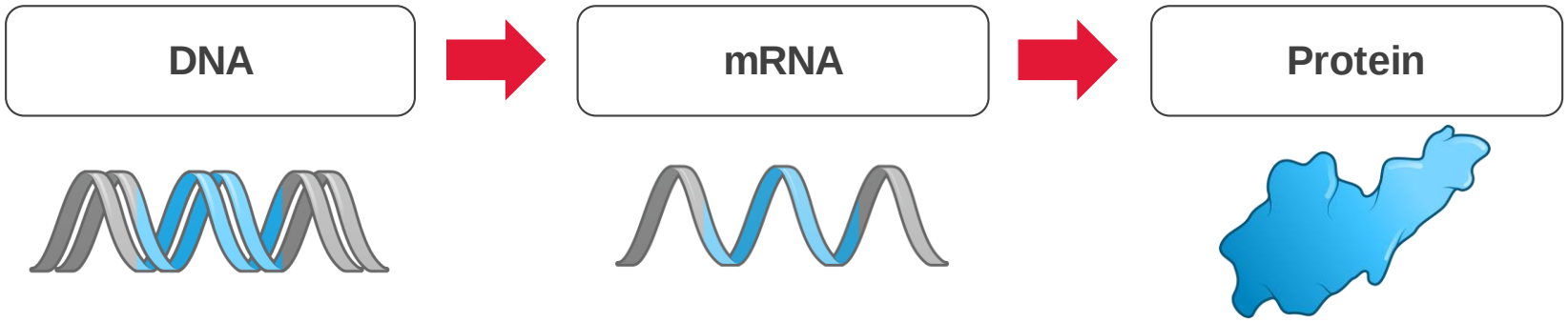

American Society of Clinical Oncology Meeting Review

June 3, 2019

Forward-looking statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended including, but not limited to, statements concerning: the potential for Moderna's investigational personalized cancer vaccines (PCV) to use neoantigens identified from an individual's tumor to elicit a more effective antitumor response; the turnaround time from when a patient's tumor is biopsied until the PCV is administered to that patient; and the planned Phase 2 study investigating pembrolizumab in combination with mRNA-4157, compared to pembrolizumab alone, in high-risk adjuvant melanoma. In some cases, forward-looking statements can be identified by terminology such as "may," "should," "expects," "intends," "plans," "aims," "anticipates," "believes," "estimates," "predicts," "potential," "continue," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. The forward-looking statements in this presentation are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties and other factors, many of which are beyond Moderna's control and which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties and other factors include, among others: whether Phase 1 results for mRNA-4157 will be predictive of any future clinical studies; whether mRNA-4157 will be shown to be unsafe or intolerable during future clinical studies; clinical development is lengthy and uncertain, especially for a new class of medicines such as mRNA, and therefore our clinical programs or development candidates may be delayed, terminated, or may never advance; no mRNA drug has been approved in this new potential class of medicines, and may never be approved; mRNA drug development has substantial clinical development and regulatory risks due to the novel and unprecedented nature of this new class of medicines; and those risks and uncertainties described under the heading "Risk Factors" in Moderna's most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent filings made by Moderna with the SEC, which are available on the SEC's website at www.sec.gov. Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements in this presentation in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna's current expectations and speak only as of the date hereof.

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ASCO 2019

An Interim Analysis of a Phase 1, Open-Label, Multicenter Study to Assess the Safety, Tolerability, and Immunogenicity of mRNA-4157 Alone in Subjects With Resected Solid Tumors and in Combination With Pembrolizumab in Subjects With Unresectable Solid Tumors (Keynote-603)

Cut off date for data presented: May 10, 2019

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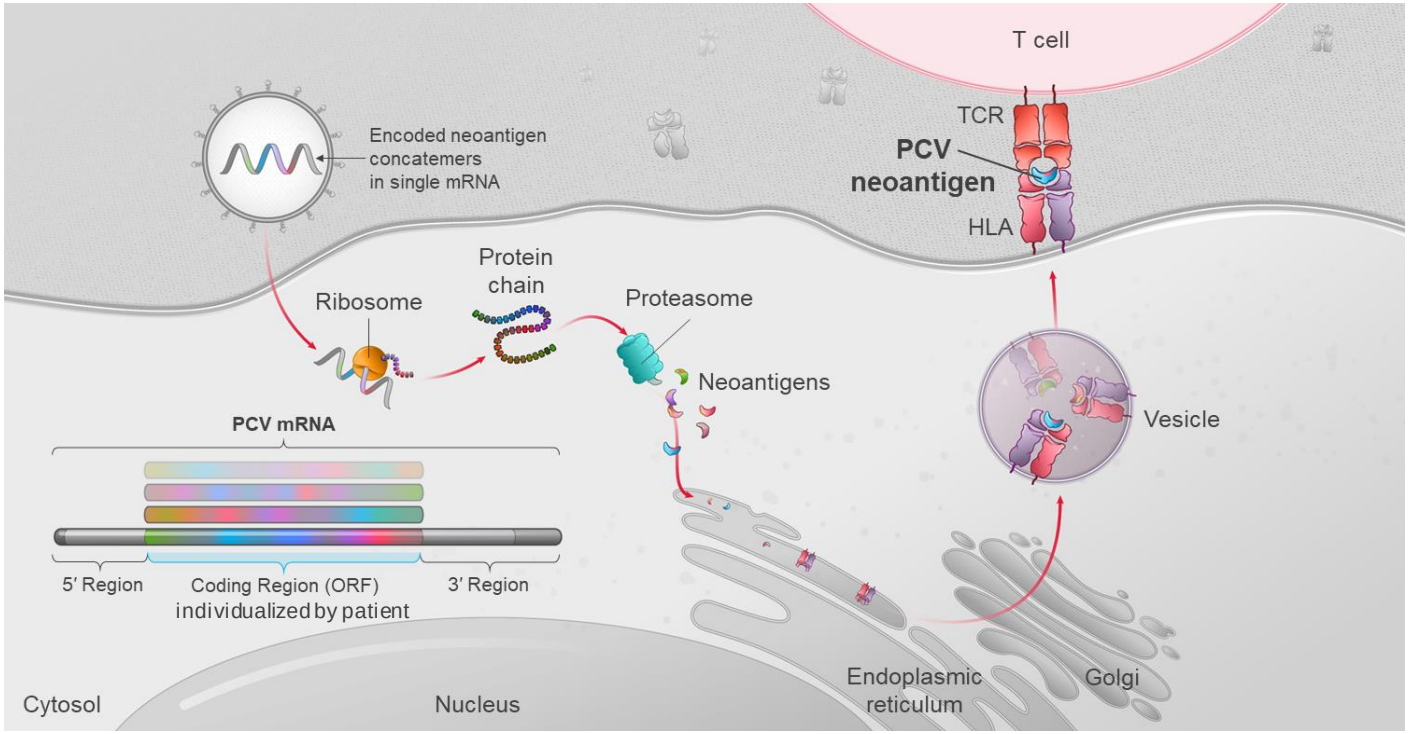
Background : The Personalized Neoantigen Approach



- T-cell targeting of mutation-derived epitopes (neoantigens) has been demonstrated to drive anti-tumor responses
- Immunizing patients against such neoantigens in combination with a checkpoint inhibitor (CPI) may elicit greater anti-tumor responses than CPI alone
- Mutations are rarely shared between patients, thus requiring a personalized approach to vaccine design

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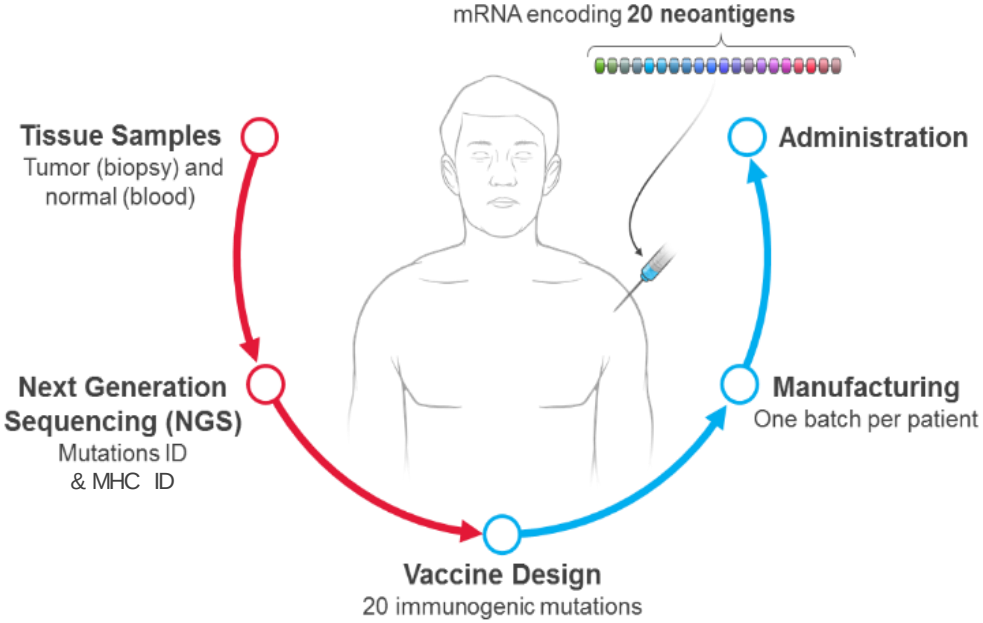
Personalized Cancer Vaccine: mRNA-4157 Process Background



- mRNA-4157 is a personalized neoantigen cancer vaccine encoding up to 20 neoantigens: (from April 2019 forward patients started to receive a vaccine encoding up to 34 neoantigens)
- Individually designed and manufactured for each patient at our Norwood facility
- Selected using a proprietary algorithm based upon each patient's HLA type and tumor mutanome from whole exome DNA and RNA sequencing from tumor and blood samples
- Delivered intramuscularly in a proprietary lipid nanoparticle (LNP) formulation
- Typical turnaround time of ~50-60 days from biopsy to injection

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Study Design*

Part A (Adjuvant patients): Monotherapy mRNA4157	**0.04 mg n=3**	**0.13 mg n=6**	**0.39 mg n=3**	**1.0 mg n=3**
Part B (Metastatic patients): mRNA4157 + pembrolizumab	**0.04 mg n=3**	**0.13 mg n=4**	**0.39 mg n=7**	**1.0 mg n=5**

Histologies in part A and B:

- NSCLC
- SCLC
- Cutaneous melanoma
- HPV negative HNSCC
- Bladder urothelial carcinoma
- MSI high malignancies
- TMB high malignancies

Objectives:

- Safety and tolerability of mRNA-4157 monotherapy and in combination with pembrolizumab
- Immunogenicity: Neoantigen specific T-cell responses
- Clinical activity

** Study design consists of Part A, B, C, and D. Part C, D of trial enrolling*

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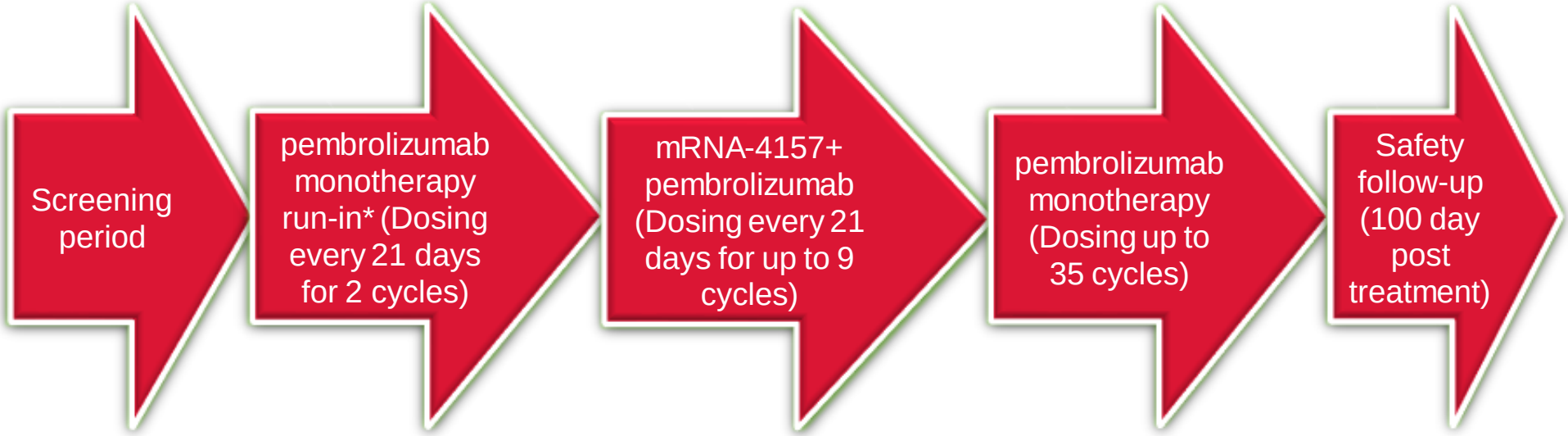
Study Design



*Part A patients are adjuvant patients receiving mRNA-4157 monotherapy. Pembrolizumab run-in and pembrolizumab monotherapy period does not apply

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Patient Demographics

	Part A: 13	Part B: 23
Age(y)		
Range:	52-85	45-88
Median:	67	64
Sex		
Male:	6	13
Female:	7	10
Race:		
Caucasian	13	19
Black	-	1
Asian	-	1

Part B Prior Therapies	N=23 (%)
Number of patients received at least 1 prior therapy	22 (95.6)
Number of patients received prior checkpoint inhibitors	15 (65.2)
Number of Prior Therapies	
0	1 (4.3)
1	3 (13.0)
2	6 (26.1)
3	2 (8.7)
3+	11 (47.8)

Histologies	N =36
Part A	**13**
Melanoma	3
MSI HIGH/MMR Deficient	
• Colorectal Carcinoma	2
Non-small Cell Lung Cancer	8
Part B	**23**
TMB High	
• Metastatic squamous cell cancer of the skin	1
Bladder Urothelial Carcinoma	5
HNSCC	2
Melanoma	1
MSI HIGH/MMR Deficient	
• Colorectal Carcinoma	2
• Metastatic Castrate Resistant Prostate Carcinoma	1
• Endometrial Carcinoma	1
Non-small Cell Lung Cancer	8
Small Cell Lung Cancer	2

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Safety Data

Related Adverse Event*	Grade 2	Grade 3
Part A: mRNA-4157 monotherapy	**4**	**0**
LEFT ARM PAIN	1	-
COLITIS	1	-
FATIGUE	1	-
MYALGIAS	1	-
Part B: pembrolizumab monotherapy	**3**	**4**
DIARRHEA	-	1
AMYLASE INCREASE	-	1
LIPASE INCREASE	-	1
ELEVATED AST	1	-
ANEMIA	1	-
WORSENED DYSPNEA	1	-
ELEVATED GGT	-	1
Part B: mRNA-4157 & pembrolizumab	**0**	**0**
No mRNA-4157 related grade 3/4 AEs were reported		

* Related AEs of at least grade 2 (highest grade reported with mRNA-4157)

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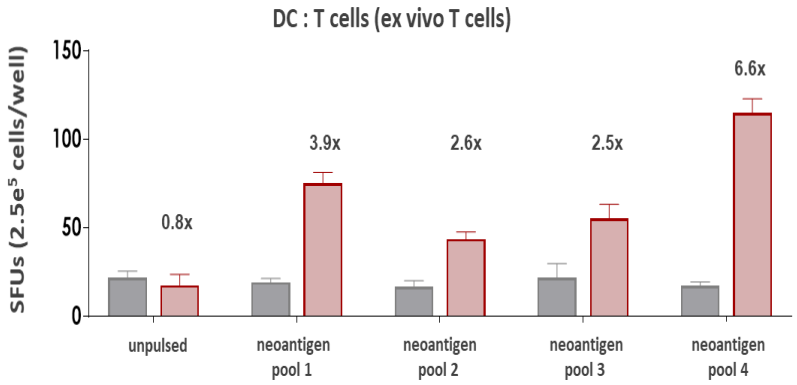
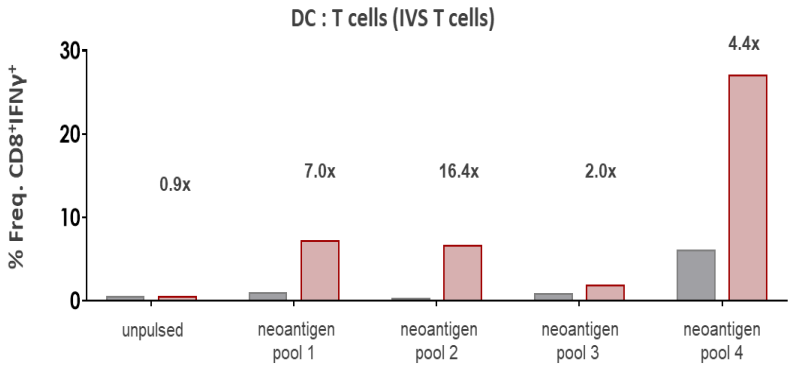
Patient 40033 (NSCLC) Neoantigen T-Cell Response Data

First adjuvant patient dosed with monotherapy mRNA-4157 at 1mg dose

A



B



- Patient was dosed with 1mg of vaccine monotherapy and underwent apheresis at baseline and 7d post 4th dose.
- Increases in *ex-vivo* (unexpanded) T-cell responses were detected against all neoantigen pulsed DC pools post vaccination (A).
- Increases in *in-vitro* stimulated (IVS, expanded) T-cell responses were detected against all neoantigen pulsed DCs pools post vaccination (B).

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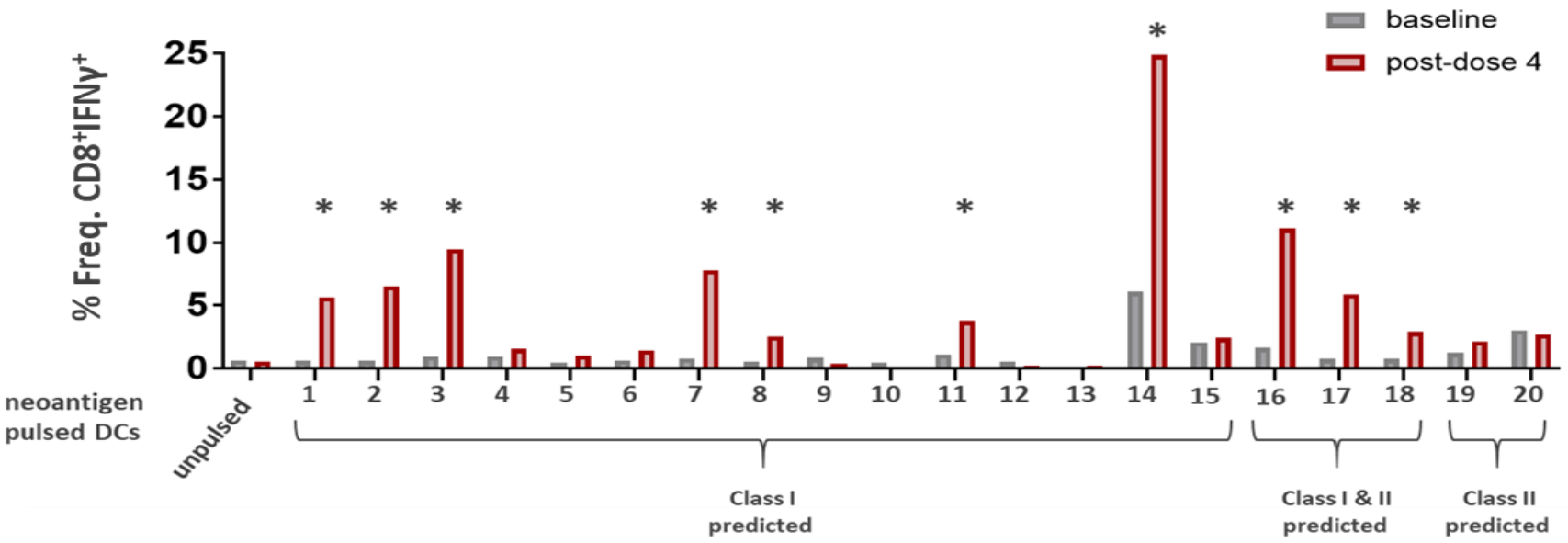
Greater than 3x CD8 T-Cell Responses Detected Post-Vaccine Dose 4 to 55% of Predicted Class I Neoantigens



- CD8 T cell responses to individual neoantigens were measured in in vitro stimulated (IVS, expanded) T cells
- Flow cytometry plots show increases in % freq. of CD8 cells producing IFNγ 7d post 4th vaccine dose to multiple neoantigens
- Greater than 3x (*in summary graph) increases in neoantigen specific CD8 T-cells were detected post vaccination against 10 out of 18 class I targeted neoantigens included in patient 40033 vaccine
- All positive CD8 T-cell responses post vaccination were to neoantigens with high predicted binding affinity of < 500 nm.

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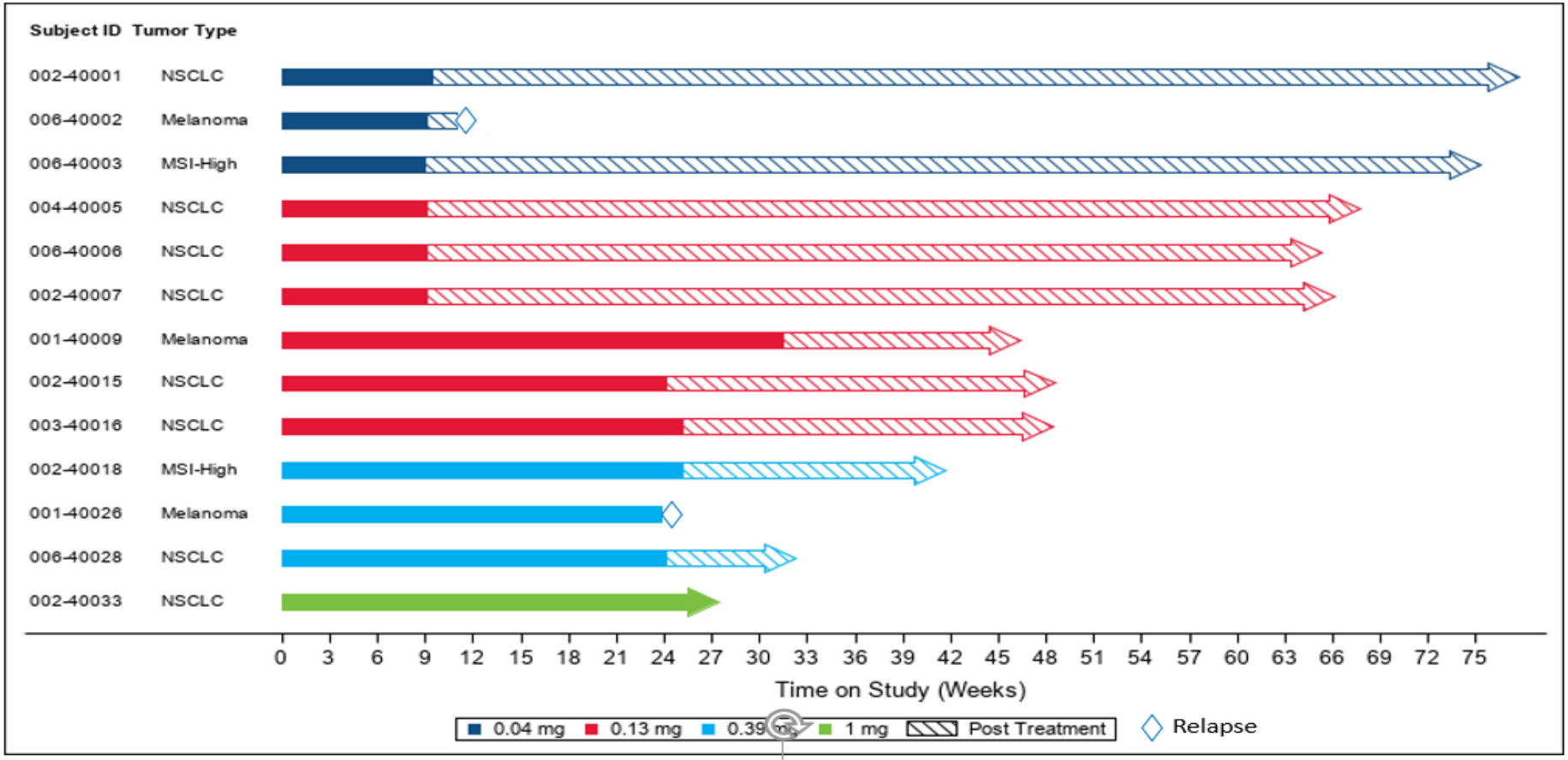
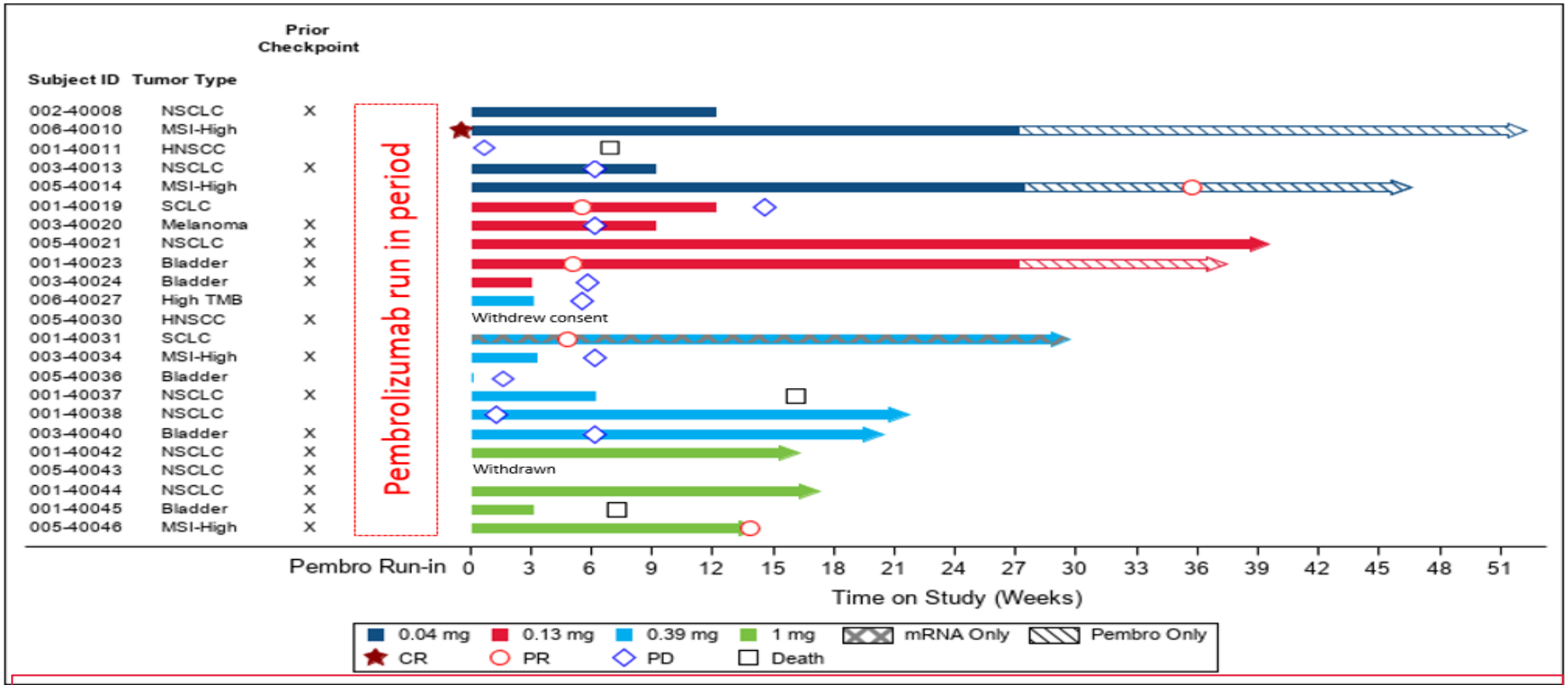
Part A: Adjuvant Patients Receiving mRNA-4157 Monotherapy



- 13 adjuvant patients have been treated with mRNA-4157
- 13 patients have completed full course of vaccination per protocol
- 11 patients remain disease free up to 72 weeks on study

Part B: Metastatic Patients Receiving mRNA-4157/Pembrolizumab Combination



- 20 out of 23 advanced/metastatic patients have been treated with mRNA-4157/pembrolizumab combination.
- 1 patient with MSI-High CRC had a CR on pembrolizumab monotherapy prior to vaccination
- 5 patients had a PR including 2 patients who have progressed with prior checkpoint inhibitor therapy, patient 40031 received 1 dose of pembrolizumab and continued with monotherapy mRNA-4157
- 7 patients had stable disease
- 10 patients remain on study treatment as of 10-May-2019, includes patient 40038 deemed a pseudoprogressor and patient 40040 who had a new lesion which improved at subsequent follow-up. Both patients remain on study
- Clinical responses seen across all doses

Best Overall Response

Responses in patients receiving combination	Total (N=20)
Best Overall Response	
Complete Response (CR)	1
Partial Response (PR)	5
Stable Disease (SD)	6
Progressive Disease (PD)	8

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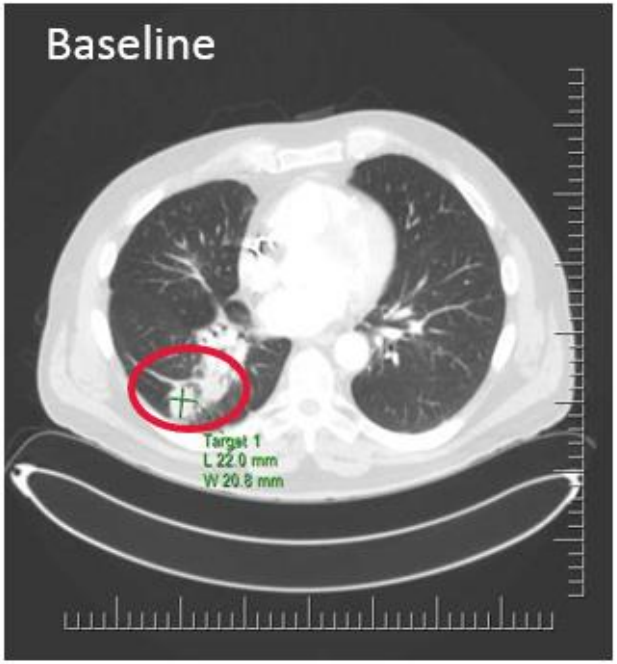
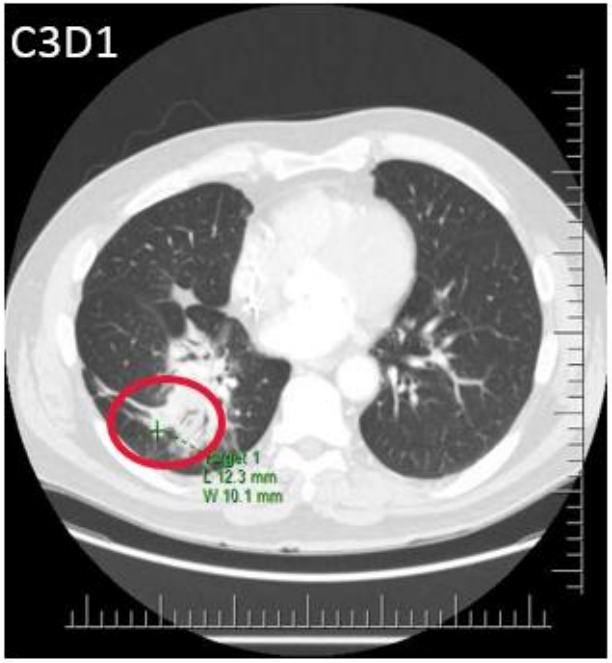
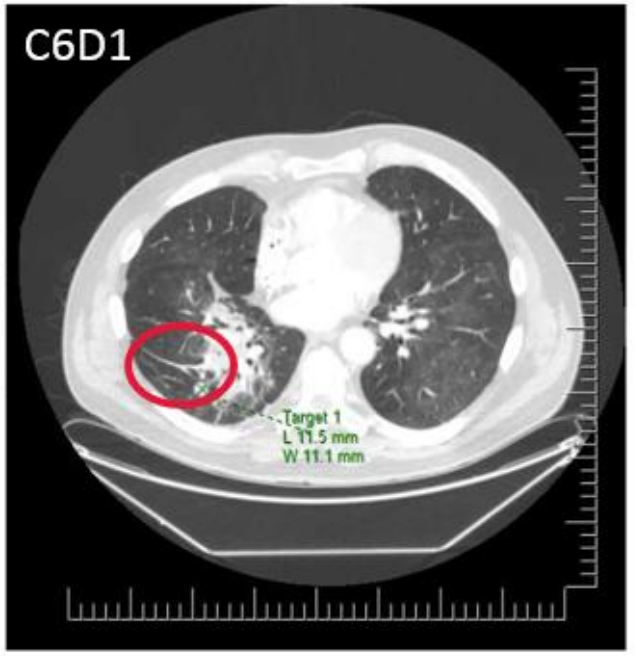
Patient 40019 -Small Cell Lung Carcinoma







- Small cell lung cancer patient
- Previously treated with chemoradiation and prophylactic cranial irradiation
- After 2 cycles of monotherapy pembrolizumab and 2 cycles of mRNA-4157 (0.13mg)/pembrolizumab combination, patient had a partial response (PR)
- The patient had progressive disease (PD) at subsequent evaluation due to enlargement of a non-biopsied lesion

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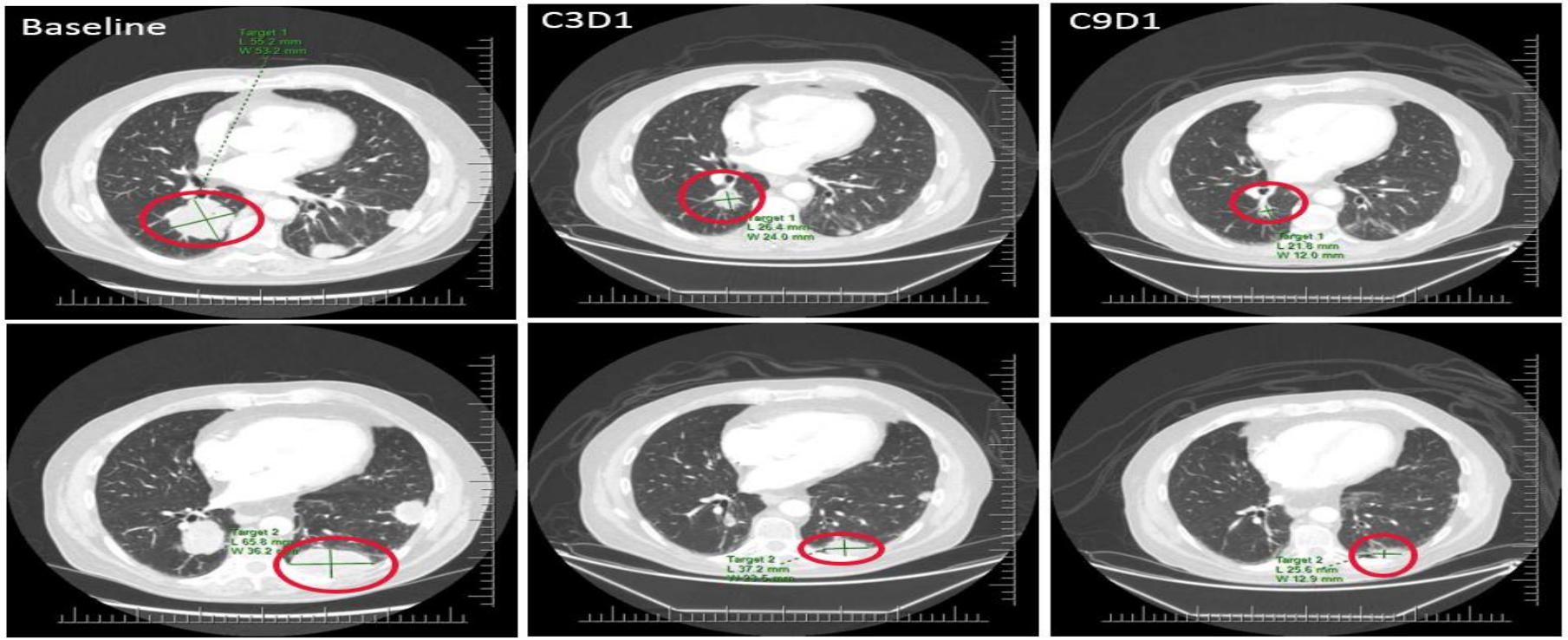
Patient 40023 – Bladder Carcinoma



- Bladder urothelial carcinoma patient
- Previously treated with radical cystoprostatectomy, cisplatin/gemcitabine, HRS7-SN38, four cycles of atezolizumab, and vinorelbine along with frontal lobe resection with radical for brain metastasis
- After 2 cycles of monotherapy pembrolizumab and 2 cycles of mRN-4157 (0.13mg)/pembrolizumab combination patient had a partial response (PR) and has continued to improve on study

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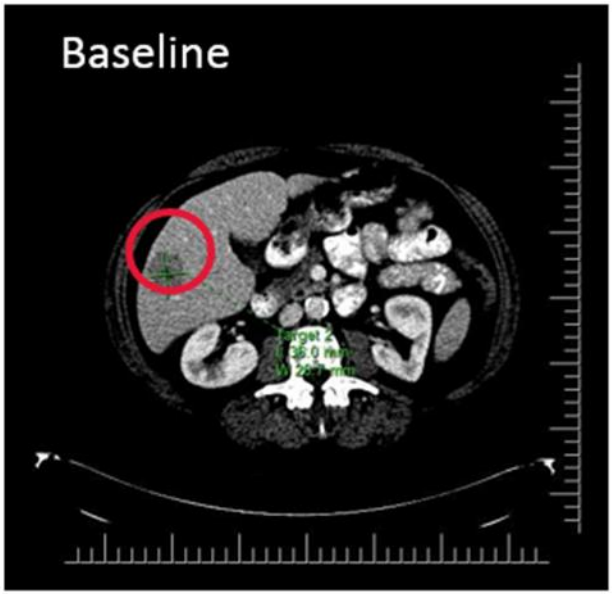
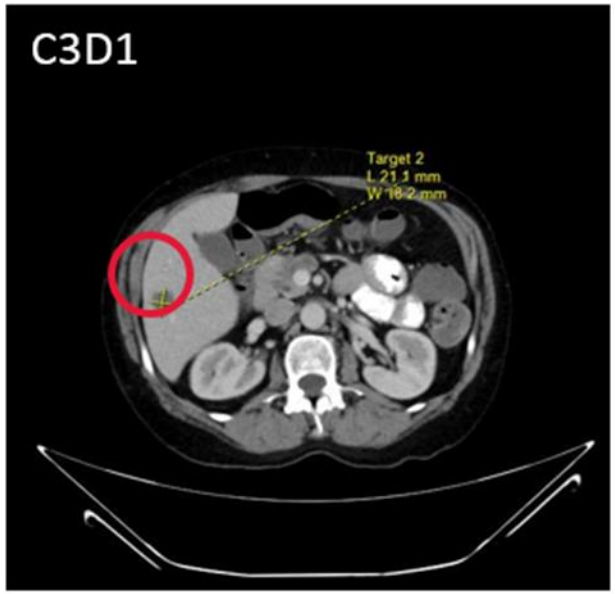
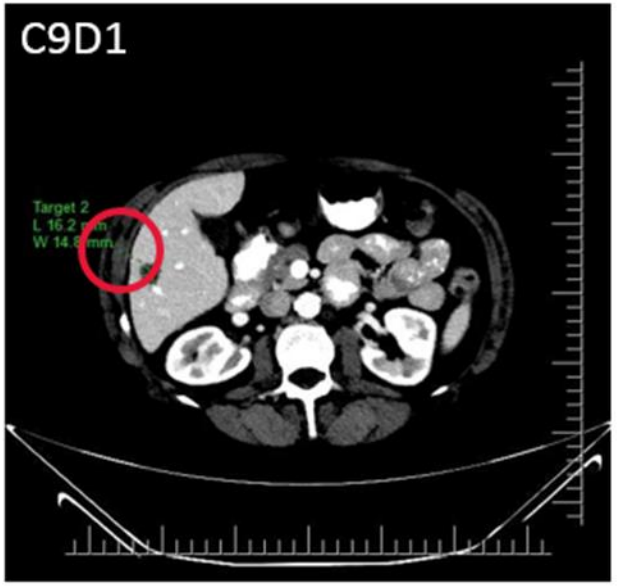
Patient 40031 - Small Cell Lung Carcinoma







- Small cell lung cancer patient
- Previously treated with cisplatin/etoposide and doxorubicin/lurbinectedin
- After 1 cycle of pembrolizumab run-in, patient experienced an irAE which led to treatment with monotherapy mRNA-4157 (0.39mg)
- Patient had a partial response (PR) at first post-baseline scan and remains on the study with a partial response.

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Conclusions

- mRNA-4157 is well tolerated at all dose levels studied with no DLTs reported
- No mRNA-4157 related grade 3/4 AE or SAE was reported
- Neoantigen specific CD8 T-cell responses were detected in 10 out of 18 class I neoantigens in patient 40033, the first patient dosed at 1 mg who underwent apheresis. 100% of positive CD8 T-cell responses post vaccination were to neoantigens with a high predicted binding affinity of <500 nm
- Safety, tolerability and immunogenicity data supports the advancement of mRNA-4157 to phase 2 at the 1 mg dose
- Clinical responses have been seen in 6 out of 20 patients treated with mRNA-4157/pembrolizumab combination. Of these 6 patients, 2 responses have been seen in patients previously treated with PD-(L)1 inhibitor.

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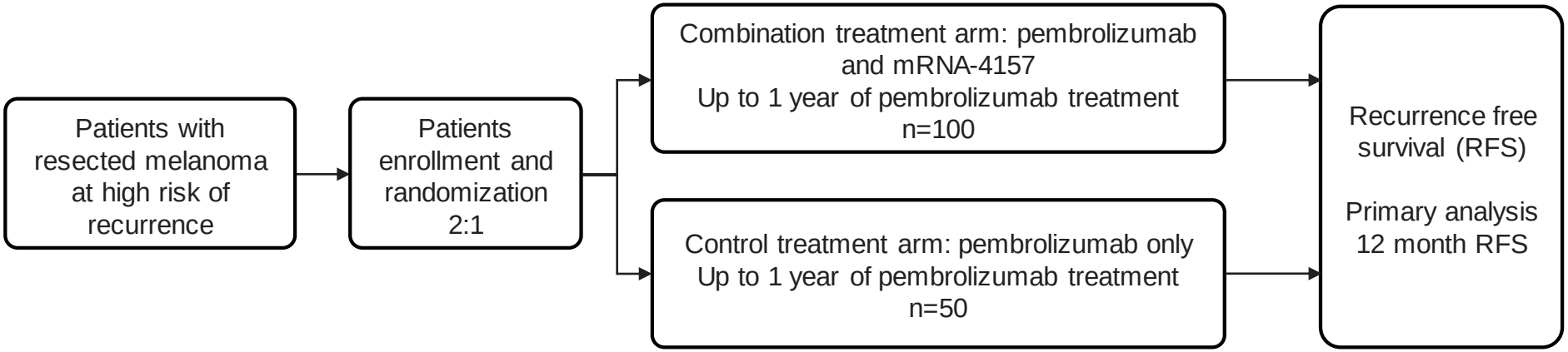
Anticipated Clinical Next Steps

- Randomized Phase 2, PCV + pembrolizumab vs. pembrolizumab alone in resected melanoma at high risk of recurrence

Key Objectives

- Assess whether postoperative adjuvant therapy with mRNA-4157 and pembrolizumab improves recurrence free survival compared to pembrolizumab only in patients with complete resection of cutaneous melanoma at high risk of recurrence
- Primary endpoint: recurrence free survival at 12 months



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Closing Remarks

Stephane Bancel, CEO

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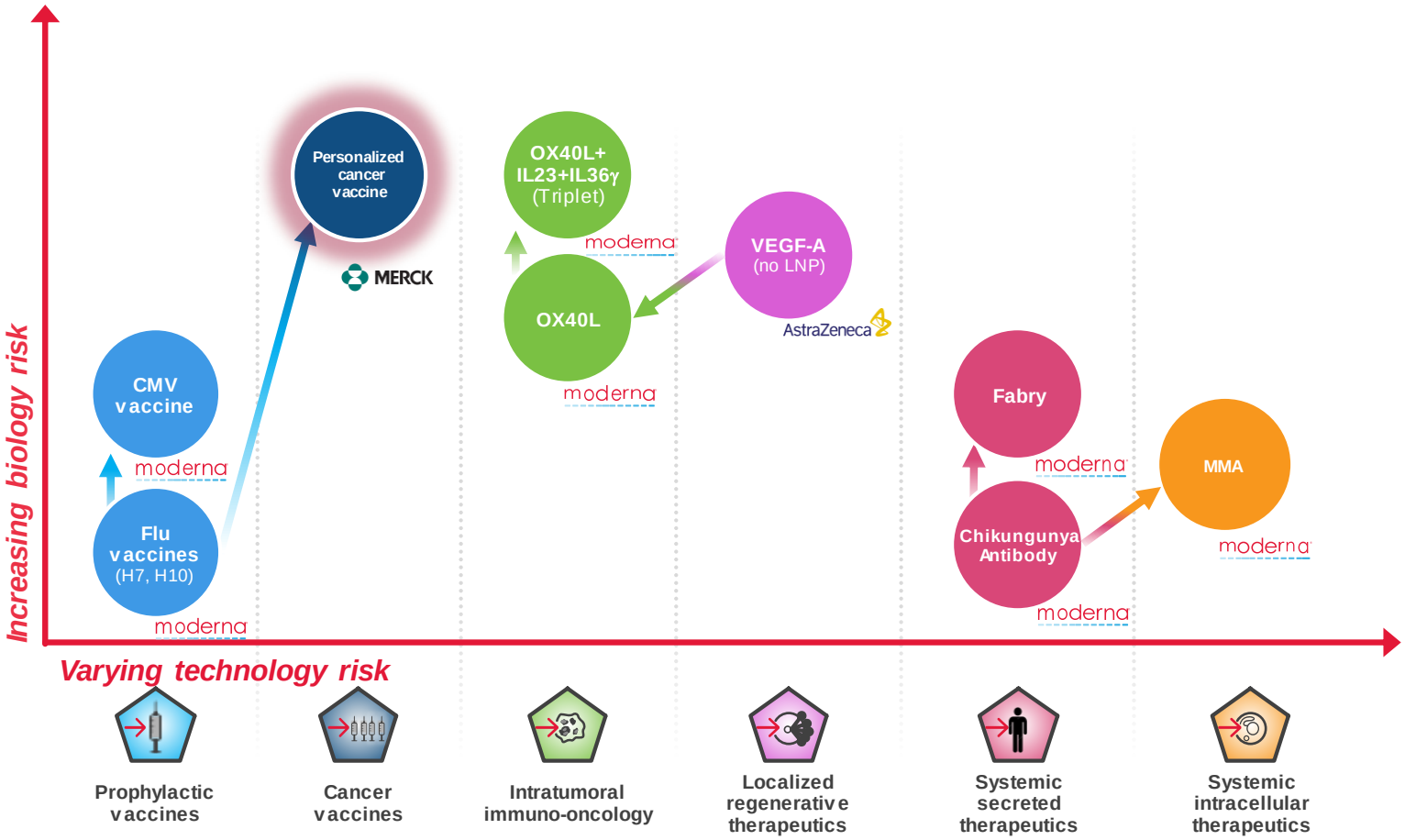
Interim Analysis of Personalized Cancer Vaccine Phase 1 Presented Saturday June 1, 2019 at ASCO



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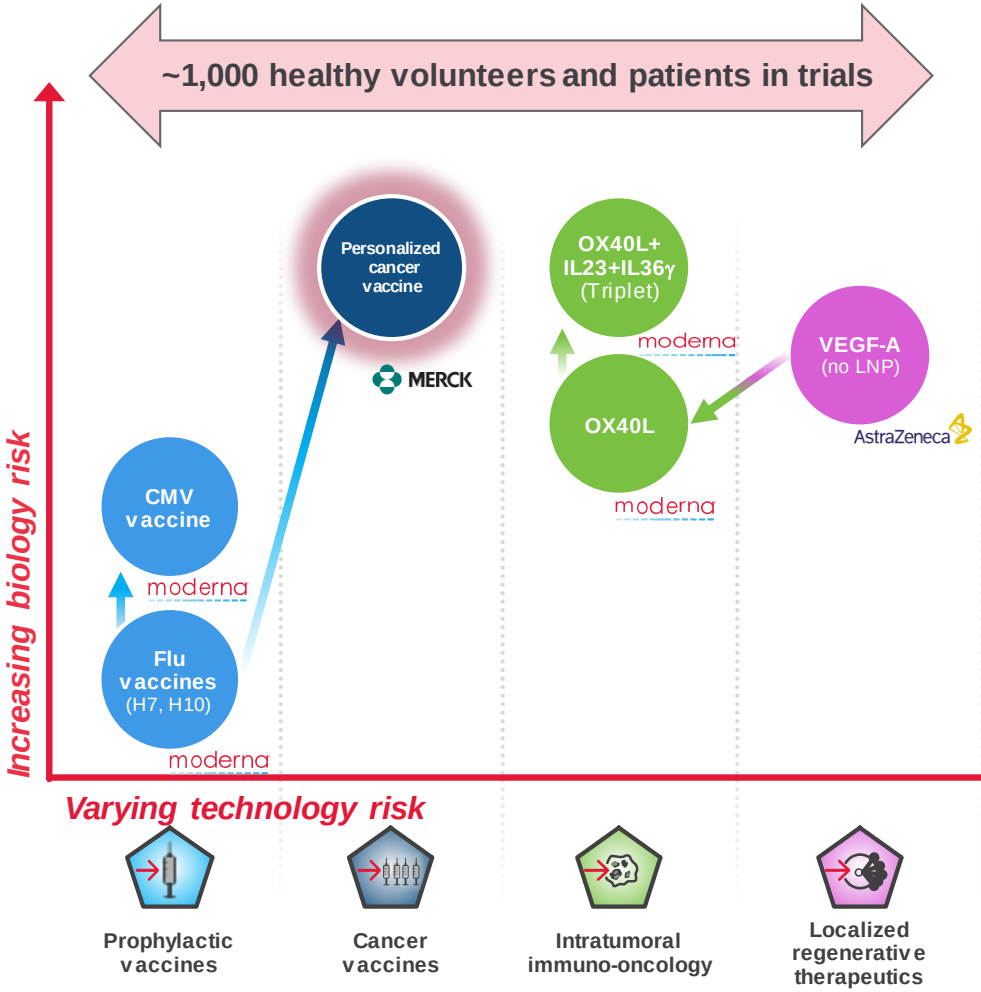
Personalized Cancer Vaccine Interim Phase 1 Data Strengthens Our Mosaic of Human Data in the First 4 Modalities



Clinical data support features of our investigational mRNA medicines:

- Safe and well tolerated
- Dose dependent pharmacology
- Encode the correct protein we design for
- Proteins made by our mRNA medicines are functional in humans

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Our Mission

To deliver on the promise of mRNA science to create a new generation of transformative medicines for patients.